DRAFT DEVELOPMENT PLAN SHIMLA PLANNING AREA

2041





Town and Country Planning Department Govt. of Himachal Pradesh

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Consultant MaRS Planning & Engineering Services Pvt. Ltd. Ahmedabad



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Abbreviations	
AGR	Annual Growth Rate
BPL	Below Poverty Line
CAGR	Compounded Annual Growth Rate
CERC	Consultancy Evaluation and Review Committee
CMP	Comprehensive Mobility Plan
СРСВ	Central Pollution Control Board
CPHEEO	Central Public Health and Environmental Engineering Organization
CT	Census Town
DCR	Development Control Regulations
DGR	Decadal Growth Rate
DP	Development Plan
DPR	Detailed Project Report
ECS	Equivalent Car Space
ELU	Existing Land Use
Fol	Expression of Interest
FWS	Economically Weaker Sections
FAR	Floor Area Ratio
FBC	Form Based Codes
FDI	Foreign Direct Investment
FSI	Floor Space Index
GDDP	Gross District Domestic Product
GDP	Gross Domestic Product
GHG	Greenbouse Gas
GIS	Geographic Information Systems
GOHP	Government of Himachal Pradesh
Gol	Government of India
GSDP	Gross State Domestic Product
ha	Hectare
ни	House Hold
	Hazards Risk and Vulnerability Analysis
	Interim Development Plan
	Institute of Town Planners India
	Light Commercial Vehicle
	Light Commercial Venicle
	Leadership in Energy and Environmental Design
	Litros por Capita Day
LF CD MC	Municipal Corporation
	Million Litres per Day
MOFE	Ministry of Environment and Forests
MoM	Minutes of Meeting
MT	Metric Toppes
	National Building Code
NGT	National Green Tribunal
	Net Domestic Product
NH	National Highway
NHAI	National Highways Authority of India
NRSC	National Remote Sensing Centre
°C	National Activity Sensing Centre
ΡΔ	Planning Area
	Dassenger Carllnit
	rassenger car unit Drimany Health Contro
	Prenesed Land Lise
FLU	Proposed Land Use





pph	Persons Per Hectare
PPP	Public Private Partnership
RCC	Reinforced Cement Concrete
RERA	Real Estate Regulatory Authority
RFP	Request for Proposal
RoW	Right of Way
SA	Special Area
SADA	Special Area Development Authority
SH	State Highway
SMC	Shimla Municipal Corporation
SME	Small and Medium Enterprise
SSI	Small Scale Industries
STP	Sewage Treatment Plant
SWM	Solid Waste Management
TDS	Total Dissolved Solids
ToD	Transit Oriented Development
ToR	Terms of Reference
TDS	Town Development Scheme
TPS	Town Planning Scheme
ТСРО	Town and Country Planning Organisation
UDD	Urban Development Department
URDPFI	Urban & Regional Development Plans Formulation & Implementation Guidelines
ULB	Urban Local Body
WFPR	Work Force Participation Rate
WoP	Without Parking
WP	With Parking
WTP	Water Treatment Plant

Chapter 1 INTRODUCTION



CHAPTER -1 INTRODUCTION

1.1 Context

Perceived and established by the British during colonial period in the first half of 19th century as their Summer Capital, Shimla acquired global fame by the time British left in 1947. Located at a commanding site in the interior Himalayas, connected by road, rail and air, it has emerged a preferred destination for the tourists from all over the world. Known as the 'Queen of Hill Stations', it has become a multifunctional city along with dominance of tourism, administrative and institutional activities. Over the years Shimla City has become -congested and crowded and requires meticulous approach to harness its tourism potential, on one hand and to rehabilitate the spill-over functions suitably with public participation, on the other.

Figure 1-1: Shimla City



Developed with a lot of taste by the British, Shimla has retained its old world charm due to conservation/renovation of various heritage buildings like the Gaiety Theatre, Railway Board building, Garton Castle, Vice Regal Lodge etc. To preserve its unique identity, the Municipal Area has been divided into Green, Core and Non-Core areas. Building restrictions are in force in the core and green area. This has enabled the conservation of rich green cover, which makes Shimla an attractive destination.

Shimla with its salubrious climate, mountainous topography and enchanting landscape is a major centre of attraction for national and international tourists. Acting as a primate city of the State, it possesses about ¼th of total urban population of Himachal Pradesh. It is the largest hill top city of its own type in the Himalayan region.



1.2 Project background

Development of Shimla has been guided and regulated by the statutory Interim Development Plan (IDP) notified in 1979 for horizon year 2001, under the provisions of the Himachal Pradesh Town and Country Planning Act, 1977 and the Himachal Pradesh Town and Country Planning Rules 1978(Now Rules, 2014). However, over the past two decades from 2001 till date, the provisions of Interim Development Plan (1979-2001) are in force with various amendments carried from time to time. Over last four decades, Shimla has continued to develop and expand rapidly to accommodate everincreasing residents as well as floating population, but mostly in unregulated and un-planned manner.

Therefore, considering the eternal wait of over 40 years, there is an urgent need of Development Plan for Shimla in order to revive the growth regulators with the vision for a well-regulated and planned Shimla and its peri-urban areas, best capturing the urbanisation trend and aspiration of the city and its fringes. Shimla also has a fragile ecosystem and natural environment that require a lot more care and proper planning for sustainable development. Thus, this Development Plan is prepared considering its potentials of tourist destination, vibrant environment, natural ecosystem and its capacity to accommodate future resident as well as floating population by the year 2041.

This Development Plan has been prepared under AMRUT Sub-Scheme of Govt. of India by the Town and Country Planning Department, Himachal Pradesh. GIS-based Development Plan Formulation for Shimla Planning Area comprises of Shimla Municipal Corporation and its surrounding areas including Kufri, Shoghi and Ghanahatti Special Areas and Additional villages, under the provisions of the Himachal Pradesh Town and Country Planning Act, 1977. The National Remote Sensing Centre, Hyderabad, has provided the GIS base map for Development Plan, which is the nodal agency for providing high-resolution Satellite imagery and GIS data-base under AMRUT Sub-Scheme.

The development plan is prepared considering AMRUT objectives:

- i. To Ensure that every household has access to a tap with assured supply of water and a sewerage connection;
- ii. To Increase the amenity value of cities by developing greenery and well maintained open spaces (e.g. parks);
- iii. To reduce pollution by switching to public transport or constructing facilities for nonmotorized transport (e.g. walking and cycling). One purpose of the Mission is to improve governance through a set of Reforms. During the Mission period, 11 Reforms will be implemented, of which Preparation of Development Plan using GIS is one of the most important reforms.

The objective of the GIS-based Development Plan is to formulate a statutory document with a set of strategic guidelines to validate systematic planned development in the planning area, which is sustainable, eco-friendly and conducive of economic growth. The DP attempts to meet the emerging challenges of urban infrastructure and focuses on efficient land-use planning, environmental conservation, regeneration, improving the quality of life by creating resilient and efficient infrastructural systems with sufficient provision of amenities and other community services while upholding the social, community and cultural considerations. It also ensures protection & restoration of the city's historic architectural heritage & natural assets. The proposed DP will be structurally in tune with the physiography of the development area in order to contain human vulnerability in the event of natural disasters. The entire physical proposals of the development plan will be prepared on a GIS platform for ease of storage, accuracy, retrieval, analysis, manipulation and updation over time.



As per the scope of the project, there were six stages/ deliverables in the project given as below:

- 1. Inception Report
- 2. Spatial Attribute collection and vetting of Base map
- 3. Data Analysis Report
- 4. Projected Requirements, Issues and Potentials
- 5. Draft Development Plan
- 6. Development Plan

1.3 Previous Development Plan formulation Interventions

1.3.1 Interim Development Plan, 1979

First formal and statutory Interim Development Plan (IDP) in Himachal Pradesh, in accordance with provisions of the Himachal Pradesh Town and Country Planning Act, 1977 and Rules, 1978 there under was notified for Shimla Planning Area in 1979. The proposals of IDP were envisaged for year 2001. Subsequently, in order to implement the Development Plan, Shimla Development Authority (SDA) was constituted, which during latter half of 1980s and first half of 1990s developed and built New Shimla Township, implemented a housing complex under IDSMT near Vikasnagar, constructed an office complex at Kasumpti and Ashwani lift water supply scheme. A National Highway bye pass was also constructed by the National Highway Authority. Instead of going in for the creation of serviced land for potential buyers of plots, the SDA concentrated on building construction activities, which resulted in haphazard development. Though SDA was upgraded in 1995 as Himachal Nagar Vikas Pradhikaran (HNVP), which too confined to building construction activities only in Shimla and a few other towns. Ultimately during year 2000, finding no difference in the Development Authority and Housing Board, the same was amalgamated into Housing Board. In the absence of concrete action for creation of serviced land on one hand, and vital community provisions including arterial road network on the other, the implementation of Development Plan could not be carried to the logical conclusions.





The individuals generally purchased raw land with zig-zag 'Khasra' Numbers at different lcoations from the landlords without provision of requisite basic services infrastructure. The Section 16-C of the HPTCP Act, 1977 provides for approval of sub-divisions of land by the Director TCP. Though the Registrars were restrained to register the sale deeds without proper sub-divisions of land and development yet they continued to register the same, leading to unplanned development in the suburbs around Shimla city. During the course of last four decades, 34 amendments were carried out in IDP Shimla pertaining to additional regulations, Floor Area Ratio, number of storeys and heritage



imperatives. The ban on construction activities was imposed thrice. Most of the planning and development activities of Central area of Shimla were brought under the control of State Government being in heritage and sensitive zone.

1.3.2 Draft Development Plan, 2004-2005 (Not Finalised)

Keeping in view the vast expansion of Shimla due to rapid urbanisation during the last two decades, the Department continued to make sincere efforts to accomplish the task of finalization the Draft Development Plan. Also, Public Awareness Campaigns were conducted under a Norwegian Agency for Development (NORAD) Project by the TCP Department and accordingly, the department had worked out a model for future development of Shimla. The Draft Developmen Plan was based on the physical survey and broad existing land use map of years 2002 and on the basis of findings of socio-economic, traffic and transportation and infrastructural surveys and studies. Thus, in order to prepare a technically viable document, acceptable to the masses, about 32 deliberations and seminars including a national seminar with the public, grass-root functionaries, stakeholders, public representatives and Non-Governmental Organizations (NGOs) were organized. A brain storming deliberation was also held with the Municipal Corporation, Shimla on the proposed Development Plan. The Draft Development Plan was published for inviting public objections and suggestions vide notice dated 26.04.2004, which appeared in Rajpatra on 26.05.2004. In response to said notice, 93 objections / suggestions were received, out of which 57 objections were related to the Green Belt. In order to elicit broad involvement of social pressure groups, 19 interactive sessions were convened, which were chaired by professionals, various authorities, environmentalists and heritage experts. After incorporating necessary changes with respect to decisions on all the objections/ suggestions, the Draft Development Plan was finalized and submitted to the Government vide letter No. HIM/TP/PJT/DP-Shimla/ 2005-Vol.IX/1451-52 dated 13.05.2005. However, the Draft Development could not be finalised and notified by the State Govt.

1.3.3 Draft Development Plan, 2012 (Not Finalised)

Though the provisions of Interim Development Plan envisaged for 2001 are still continuing fully, a revised Draft Development Plan was again devised for horizon year 2021, in order to orient it in accordance with changing requirements and aspirations of people of Shimla. The updated Draft Development Plan was published for inviting public objections/suggestions vide Notice dated 22.12.2011. After hearing the objections/suggestions and incorporating the decisions taken thereon, the Draft Development Plan was again sent to the Govt. vide letter dated 13.2.2012. The same was placed before the Cabinet wherein it was decided that the Environment Impact Assessment of Shimla Planning Area be got done to take a decision regarding allowing construction in Green belts. The Environment Impact Assessment was got done by the Department through the Department of Environment, Science and Technology wherein it was concluded not to open the 17 pockets of Green belts for any type of construction.

1.4 Development Plan 2041

The Town and Country Planning Department, Himachal Pradesh under the AMRUT Sub-Scheme of Govt. of India have prepared this Draft Development Plan (2041). Thus, the spade work done in preprataion of Draft Developemnt Plans in past by the Department has enormously helped in present exercise udner AMRUT Sub-Scheme. Various recommendations, as emanated from various stakeholnder deliberations forms the basis for working out proposals of the Draft Development Plan for 2041. The plans and proposals of various departments and local authorities have been duly incorporated and future land requirements worked out accordingly which form an integral part of this Draft Development Plan. This Plan envisages for massive implementation through "Land Pooling and Reconstitution" mechanism along with restricted land acquisition for projects of Govt. priority. It



emphasizes upon massive public-private participation by involvement of Development Authorities, Municipal Corporation, Panchayats, Revenue Department and services infrastructural departments.

1.5 Methodology for the Preparation of Development Plan, 2041

As mentioned earlier, Development plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. It includes analysis, recommendations, and proposals for a site's population, economy, housing, transportation, community facilities, and land use. It is based on public input, surveys, planning initiatives, existing development, physical characteristics, and social and economic conditions. Therefore, preparation of DP is done in a phasewise manner, which has been elaborated in following stages:

STEP 1	Review of the existing planning framework / Inception Report	• Comprehensive assessment of the existing situation and identification of the general trends of socio-economic development
STEP 2	Preparation of Base Map, assessment of existing master plan implementation and Existing Situation Analysis	 Updation of GIS data-base under AMRUT Sub- Scheme Collection & analysis of all approved lay out plans, Compilation of all available spatial and attribute data
STEP 3	Identification of issues and Demand Supply Gap assessment	 Inclusion of suggestions of various stakeholders including civil society, elected representatives, academicians, government and non-governmental organizations
STEP 4	Vision planning & Conceptual Development Plan	 Development Vision for planning area stating Vision Statement, targets and Strategies to achieve goals Evolve 2-3 alternative scenarios for spatial growth Demographic projection and estimation of future demand
STEP 5	Strategy Formulation	 Formulate the final spatial strategy and the resultant preliminary land use plan Develop guidelines on density, infrastructure and service level norms. Transportation Plan-structure plan Social Infrastructure including health, education.
		 recreation, sports, etc. Solid waste and wastewater treatment facilities Regional Setting
STEP 6	Master plan including detailed zoning regulations & urban design guidelines and framework	 Perspective Plan Master Plan Development Plans Zoning Regulations Urban Design Guidelines and Framework

Figure 1-3: Methodology for preparation of Development Plan 2041



1.6 Project Monitoring and Review

The Consultant's work has been monitored and reviewed by the Consultancy Evaluation and Review Committee (CERC) under the Chairmanship of the Director, TCP (as a requisite in RFP document). The other members of the CERC are State Town Planner Member, Commissioner, Municipal Corporation, Shimla Member, Town & Country Planner, Shimla Member, Chief Planner, TCPO/MoUD or his representative Member and Town & Country Planner (HQ). Throughout the DP preparation process, consultant has presented the work before the CERC, for its approval. Subsequently, all comments and suggestions in the form of feedback, provided by CERC members have been incorporated in the report.

1.7 Stakeholder/Public Consulations

Stakeholder Consultation has been conducted at all the stages as envisaged in RFP of tender document. At each and every stage, public participation was ensured through meetings wherein the agenda of the meeting was conveyed in advance and the activities being undertaken were discussed in detail during each meeting. The main purpose of the Stakeholder Consultation Meetings and Workshops was to get the brief understanding about the Shimla from the local people and prima facie understand the issues that the people of Shimla are facing and to get a holistic idea of socio-economic profile of the region. The other main objective of the public meetings were to make the representatives (including various departments and elective members) aware about the process of the preparation of the Development Plan and the timelines related to its implementation along with gathering their valuable suggestions.

Figure 1-4: Consultation meetings with representative of the Ghanahati, Shoghi, Kufri Special Area and MC Shimla Council Members



During the finalisation of proposals and the Draft Development Plan, the consultation meetings with the public representative of the Ghanahati Special Area, Shoghi Special Area, Kufri Special Area and MC Shimla Council members, were held under the Chairmanship of the Town and Country Planner, Divisional Town Planning Office, Shimla on 07.09.2021, 11.09.2021, 14.09.2021 and 09.11.2021 respectively to discuss the preparation of GIS-based Development Plan for Shimla Planning Area under AMRUT sub-scheme.

Figure 1-5: Meeting with Hon'ble UD, TCP & Housing Minister





In addition, 2 meetings with all line Departments were also conducted on 13.07.2021 & 15.07.2021, which included the line department being represented in the Implementation Committee(IC) as well as Supervisory Committee (SC) constituted as per directions of Hon'ble NGT. Simultaneously, there were various discussions/ meetings with Pr. Secretary, (TCP) at various stages during the preparation of Development Plan. Also, consultation meetings under the Chairmanship of Hon'ble UD, TCP & Housing Minister, HP, were held on 09.08.2021 and 17.01.2022. The feedback and suggestions were also taken from the experts, departments, public representatives. The suggestions received from Public Representatives and line departments also associated in Implementation Committee constituted by NGT have been duly considered and incorporated in the Development Plan, depending upon the scope of project.

1.8 Report Structure

This report is based on analyses of various secondary data and Primary surveys and Guidelines. The report comprises of detailed description and analysis of sectoral issues, potentials along with projections of population, housing & slum, physical infrastructure, social infrastructure, Recreational, Tourism, Traffic & transportation, Existing / Proposed Land use distribution and Building Byelaws. The Report is framed under the following sequential manner:

- **Chapter-1: Introduction:** This chapter covers introduction, project background and the profile of the planning area including its location and regional setting as well as details of the planning area along with its urban and rural components.
- **Chapter-2:** Shimla Planning Area Profile: This chapter covers the profile of Shimla Planning Area, including the details of Notified Area, Historical significance and how physically city has grown over the last century.
- **Chapter-3:** Vision and Development Strategy: The chapter begins with the SWOT Analysis, in order to understand the planning area in a better way, which includes the strengths, weakness, opportunities and threats of Shimla Planning Area. Followed by which the document will provide us the orientation for setting up the vision and aim for the Development Plan for Shimla 2041.
- **Chapter-4: Demographic Profile:** It highlights the detailed demographic profile of the Shimla Planning Area like rural urban population composition, population growth trends. Along with the existing trends, population for the horizon year is projected.
- **Chapter-5: Economic Profile:** This chapter details out the economic base of the planning area. The existing and projected economic base, workforce, their occupational structure, commercial establishment, tourism, Agro processing, trading centre, IT park etc. are discussed.
- **Chapter-6: Traffic and Transportation:** This chapter includes traffic and transportation scenarios in the planning area. The issues identified from analysis of primary surveys are discussed and the potential areas/ strategies of developments are mentioned. Further, various integrated transportation proposals have been elaborated in the chapter for Shimla Planning Area.
- **Chapter-7: Physical Infrastructure:** This chapter deals with physical infrastructure facilities like water supply system, sewerage & sanitation, solid waste management and power supply. The issues & problems in different infrastructure, the requirement and the proposals for horizon year 2041 are discussed.
- **Chapter-8: Social Infrastructure:** This chapter highlights the existing Social infrastructure facilities available in the planning area. The chapter elaborates the education facility, health and



other facilities. As per the planning principles, the requirement for the horizon year is calculated and presented.

- **Chapter-9:** Housing and Slums: This chapter focuses on the housing scenario, housing characteristics, and available facilities & infrastructure along with the slum and urban poor in the city. The chapter also discusses the housing shortages and need in Shimla Planning Area for the horizon year 2041.
- **Chapter-10: Tourism Profile** This chapter highlights the status of tourism activities, issues and strategies & proposals for the Shimla Planning.
- **Chapter-11: Heritage Profile** This chapter covers the rich heritage of Shimla Planning Area, including all Heritage Building, areas, tis significance. Followed by which strategies and proposals have been suggested in the later section.
- **Chapter-12: Environment:** The chapter discusses the existing status of the physical environment, ecology, status of natural hazards & vulnerability of the planning area. Followed by which, the chapters covers the NGT Directives, its carrying capacity report and its implications in Shimla Planning Area. Subsequently, in this chapter, the role of Building Bye-laws and Planned Development in the growth and planning of Shimla Town have been specified.
- **Chapter-13: Existing Land Use & Land Suitability Analysis:** This chapter focuses This chapter gives an understanding of the processes of preparation of base map and existing land map of the planning area. Further, it focuses on the issues in the existing land uses within the planning area. Also, existing situations are analysed to find out the direction of future growth and proposed land use is estimated.
- **Chapter-14: Proposed Land Use:** This chapter provides broad proposed landuse for the promotion of planned development with details of different landuses provided based on URDPFI Guidelines requirements.
- **Chapter-15: Development Plan Implementation:** Various tools and financial mechanisms identified for Urban Development and their financing and revenue generation have been detailed out in this chapter.
- **Chapter-16: Development Plan Phasing:** Development to be proposed for 2041 for Shimla Planning Area, has been detailed out in phase-wise manner and costing of the same projects has been listed out in this chapter.
- **Chapter-17: General Regulations and Building Byelaws:** for the successful implementation of proposed zoning, building byelaws and guidelines have been elaborated in this chapter.

Chapter 2 SHIMLA PLANNING AREA PROFILE

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CHAPTER -2 SHIMLA PLANNING AREA PROFILE

2.1 Introduction

Shimla, prior to its development as a hill station was described as an "obscure village". The village was named 'Shimla' after the temple of Goddess Shyamala located in the village. Another legend is that 'Shimla' or 'Simla' is named as is pronounced by the hill people. According to Mr. W.H. Carrey the original village of Shimla was situated on the ground lying to the east of present secretariat buildings, above the road leading to the Ripon hospital, and immediately below the Roman Catholic chapel, S. Michael's school, and the Court house. Popularly known as 'Jewel of the orient' and 'Queen of Hill Stations' Shimla has to mainted its past glory in terms of its unique heritage and environmental quality. Shimla is well known as summer capital of the British era with its highly varied natural ecosystem. The population of Shimla is around 2.41 lakh as per census 2011. In the event of growth in population due to capital city and administartive head guarter of the State, and the resulting need to ease traffic chaos, regulate construction activities and provide services infrastructure to the residents, a perspective strategy has been chalked out to uphold the original character of Shimla, on one hand and to make it technologically a viable and competitive modern city. This Development Plan, therefore, paves a way for a healthy, wealthy and vibrant Shimla, attracting tourists from all over the world, a city that takes care of its citizens and accommodates those who intend to settle in it as well as in its environs.

2.2 Shimla Planning Area- Area of Interest (AOI)

In order to ensure planned and regulated growth of Shimla Planning Area, Government of Himachal Pradesh extended the Himachal Pradesh Town and Country Planning Act, 1977 vide Notification No. 9-12/72-PW (B) dated 24.3.1977. Subsequently, the Planning Area was constituted vide Notification No. 9-12/72/PW (B) dated 30.11.1977. Existing landuse of Planning Area was frozen vide notice dated 14.3.1978, whereby change of landuse became mandatory requirement. Subsequently, the Interim Development Plan of Planning Area was devised and notified vide Notification No. TCP-FS(6)-54/94 dated 2.8.1979. Thereafter, 127 revenue villages and 421 part revenue villages were excluded from Shimla Planning Area, in view of demand of people thereof vide Notification No. TCP-F (6)-54/94 dated 2.8.1995.

Name of Area/Entity	Area (in ha.)	Population (Census 2011)
Municipal Corporation, Shimla (AMRUT City)	2,207	1,69,578
Ghanahatti Special Area	1,647	10,601
Kufri Special Area	3,173	12,505
Shoghi Special Area	2,923	12,755
Additional Shimla Planning Area	12,500	33,928
Jutogh Cantonment Area ¹	141	2062
Total	22,450	2,41,429

Table 2-1: Settlements falling within Planning Area

(Source: Official Rajpatra Notification and Census 2011)

¹ Jutogh Cantonment Area is not a part of Shimla Planning area, as per the notification. However, Cantonment Area, because of being surrounded by Planning boundary from all sides, has been mentioned separately in land-use statement and population estimates as well.



However, subsequently, vide Notification No. TCP-F(5)-4/2000, dated 11.08.2000 Kufri Special Area and Shoghi Special Area have been constituted by designating some parts of Shimla Planning Area as special areas. Thus, 33 revenue villages were included in Kufri Special Area and 49 revenue villages in Shoghi Special Area. Thereafter, vide Notification No. TCP-F(5)-13/2001 dated 2.3.2002, 14 more revenue villages were included in Kufri Special Area. Further Additional Shimla Planning Area notified vide Notification No. TCP-F (5)-1/2006 dated 12.1.2007. Now a total area of 22,450 hectares is taken into account for formulation of Development Plan, which includes, Municipal Corporation Shimla, Special Area Development Authorities of Kufri, Shoghi, Ghanahatti and villages of Additional Shimla Planning Area.

The entire planning area comprises of a total of 375 villages (divided amongst the three SADA's and the additional Shimla Planning Area) in addition to Shimla MC and Jutogh Cantonment Area (141 Ha), which adjoins the western boundary of Shimla MC. The distribution of these villages has been briefly demonstrated in shown below and the detail lists of notified villages has been listed in **Annexure- A**.

Area	Villages (Whole)	Villages(Partly)	Total Villages
Kufri Special Area	30	17	47
Shoghi Special Area	31	18	49
Ghanahatti Special Area	31	05	36
Additional Planning Area	213	30	243
Total Villages		375	

Table 2-2: Village Distribut	ion
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(Source: Census of India, 2011 and TCP, Shimla)

The outer boundaries of foregoing area taken for integrated perspective Development Plan are as under:-

- North: Starting from Marahwag (76), Ghandal (85), Jhundla (82), Gharog (92), Padech (63), chaser (60), JungaJ chaser Pratham (4/60), JungaJ Ichaser Dwetiya (4/60), Bharoi (4/61), Shadog (5/68), Nalayal (5/73), Dhanyal (5/69), Tai and Giri (5/71), Bhoong (3/30), Mania (3/29), Neri (3/35), Krand (28), Nawag (18), Kavi (20), Tood (21), Shahal (25), Pavabo(24), Kamiyana (22), Mathav (320), Barmu (333), Jungle Badfar- Ba {340}, Saruila Baruila (341), Dhani (345), Dhanain (344), Shildu Sapoli (311), Patengali (310), Kolu Jubbar (309), Chanavat (308), Dhagog (305), Jungle Dhagog (304), Jotlu (303), Bhatia (302), Jungle Bharog Sheel (298), Shaiser (291), Sheinal (290}, Neri (281), Durgapur (134), Naldehra (279), Jungle Naldehra (278), Baldeyan (293), Jungal Mashobra (315), Mashobra (246), Mashobra Bazar {246 A}, Seepur (245), Jungle Mool Koti (238), Purani Koti (234), Kunee (232), Kufri Koti (229), Kufri Junga (228), Jungal Kanger (45), Galu Kalan (320) and Fagu (241).
- East: Then following Fagu (241), Bani (371), Dehna (370), Kadarav (384), Jungal Teer Mahasu (2), Galu Kalan (320), Galu Khurd (199), Jungal Kanger (45), Kufri Koti (229), Jungle Charabra (241), Catchment Area (242), Badah (350), Chadadyal (352), Mewag (353), Chamayana (372), Malyana (376), Ganoti (377), Jungle Ganoti (380), Jalf (383), Gosan (1 17) and Kawalag Majhar (118)
- South: Then following Kawalag Majhar (118), Pujarli 116, Kawara 115, Patiud (98), Banadi (123), Bharor (124), Mahori (96), Shoghi (95), Gawahi (397), Pawad (393), Shadyal (399), Shungal (398) and Dihari (424)



West: Then following Dibari (424), Katoh (276), Nal Ka Gaun (81), Gandrodi (79), Garn (75}, Bodhan (87), Sulani (88), Mashru (302), Tikkar (310), Kanoli (306), Shadhlyana (317), Shakret (323), Poabo (324), Balain (16/195), Banwi (16/196), Mawri (16/189), Barog 16/188, Kaner (185), Sharer (178), Roudi (142), Patta (140), Patshal Khurd (130), Gawahi Khurd (137), Rapra (134), Balogdi (73), Jhamreeh (Mohal Jhakdi Nichali 74), Jhakdi Nichali (74), Jhakdi Upperli (75) and up to Marahwag (76)

2.3 Location and Regional Connectivity

Shimla is located at an elevation of 2130 m above mean sea level on a ridge, it is the largest hilltop town of northern India. It is situated on the last Traverse spur of the Central Himalayas, at 31°40 north to 31°100 north latitude and 77°50 east to 77°150 east longitude. It is 87 kilometers from Kalka. Shimla Planning Area is spread over an area of 22,450 Hectares. It has a panoramic view and scenic beauty all around. The city is an unique combination of hills, spurs and valleys.



(Source: GSPA Map provided by TCP Department, GoHP)







The nearest International Airports from Shimla are Chandigarh Airport and Delhi Airport, roughly 115 km and 365 km respectively by road.

2.4 Historical Significance of Shimla

2.4.1 Pre Independence

Shimla has a very interesting history of its origin, gradual growth and development. Right from the beginning of 19th Century, the major events in history and evolution of Shimla can be traced as mentioned below:

- **1815** Shimla was taken from the Jhind Rana and given to the Patiala Raja for assistance rendered by him to the British in the Nepal War. Subsequently, it was used by the Raja for a sanatorium.
- 1816 It is said that the first person who brought Shimla to notice was a British officer, who, when
 moving Gurkha troops from Sabathu to Kotegarh, passed through Shimla and was impressed by
 its cool climate. It was a dense jungle infested with wild beasts.

⁽Source: Perception Study)



- 1817 It is however, claimed by Mr. A. Wilson in his 'Abode of Snow' that the hill on which Shimla
 is situated was first made known by Gerard brothers. These two Scotch officers were engaged in
 the survey of the Sutlej valley. Their diary, dated August 30, 1817 noted Shimla, a middling
 sized village where a fakir is situated and gives water to travelers. They encamped on the side of
 Jakhoo, and had a very extensive and beautiful view.
- **1819** Lt. Ross Assistant Political Agent in the Hill States built a cottage of wood and thatch. This was probably the first British House in Shimla.
- **1824** Invalids from the plains had been given permission to establish themselves in the locality on rent free sites provided by the Maharaja of Patiala and Rana of Keionthal.
- **1825** A political agent, Major Kennedy constructed a permanent house on a rent free site. It was named as Kennedy House.
- **1827** Lord Amherst, the then Governor General of India, after completing progress through North-West proceeded for the summer months to Shimla. This was the foundation of Shimla's Greatness.
- 1828 Lord Combermere with his staff and the whole establishment of Army Head Quarters came up to Shimla. During his stay, he superintended the construction of a bridge known as 'Combermere Bridge' and also a fine broad level road about three miles in length around Mt. Jakhoo. The movement of British Officers to Shimla in the summers became a regular phenomenon. This was perhaps the basic contributing factor to the evolution of "Shimla Village" into a proper town and its fame as a hill station. Another factor that enhanced the popularity of Shimla was its 'climate', which combined with every imaginable beauty of natural terrain, natural vegetation, springs and streams presented a very homely atmosphere to the British.
- 1831 Shimla had about sixty permanent houses and a bazaar. Communication between these
 was secured by well-formed narrow but quite safe communication routes. Following the
 example of British Officers, native chief also started visiting Shimla in the summers. Despite of
 the difficulties of traveling to the top, the British used to visit Shimla every summer season like a
 flock of the faithful, to escape the scorching heat of the plains and to smoothen their home sick
 feelings and were considered "wise to surround themselves as far as they can with an English
 atmosphere".
- **1844** The number of houses in Shimla had risen to 100 as compared to 60 residences reported in 1831. Rapid growth led to necessity of providing amenities and services.
- 1851 Some of the social institutions through a central authority promoted the Municipal Committee at Shimla. The Committee was responsible for establishment of the Town Hall with a library, Gaiety Theatre, and Police Station. Municipal Market and Fire Brigade Services were also provided in subsequent years.
- **1864** Shimla was declared the Summer Capital of Indian Govt. In the following years, the older, narrower track from Kalka to Shimla was improved. A new road named Grand Hindustan-Tibet road, 58 miles in length, passing through Dharampur, Solan and Kiaree Ghat was built.
- 1871 The Punjab Govt. also decided to use Shimla as its summer capital.
- **1901** In order to meet the water requirements of the much-increased population of the town, the Municipal Committee installed powerful water pumps at Churat Nallah near Sanjauli, to lift up 200,000 gallons of water.

- **1902** Walker Hospital was opened. Prior to it there was only one medical institution, Ripon Hospital, built in 1885?
- **1903** The electrical lighting system was introduced in the town and the first place to benefit was the railway station.
- **1904** The Kalka-Shimla railway line was commissioned to make the town easily and comfortably accessible. Shimla by now had grown considerably, mainly extending along the entire length of ridge, the extreme ends of town were separated by a distance of six miles.
- **1913** To meet the increased demands of water supply, two steam pumping engines were installed at Churat Nallah, supplying 150,000 gallons of water daily. Chaba electricity generating station was also installed on the Sutlej, to supply electricity to the town (Heritage of Shimla).

Shimla city was planned and developed by the British in accordance with its ecological imperatives for living, work and play. Institutional, British residential and tourist use on the top, commercial establishments along the middle contour and Indian residential down below was the general pattern of development.

The community facilities like schools, hospitals, postal and other amenities were located amidst the said uses according to requirements. British bungalows were located on top of the ridges at commanding locations. British planned Shimla strictly in consonance with contours and levels of topography. All out-efforts were made to orient the plans in such a fashion so that maximum sun is brought even inside the building.

The British took utmost care of the natural scenery and did not prefer to raise any construction against the view, vision and vista. Rectangular buildings on various levels, specious environs thereof and accessibility by roads and pedestrian paths were the essential features of the layouts of those days.

2.4.2 Post –Independence Period

Nursed and popularized by the Govt., the elite, the traders and the tourists, the town continued to grow in importance and size and when India became independent in 1947, Shimla was one of the most important hill stations of the world. After the partition of India in 1947, many of the Punjab Govt. Offices from Lahore in Pakistan were shifted to Shimla. In 1966, with the re-organisation of territory into Punjab, Haryana and Himachal Pradesh, Shimla became the capital of Himachal Pradesh. Since then Shimla has flourished as capital of the State and has continued to be an important tourist resort of India and the world.

2.5 Shimla Municipal Corporation

Shimla Municipal Corporation, one of the oldest institutions in the country passed through many slings and arrows during the last one hundred and seventy one years of its existence. It was first constituted as Municipal Committee in December, 1851, under the provision of Act XXVI of 1850. Initially appointed Municipal Commissioners were Government officials and they failed to receive the favour of House proprietor. The first election was held on August 26, 1855, following the first meeting of the committee after its inception in 1854. The elected committee comprised of Deputy Commissioner, Medical officer, Senior Assistant Commissioner, an Executive Engineer and house proprietors. On July 31, 1871, the Shimla Municipal Committee was declared as Class I Municipality.

In 1874, it was brought Under the Punjab Municipal Act (IV of 1873) but there were grave objections to this constitution of the Committee. In 1884, with the introduction of the Punjab Municipal Act (XII of 1884), the town was divided into two wards- the Station and the Bazaar. The committee passed

through different reconstitution procedures till the Independence. After Independence there was demand from the public for extending franchise to the whole population.

Shimla was divided into fourteen single member wards and one double member ward. All the members were to be elected and the president was in turn to be elected by the members from amongst themselves. Elections in 1953 and 1960 were held on the basis of this system. In view of the substantial increase in population of the town, advisors to the Committee were appointed and subsequently membership was raised. As a result of reorganization of Punjab, Shimla became a part of Himachal Pradesh. In 1968 arrangements for holding elections were made and as a prelude the Government ordered the delimitation of wards of Municipal Committee into ten wards. In the meanwhile, the passing of the Himachal Pradesh (Development & Regulation) Act 1968, (Act No. 22 of 1969) converted the committee into Corporation w.e.f June 29, 1969. The committee thus witnessed its liquidation after a long history. With the passing of the Himachal Pradesh Municipal Corporation Act, 1994 (H.P. Municipal Corporation Act, 1994) Government revised the delimitation of wards into 21 and subsequently to 25 wards. The ward delimitation was done in accordance with rules prescribed as under the 6(2) provisions of Act. The number of wards in Shimla were again redelineated and increased to 34 in 2019.

2.6 Physical Development & Growth

The city is spread over seven hill spurs, namely, Jakhoo Hill, Elysium Hill, Museum Hill, Prospect Hill, Observatory Hill, Summer Hill and Potters Hill. These spurs are interconnected by roads. Thus, the development pattern in Shimla is governed by topographical constraints such as steep slopes, elongated hilly spurs, forest areas and zones of perpetual sunshades.





(Source: Spatial Mapping)

Figure 2-2: Urban Sprawl



(Source: Primary Survey, 2018)

The table shown below depicts the population growth of Shimla MC, which has increased from 13,960 in 1901 to 1,69,578 in 2011, thus putting enormous urbanisation pressure on the Core Area.





Chart 2-1: Population Growth of Shimla city

(Source: Census of India, 2011)

Shimla is growing beyond its seams by leaps and bounds. Ribbon development along the Highways and even along the minor roads emanating from the city is a common feature. A vast city scape is in the formation. Whereas, the already existing areas have got congested, the fringes and peri-urban areas, especially the prominent ridges like Sanjauli, Cemetery, Dhalli, Bhattakufar, Mehli, Kangnadhar, Khalini, Bharari etc. are acquiring considerable proportions of development.







The British strived to build Shimla as a unique town at a commanding location and gave it a distinct status of Summer Capital. There are many lessons to learn from its historical development in terms of meticulous planning and development in accordance with environmental and ecological imperatives, harmony of natural and built heritage. As Shimla is witnessing a spurt in construction activities, during last few decades, it has to be restored to its past glory by public participation and by building culture to preserve whatever is in consonance with nature and built heritage, on one hand and to strive to make it attractive to tourists, on the other.

Chapter 3 VISION AND DEVELOPMENT STRATEGY



CHAPTER- 3 VISION AND DEVELOPMENT STRATEGY

3.1 INTRODUCTION

A development plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. Therefore, a clear vision and goal for a development plan becomes very important as we embark on a journey to chart out the course of planned development of Shimla Planning Area. Shimla, popularly known for its cleanliness, natural environs, rich heritage, scenic beauty and a view of the beautiful Himalayas has to be saved from increasing pollution, environmental degradation and haphazard and unregualted urbanisation. In order to tackle the pressure on Shimla core, the developent has to be decentralised to the surrounding areas in form of a counter Magnet town and satellite towns along major highways at an appreciable distance from the existing Shimla Town. In addition this decentraised development has to be integrated with proposed transportation corridors and new form of public transportation system such as Ropeways. Moreover, a discipline in carrying out construction activities in accordance with physical, environmental and ecological imperatives is the foremost necessity. Besides, statutory duty, it is the moral responsibility of Development Authority, Municipal Corporation, Shimla, Environmentalists, Heritage lovers, Spatial Planners and all those who have respect to their premier hill station to protect it for tourists, safeguard its beauty and take remedial measures to pave way through regulatory control along with conservative surgery to restore its basic character and make it efficient, viable, healthy, wealthy and vibrant city, which may continue to attract tourists from all over the world and cater for basic requirements of common man.

3.2 SWOT Analysis

For the development plan, it is necessary to prepare a long-term vision of the Shimla Planning Area that considers the present strengths, opportunities, weakness and threats. Based on detailed analysis and site observations under each sector, strength weakness, opportunities and threats are prepared and discussed in the chapter.

3.2.1 Strengths

The major strength of Shimla Planning Area includes the following:

- Shimla is one of the most popular tourist destinations at national and international level.
- Shimla is well connected through road, rail and air with nearby urban centers.
- The city of Shimla is connected to the city of Kalka by one of the longest and World Heritage listed narrow gauge railway routes "Toy Train", the Kalka-Shimla Railway
- Higher in migration rate is observed especially due to the better educational and employment opportunities. Being a capital city, it offers better public amenities & better lifestyle to its residents. Pleasant atmosphere, favourable climate also attracts more migrants to the city.
- Being an educational hub, availability of higher educational amenities is more than sufficient in the region.
- Being a State Capital of Himachal Pradesh, availability of health amenities is more than sufficient in the region.
- 79% of the Shimla City's population is having piped water supply system.
- Usage of Non Motorized & Public Transportation is quiet high in the region.



The major weakness of Shimla Planning Area includes the following:

- Lack of Proper Junction Design results in traffic congestion & bottleneck situation.
- Insufficient Parking Provision has become a major issue in Shimla as people park their vehicles on road by encroaching the road space at critical locations.
- Lack of availability of road infrastructure such as Street Lights, Signage and marking brings poor Standard of living.
- Currently, water supply is more than sufficient in the region. But, old water supply network, inadequate water sources and leakage results in the water scarcity.
- Dependency upon the tank water is quite high especially in the tourist places.
- Inadequate facilities and out-dated technologies in water treatment plant leads to higher water losses in the area.
- Absence of Water metering system, water theft results in non-revenue water consumption.
- 50% of the HH's are not having sewerage network.
- Actual Treatment Capacity of Sewerage Treatment Plan is far below the full design capacity and most of the sample of effluent from the STPs fail to comply with the environmental standards.
- Private housing supply does not have the sufficient provision for the urban poor of the city.
- Area under recreational activities are considerably less as compared to the URDPFI Standards.
- Non availability of proper boundary delineation of the forest area creates a lot of issues especially to the private land owners as no development can be done on the forest land.
- Vehicular usage are the main reason of increasing air pollution especially along the roads.

3.2.3 Opportunities

The major opportunities include:

- Due to the terrain restrictions, there is no much scope of development of big industrial structures. But, there is a huge scope for development of small scale industries.
- Treated Sewerage might be useful for power generation in the near future.
- Projects under Smart City Mission will be helpful to redevelop the old bazaar areas and retrofit the heritage area.
- Smart Public Transport (such as Ropeway) & Tunnel Project under Smart City Mission will improve mobility network within the region.
- There is a huge potential to promote Eco Tourism Activities in the Shimla Planning Area.
- Bulk Water Supply from Sutlej River will be helpful to meet the growing water demand of the city.
- STP's those have become critical in terms of capacity and treatment process are being upgraded under AMRUT project.

3.2.4 Threats

The major threats include:

• Residential and Tourist density of most of the wards in core Shimla area are already high in comparison to URDPFI Norms



- Higher in migration rate puts a lot of burden on the existing infrastructure which leads to natural resource depletion.
- Higher pedestrian movement, absence of footpath may increase higher risk to accident.
- Lines Leakage in the Sewer leads to the ground water contamination.
- Inadequate O&M of the existing sewerage system results in clogged lines leads to water and air pollution
- In effective Solid Waste Management practice results in air pollution and water & Soil Contamination.
- The Storm water management system in Shimla reflects large non-compliance to CPHEEO Manual on Sewerage and Sewage Treatment with respect to several parameters which directly affects health of the citizens.
- Plenty of mistakes are observed in construction techniques which may results to the Destruction during natural disasters.
- Lack of availability of secure tenure for the slum dwellers results in unplanned and unsafe development on higher slopes as well as on the river bed.
- New Economic activities needs to identify for employment generation as maximum working population is depended upon the tourism related activities.
- Mixed use development, off street parking, narrow streets, and unpleasant visual quality of the Old Market Areas needs higher attention to control unplanned Development.
- High level of construction activates are damaging the natural settings as well as its scenic beauty of the region.
- Untreated disposal of waste water degrades the water quality of the region.
- Shimla and its surrounding region lie in seismic zone IV & V. Earthquake in this region will cause total collapse of poorly built structures and partial collapse of ordinary buildings.
- Due to its terrain, soil conditions and steep slopes, Shimla is also susceptible to landslides.
- The height restriction after the NGT Order results in more horizontal development creating more carbon footprints in the region.

The opportunities are to be converted into development strategies for Shimla Planning Area Phase-1, whereas the weaknesses are to be overcome. Threats needs to be handled by mitigation measures and strengths are to be enhanced.

3.3 Orientations for Development Plan of Shimla

For past few decades, the importance of Shimla's historical development, in terms of meticulous planning and development in accordance with environmental and ecological imperatives, harmony of natural and built heritage has lost it sheen. The city has witnessed unprecedented impact of urban ills, especially haphazard construction activity and congestion of its prime tourist locations. Thus, as part of this Development Plan exercise, the focus is on restoring its past glory through urban planning interventions in due consultation and public participation. The unplanned and indiscriminate development in the Core, Non-core, Green and rural areas in Shimla Planning Area has given rise to serious environmental and ecological concerns. Shimla was originally planned for a population of 25,000 people, while it accommodates more than 2, 40,000 people besides the floating population of tourists. As per experts, about 90% of the core city area has been built on slopes more than 60 degree, thus making these constructions against architectural and geological norms. These factors make Shimla highly susceptible to natural disasters. The area is also located in



severe earthquake zones IV & V. Seasonal landslides and uprooting of trees sometimes lead to deaths, extensive loss of property, and loss of livelihood, ruins roads and infrastructure.

The Interim Development Plan was prepared in the year 1979 by the Department of Town & Country Planning. But till date, 34 amendments have been carried out in IDP Shimla and a final Development Plan is yet to be materialised. Major issues emerging in Shimla Planning Area are related to:

- Protection of Eco -Sensitive Areas/ Natural features.
- Lack of effective implementation of Building Bye laws.
- Lack of Availability of Physical & Social Infrastructure.
- Resident & Floating Population densities above the URDPFI Norms, especially in the Core Area.
- Lack of specialised and dedicated Town Development Authority to carry out planned development.

Moreover, considering the fact that most of the physical thresholds and Carrying Capacity of Shimla (Core Area) have nearly been exhausted, the city is left with harsh yet beneficial option like carrying out conservative surgery in the congested and problematic areas. At the same time in order to decongest the city, planned interventions in peri-urban areas is the need of the hour. Thus, at least a Counter- Magnet City and smaller Satellite Townships at strategic locations by the year 2025 should be planned to transfer the urbanisation pressure from Core and congested areas towards the outskirts. These townships and can be planned in Vaknaghat on Shimla – Chandigarh Highway, Fagu on Shimla-Rampur Highway and Jathia Devi on Shimla-Airport Baddi Highway and Ghandal on Shimla-Bilaspur Highway, which area already experiencing development on account of their suitable location, availability of land and easy accessibility. Besides these planned interventions, all the urban and rural growth centres in Shimla region, particularly along the Highways are required to be strengthened, well planned and developed in terms of services and support infrastructure.

In order to safeguard Shimla- a city of dreams, a city which owes a great deal to the colonial history and a city which has a lot to teach the coming generations, planners, architects, engineers, heritage lovers and environmentalists, a visionary authority with adequate spatial planning know how which can revolve its resources and implement vital provisions by harnessing appreciation of land values is inevitably required to be in place for implementation of this development plan.

3.4 Vision for Shimla

The vision for the development of any place/region becomes very much important since it helps in visualization of where and how one wants the city to be in the coming years. It should be carefully carved out and should encompass the aspirations of its local people and various other stakeholders involved directly or indirectly in the development process. Considering this, the vision of Development Plan, Shimla 2041 encompasses 3 broad goals, shown as below:



Figure 3-1 : Vision for the project


3.5 Planning Principles

The Vision perceived is further enumerated in the following specific development objectives as following:

Table 3	-1: Develo	pment Ob	ojectives
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Goals	Objectives
Living environment through proper planning and design	 Reduce Pressure on the Core City Area The existing pattern of development of Shimla is insufficient to cater to the growing demand for residential, recreational, commercial and educational use for both residing and floating populations. Effective Implementation of Building Bye Laws Identification of newer areas for the future development Roads & Transportation- Strengthening the existing Road Network, Proposals of New Roads, Improvement in public Transportation system
Maintain its Character & Image	 Development of more footpaths Conservation of heritage buildings Introduction of Urban Design Guidelines Development of Pedestrian Public spaces Development of more open spaces- parks & Garden
Optimal Use of Resources	 Protection of eco – sensitive areas Development of Shimla as – tourism network Centre Encouragement to eco-tourism Diversify the New economy

The Development Plan for the Shimla Planning Area has evolved from a comprehensive understanding of the existing situation, land utilization pattern, land suitability & potential analysis, and population projections carried out for the area. The process so far has involved an exploration of several alternatives, for each of which, certain principles, laid down with a view to achieving the vision for the Shimla Planning Area, have been primary guiding factors.

While the conceptual studies may differ in their design, the approach and underlying concerns, as briefly stated above, are the same. Establishing coherence between ecological balance, residential developments, urban infrastructure, economic activities and provision of amenities within the Shimla Planning Area would be the key factor in the process of its future development. With ecological sustainability being a major design criterion, the Development Plan emphasizes the need for good quality of spaces for housing, education and health among the residents of the Shimla planning area along with the provision of adequate infrastructure and civic amenities.

3.6 Development of Concept Alternatives

Shimla is situated at a hilly terrain with an advantage of natural scenic view, it was developed a place to spend leisure time. However, as the development took over and the trend shifted towards the unplanned and haphazard concrete environment, leading to increased pressure on the area over time. Today both the existing infrastructure as well as the natural ecosystem is under pressure because of the increasing urbanization. In this scenario, few sustainable scenario as shown below could sustain the continuous growth.



Scenario-1 Business as usual	Scenario-2 Development in Pockets	Scenario-3 Development of Counter Magnet/Satellites
Notes the second s	P de la del	North Andrew Contraction of the second
First concept will be to allow the growth as usual, by encouraging the growth more in the form of ribbon development along the major corridors.	Second concept delves on identification of development pockets that are desirable & suitable with the potential of scenic views, sunlight and accessibility. This model could	The third scenario envisages development of Counter Magnet City to the existing city along with various developments. As in the previous concept it was
Along the major roads vacant developable land can be identified and can be demarcated for new development. Shimla shall have a ribbon development Pattern within and on the out skirts of the city area. However, the major challenge in this concept will be to provide all the basic infrastructure to these developments.	have been suitable, if the additional population was around 30,000-40,000. However, it is not suitable for Shimla, where the population is likely to be double by 2041. Once these pockets of most desirable land will be developed, there will be spill over development in peri-urban areas in a haphazard manner. Also, providing basic infrastructure in these pockets, would be a challenge	observed that the development only along the road and various pockets will face a major challenge in providing basic infrastructure facilities to the increasing population. In order to provide basic infrastructure to these areas, development in Counter Magnet City can be introduced in phased manner. Also facade control regulations are to be introduced as per as the heritage value of the area.

Chapter 4 DEMOGRAPHIC PROFILE

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CHAPTER- 4 DEMOGRAPHIC PROFILE

4.1 Introduction

The development of a particular city, town or a region depends upon natural, physical and socioeconomic factors. Among these factors, population assumes significance in determining the future pattern of progress and development. The Demographic profile of the Shimla Planning area has been created based on the information derived from secondary sources and the Census of India, 2011.

4.2 Existing Population and Growth Trends

The total population of the Shimla Planning Area in addition to the three Special Areas namely Kufri, Shoghi and Ghanahatti, the Additional Planning Area and Jutogh Cantonment Area is about 2,41,429 persons (as per Census of India, 2011). This constitutes 29.6% of the total population of the district Shimla which was 8,14,010 persons as per Census 2011. As per census of India, population of Shimla Municipal Corporation in 2011 was 1,69,578 of which male and female were 93,152 and 76,426 respectively.

	20	01	2	2011	
Settlement	Households	Population	Households	Population	Population Growth (In %)
M.C. Shimla	37,756	1,42,555	46,306	1,69,578	18.96
S.A Ghanahatti	2651	10,185	2,429	10,601	4.08
S.A Kufri	2,284	10,019	2,950	12,505	24.81
SA Shoghi	2,253	11,089	2,814	12,755	15.02
Additional Shimla Planning Area	5,427	29,151	6,850	33,928	-14.79
Jutogh Cantonment	-	-	394	2,062	16.39
Total	50,371	2,02,999	61,743	2,41,429	17.92

Table 4-1: Total Population and Number of Households in Shimla Planning Area 2001-2011.

(Source: Census of India, 2011)

The Population Growth rate of Shimla Planning Area including the newly added villages of Additional Panning Area in 2007, was 17.92% between 2001 to 2011, while the entire planning area demonstrated a growth rate between 15-25%, Ghanahatti Special Area had a growth rate of just 4.08%, the lowest of all. Further, the trend in Decadal Growth Rate of population for Shimla Planning Area is given in the table below. The decadal growth trend has been considered as per Census Population available for Planning Area existing prior the inclusion of Additional Planning Area in year 2007 i.e. Planning Area with area of 99.50 Sqkms only.

Table 4-2: Decadal Growth Rate

Year	No. of Persons (Excluding the additional villages) Decadal Variation		% Decadal Growth Rate	
1971	72,870			
1981	95,851	22,981	32%	
1991	1,29,827	33,976	35%	
2001	1,74,789	44,962	35%	
2011	2,05,439	30,650	18%	

(Source: Census of India, 2011)

However, the population growth rate of Shimla Planning Area (including MC Shimla, Kufri, Shoghi and Ghanahatti Special Areas) has been observed to have slowed down since the year 2001 as the growth rate has decreased to about 18% in 2011 from 35% in 2001.





Map 4-1: Decadal Growth Rate



As can be seen from the map above, the population growth rate has been higher in the areas, which are outside the MC Shimla and adjacent to National / State Highways and the arterial roads.

4.3 **Population Density**

As per Census of India, population density of MC Shimla in 2011 was 7684 persons per sq. km (~77 persons per hectare), which is a very high density for a hilly area. However, the densities in the Special Areas of Ghanahatti, Kufri and Shoghi are very low due to low level of urbanisation and its peri-urban and rural character. Thus, the overall density of the entire Shimla Planning Area is 1069 persons per sq. km. i.e. ~11 persons per hectare.

Table 4-3: Population Density in Shimla Planning Area

Area	Population Density (persons per sq. km, as per 2011 Census)
M.C. Shimla	7,684
S.A Ghanahatti	644
S.A Kufri	394
SA Shoghi	436
Jutogh Cantonment Area	1,462
Additional Shimla Planning Area	271
Average	1,069









4.4 Sex Ratio

The sex ratio of Shimla Planning Area is 843 females per 1000 males. Child sex ratio is 904 girls per 1000 boys. As per Census 2011 data, it is observed that certain villages in the Additional Shimla Planning Area and those in the three Special Areas have a sex-ratio higher than 1000 and at the same time there are villages with a sex-ratio between 0-600.

Table 4-4: Sex Ratio distribution in Shimla Planning Area							
Settlement	Male	Female	Sex Ratio				
M.C. Shimla	93152	76426	820				
S.A Ghanahatti	5778	4823	835				
S.A Kufri	6461	6044	935				
SA Shoghi	6624	6131	926				
Additional Shimla Planning Area	17555	16373	933				

(Source: Census of India, 2011)

Total





129570

109797

847





Map 4-3: Sex-Ratio in Shimla Planning Area

(Source: Census of India, 2011)

4.5 Literacy Rate

In India, literacy rate is counted only for those above 7 years of age. Children between the ages of 0-6 are exempted from this. As per Census 2011, the total literates in Shimla Planning Area are 2,02,168 of which 1,12,126 are males while 90,042 are females. Thus, the Average literacy rate of Shimla Planning Area is 84.46% of which male and female literacy rate is 86.54% and 82.01% respectively.

Table 4-5: Literacy Rate in Shimla Planning Area

Settlement	Total Literacy	Literacy in Males	Literacy in Females
M.C. Shimla	86%	87%	84%
S.A Ghanahatti	84%	87%	80%
S.A Kufri	81%	84%	78%
SA Shoghi	80%	84%	76%
Additional Shimla Planning Area	79%	84%	75%
Average	84%	87%	82%

(Source: Census of India, 2011)

Chart 4-2: Literacy Rate in Shimla Planning Area







Map 4-4: Literacy Rate in Shimla Planning Area

(Source: Census of India, 2011)

4.6 Workforce Participation

As per the Census 2011, the total workforce in Shimla Planning Area is 104,051 persons, which constitutes 43.5% of its total population. The workers comprise of 88,777 main workers & 15,274 marginal workers (i.e. those who did not work for at least 183 days in the preceding 12 months to the census survey). Sex differential in the total workforce is significant. Of the total 104,051 workers, 74,769 are males and 28,877 are females.

	Total Workers			
Settlement	Main Marginal		WFPR (%)	Non Workers
	Workers	Workers		
M.C. Shimla	62899	8100	41.9	98579
S.A Ghanahatti	3401	1201	43.4	5999
S.A Kufri	4832	523	42.8	7150
S.A Shoghi	4914	1392	49.4	6449
Jutogh Cantonment Area	1218	10	49.5	834
Additional Shimla Planning	12721	4059		17120
Area	12731	4050	43.5	1/135
Total	88777	15274	41.9	135316

(Source: Census of India, 2011)

This would mean that 57.7% of the total males and 26.3% of the total females are workers which is less than half the number of male workers. Main workers constitute 85.3% of the total workers. The remaining form the marginal workers. Out of the total main workers, female workers are only 23.5%,



while the remaining 76.5% are male workers. Interestingly, among the marginal workers, females (55.3%) outnumber the male (44.7%) workers.



(Source: Census of India, 2011)



Map 4-5: Workforce Participation in Shimla Planning Area





Map 4-6: Non Primary Main Workers in Shimla Planning Area

(Source: Census of India, 2011)





(Source: Census of India, 2011)

4.7 Issues and Problems

From the above analysis, it can be inferred that demographically, Shimla City has been experiencing increased population pressure. More and more people have been migrating to the capital city, for better job opportunities and also attracted by its favorable Climate and efficient infrastructure, including educational and medical services. This also attracts large groups of tourists throughout the year, primarily during summer. Thus, the city has to provide for an additional population which puts a burden on the existing infrastructure. This necessitates the renewal and expansion of existing



infrastructure facilities and an increased institutional capacity to be able to diminish the demand and supply gap.

4.8 **Population Projection**

Shimla being a capital town of Himachal Pradesh and one of the major tourist spot in India, including both residents population and floating population in population projection, becomes very important, in order to estimate the accurate demand for infrastructure in future. A population is usually broken down into two categories—the residents, who permanently stay in an area for a considerable amount of time and are part of the official population count, and the floating types, who are in the area but do not live there permanently and are not considered part of the official census count.

Moreover, the residing population of Shimla can be sub-classified into two groups, one who permanently resides in a city for a considerably long duration of time like ten to fifteen years, and the others are those, like hostel students and transferable government servants, who might live for two to three years in a given area, as per their requirements, but are replaced by an equal number of new population for the same purpose after their departure. Thus, at any given time the number of people under this category remains more or less the same. The floating population, on the other hand, of a city consists of two types. The first category is those who visit a place regularly but do not stay in that area permanently or long enough to be considered official, like any person working in a city for a short time job. The second type consists of visitors or guests who might live for a small span of time, but their time of stay and their next visit are not predictable, like tourists and seasonal visitors. In subsequent sections, we would project the population of both the categories

4.8.1 Resident Population

Resident Population of Shimla Planning Area has been projected through various projection methods, but because Shimla is a growing town and not a dying city **Optimal Growth Scenario** has been chosen as Final Population Projection. As per Optimistic Growth Scenario, considering 2.45% CAGR, population of Shimla Planning Area is likely to be around 4, 98,368 in horizon year 2041.

S No	Projection Method	Existing Population	Projected Population				
		2011	2021*	2031*	2041*		
Α	Arithmetic Method						
A-1	Conservative Growth Scenario	2,41,429	2,77,439	3,13,449	3,49,459		
A-2	Average Growth Scenario	2,41,429	2,81,478	3,21,526	3,61,575		
A-3	Optimistic Growth Scenario	2,41,429	2,85,516	3,29,603	3,73,690		
В	Geometric Method						
B-1	Conservative Growth Scenario	2,41,429	2,83,752	3,33,493	3,91,955		
B-2	Average Growth Scenario	2,41,429	2,95,341	3,61,292	4,41,970		
B-3	Optimistic Growth Scenario	2,41,429	3,07,404	3,91,408	4,98,368		
С	State Increase Method	2,41,429	3,01,270	3,75,942	4,69,124		
D	Incremental Increase Method	2,41,429	2,73,401	2,49,506	2,13,025		
E	Average Increase (average of A+B+C)	2,41,429	2,90,314	3,46,673	4,12,306		

Table 4-7: Population Projection – Residential Population



The table above presents the projected population of whole planning area adopted for the purpose of preparing the Development Plan for year 2041.





4.8.2 Floating Population

Shimla being one of the most popular tourist destinations in the country, it attracts domestic as well as foreign tourists alike. Also being a capital city, educational centre and health hub, Shimla attracts many other migrants and commuters. In order to project the requirements for infrastructure (physical and social), it is essential to project the floating population for the horizon year. Sustainable development requires that the capital city is developed keeping in view not only the residential population but also the floating population of tourist. The table below presents the daily floating population numbers reported by various sources.

Plan/ Documents	Area	1971	1981	1991	2001	2011	2021*	2031*	2041*
WAPCOS DPR	SPA	20,000	40,000	60,000	80,635	1,40,500			
Draft	SPA	23,459	30,000	40,000	56,000	76,000	1,00,000		
Development									
Plan									
Comprehensive	SPA				56,000	78,400			
Mobility Plan									
SMC Website	SMC				75,000				
Solid Waste	SMC					70,000	1,00,000	1,25,000	150000
Management									
Plan									
City Sanitation	SMC					16,711	16,711	16,711	
Plan									
Tourism Survey	Shimla					75,000			
for the State Of	District								
Himachal Pradesh									

Note: The size of Floating population from the referred reports varies from one document to the other.



Therefore, floating population was calculated from available statistics such as total tourist inflow and Number of beds available, keeping certain assumptions in consideration.

Calculation of Existing Floating Population:

- Total Number of Tourists in a day of a peak Season * 3 days (Average stay of a tourist in Shimla) = 49,697 (4.9 Lakh * 3 days / 30 days)
- Number of beds for Tourists in Shimla= 70,000 (3*24,000 (16000 Hotel Beds + 8000 Home stay bed) (Source: State Economy Survey 2017)

Hence, based on existing capacity of infrastructure, a floating population of 70,000 is considered for the base year 2011. Moreover, in coming future, improvement in air connectivity and proposed 4 lane, the floating population is likely to increase by 10-20% by 2031 and 2041. Therefore, the existing floating population, at 2% CAGR is projected to increase by 1,26,759 per day by year 2041.

4.8.3 Total Projected Population (Resident + Floating)

As discussed above, projected resident population for 2041 of the Shimla Planning Area is likely to be 4,98,368 based on Optimistic Scenario of the Geometric Method.

Year	Resident Population Floating Population		Total Population
	(2.45% CAGR)	(2% CAGR)	
2011	241,429	70,000	3,11,429
2021*	307,404	85,330	3,92,734
2031*	391,408	1,04,016	4,95,424
2041*	498,368	1,26,759	6,25,127

Table 4-9: Total Projected Population

(Source: Census 2011 and Projections)

For projecting floating population for the year 2041, 2% CAGR has been considered and thus by the year 2041 the floating population is 1, 26,759. Therefore, the total projected population for 2041 is 6,25,127.

Chapter 5

ECONOMIC PROFILE

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CHAPTER- 5 ECONOMIC PROFILE

5.1 Introduction

This chapter provides details related to existing Economic Profile, Workforce Distribution and Workforce Estimation in the Shimla Planning Area. The prevailing issues are identified and possible interventions that can be taken to improve the situation,

5.2 Existing Economic Profile

Shimla being a Capital of State is known for administration and commercial activities, apart from tourism and institutions. Shimla is the only major urban centre in Himachal Pradesh connected with rest of India both by rail and road. It is also well connected with rest of Himachal Pradesh. All these factors have made Shimla a goods collection and distribution centre. Relevance of Shimla as a

commercial centre is increasing with increase in population and urbanisation. As more and more people started pouring in, the needs and demands of the larger population of Shimla town attracted number of shopkeepers, big and small from almost all parts of India.

The economy of Shimla Planning area is largely driven by the government and tourism sector. Cultivators and Agricultural laborers, generally referred to as primary workers, are primarily distributed in the villages of the Additional Shimla Planning Area and the three Special Areas. Thus, people in these villages are observed to be primarily engaged in agriculture and allied activities. While on the other hand,



Chart 5-1: Main Workers Classification

those in and around the Shimla Municipal Corporation are primarily engaged in non-primary (secondary and tertiary) activities.

	Main Workers					
Settlement	Cultivators	Agricultural laborers	Household industries	Other	Total	
M.C. Shimla	854	388	1530	60127	62899	
S.A Ghanahatti	513	53	142	2693	3401	
S.A Kufri	1714	224	80	2814	4832	
S.A Shoghi	1778	98	195	2843	4914	
Additional Shimla						
Planning Area	5481	475	335	6440	12731	
Total	10340	1238	2282	74917	88777	

Table 5-1: Classification of Main Workers in Shimla Planning Area



As per Census 2011, total working population of Shimla Planning Area is around 88,777 (37% of the total population). Among them 11578 (13% of the total working population) engaged into the Primary Sector. 2282 (2% of the working population) engaged into the secondary sector and 74917 (85% of the working population) engaged into the tertiary sector.

Among the working population of the tertiary sector, around 50% is engaged into the government jobs, around 10% engaged into the direct hospitality sector and remaining 40% is engaged majorly into the tourism related activities.

5.2.1 Primary Activities

Farming and Horticulture are the main primary activities observed at a large scale in the villages in additional planning area as well as in Kufri, Ghanahati and Shoghi Special Areas because of the low rate of Urbanization in the region.

Figure 5-1: Primary Economic Activity in the Shimla Planning Area







Source: Census of India, 2011

The villages in the Additional Planning Area practice agriculture or related activities (primarily horticulture) at a large scale, compared to that of Municipal area, followed by Kufri and Shoghi Special Areas. This can be attributed to the low urbanization levels in these regions.

The below map illustrates that the higher percentage of main primary workers are residing in west part of the city in additional planning area. And the Municipal area has more population engaged in secondary activities.









5.2.2 Secondary Activities

Shimla town has majorly small scale and service industries. The major factors that had been limiting the industrialization are the inhospitable geographical features, inadequate and exorbitant cost of transport facilities and the absence of market in proximity. The region is also environmentally sensitive for industrialization. The city practically had no industrial growth till late 1960's.



Chart 5-3: Types of industries and units

Source: Draft Development Plan, 2014

However, the traditional small scale industries like wool spinning, weaving, basket making and metal work, that use the local resources are still lingering but in vain without attaining progress. Presently there are about 450 small scale and service industries operating in Shimla Planning area. These units are classified under the seven broad categories. About 2300 workers are employed in them. The city has great potential for the establishment of small-scale environment friendly industries. Locally available Raw material may be utilised and employment opportunities be generated so that



economic condition of local people is improved. The description of existing industries has been shown in the graph above.

The 450 small scale and service industries operating in Shimla Planning area are classified under the seven broad categories. About 2300 workers are employed in them. The city has great potential for the establishment of small-scale environment friendly industries. (Draft Development Plan, 2014)



Chart 5-4: Settlement wise comparison

5.2.3 Tertiary Activities

Being the administrative capital of the state of Himachal Pradesh, the Shimla city houses several central and state government offices. Government jobs account for almost half (47%) of the working population. Direct hospitality industry personnel such as tour guides, hotel and restaurant employees, etc. are few (10%).

Tourism is considered and accepted major growth driver for Himachal Pradesh and for Shimla. It has been engine for the growth of the economy of the state including Shimla. Tourism provides direct employment opportunity in hotel and guesthouses, bars and restaurants, guides, travel agents, photographers etc and also generates large indirect employment. The details of number of people working directly in the tourism industries are shown in Table below:

Profession	2001	2002	2003	2004	2005
People working in Hotel/ Guest House	2934	2973	3130	3192	3268
People working in Bars and Restaurants	246	249	276	298	348
Guides	218	223	235	246	270
Travel Agents	182	182	188	196	208
Photographers	212	212	220	226	257
Total	3792	3839	4049	4158	4351

Table 5-2: Employment in Tourism Industry

Source: MC Shimla, 2021

Moreover, individual crafts and small-scale industries, such as tourist souvenir production and horticultural produce processing, comprise most of the remainder. As maximum working population is dependent upon the tourist and its aligned activities, adaption to new economic activity is required (For example: Educational Hub, IT park, Bio Tech Park, Non polluting industries etc)



5.2.4 Pattern of Commercial Development

The development of commercial sector overtime has made the city hub of apex order multifarious economic activities. The regional level trade and commerce function combined with tourism have further strengthened the economic base of this hill city.

Against the norm of 1 shop per 200 persons, at present there is a shop for about 53 persons in Shimla Planning Area (TCP, 2014). Many shops are closed, as it has become a fashion to convert built floor space for commercial pursuits as well as construction of new shops to fulfill whims.

A. Shopping Complexes And Market Centres

Figure 5-2: Vegetable Distribution Center on National Highway-22 at Dhalli

The existing main shopping centres and complexes are concentrated in and around the Mall in localities namely, Middle Bazaar, Lower bazaar, Lakkar Bazaar and Chhota Shimla. Other newly developed commercial areas are in Kasumpti, New Shimla, Dhalli and Boileauganj. These centres are fulfilling basic needs of surrounding residential extensions.

B. Distribution Center

The Large Size Integrated Freight Complex Is located near Durga Pur and Vegetable Distribution Center is located in Dhalli- Bhatakufar.

C. Nature Of Shops

Shimla town is vibrating with trade and commercial activities. Most of the shops are retail, which account for 72%. However, 3% of shops are dealing in wholesale. 5% shops are seasonal. Service shops account for 13 %. Out of total commercial establishments in city, 7 % shops are of other kinds. The nature of shops is as under:-

Sr.No.	Types	% age of Shops
01	Retail	72.02
02	Wholesale	3.73
03	Seasonal	4.70
04	Services	12.74
05	Others	6.81
06	Total	100.00

Table 5-3: Nature of Shops

Source: Town & Country Planning Department Survey



D. Classification of Shops

There are vegetable, cloth, furniture, fruit jam and Jewellery shops. General merchandise shops are 71% and 29% are others shops as given below:

Table 5-4: Classification of Shops

Items Sold	% of Shops
General	71.20
Food	4.82
Vegetable	7.83
Cloths	4.21
Furniture	2.05
Chemist	2.77
Fruits	4.10
Jewellry	3.02
Total	100.00

Source: Town & Country Planning Department Survey

But the pattern of development in these areas are the major concerns that needs special attention through modification in the building regulations such as:

- 1. <u>Mixed Use Development:</u> Ground storey, having access from the street, employed as a commercial space whereas upper floors are used as a resident.
- 2. <u>Off Street parking</u>: Due to Lack of availability of the proper parking space in commercial areas, vehicles are parked along the roads.
- 3. <u>Unplanned and Chaotic Old Market Areas</u>: Inadequate pedestrian moment due to narrower streets and unplanned venders moment.
- 4. Most of the buildings are outage and unsafe is a threat to the people who residing in them. Hence, no activities for heritage conservation.
- 5. Lack of landscape adds to the unpleasant visual quality of the street.
- 6. Hardly any harmony is found in the facade element of the street
- 7. No proper sign boards
- 8. Lack of necessary amenities like; public toilets, dustbins, drinking water booths etc.
- 9. No availability of open spaces or natural beauty

5.3 Issues & Potentials

- i. Maximum working population is engaged in the tourism related activities. New Economic activities needs to identify for employment generation.
- ii. Shimla is the administrative capital of the state of Himachal Pradesh and hence there are many important departments and offices of the governing body in the city. The people working in these offices are the cogs and screws of the economy of Shimla.
- iii. Mixed use development, off street parking, narrow streets, and unpleasant visual quality of the Old Market Areas needs higher attention to control unplanned and Chaotic Development.
- iv. The commercial activities have come up here and there in every nook and corner of the city. It has been observed that more than 65% commercial establishments are located in Central Shimla. All out-efforts be made to decongest Shimla by shifting of wholesale, grain market, vegetable market, uncalled for non-conforming activities from the Central Shimla. Efforts may also be made to uphold the original character of central Shimla that was primarily developed by the British. Other few pockets including New Shimla, Kasumpti, Sanjauli, Chakker, Summer Hill, Totu, Longwood and Bharari have become crowded and are getting further congested. Therefore, non-conforming

activities including workshops, wholesale have to be shifted to the periphery of the city in the west to Activities Zone. The menace of ribbon development of shopping pursuits has to be tackled on priority.

v. Planned and regulated development of commercial pursuits along with their proper location and spatial manifestation including requisite provision of parking and walkways need no emphasis. Planned commercial centres, each covering four to five sectors have to be developed at Ghanahatti, Activities Zone and Jathia Devi, besides local shopping to cater for sectoral requirements. Satellite towns have to be developed to cope up with any more population and commercial activities inevitably required to be accommodated in the adjoining areas of Shimla.

5.4 Economic Strategy and Recommendations

5.4.1 Workforce Estimation

As per Census 2011, WFPR is around 37% in the Shimla Planning Area. Working Population engaged in the primary, secondary and tertiary activities are 13%, 2% and 85% respectively. Based on the observation of last 3 decades, some assumptions are made and those are:

- Proposed WFPR for the horizon year 2041 is around 40%
- Proposed Occupational Structure for the Horizon Year 2041 is around 11%, 8% and 81% respectively.

Year	2011	2021	2031	2041	
Population	234962	307404*	391408*	498368*	
WFPR	37%	38%*	39%*	40%*	
Total Working	88,777	1,16,813*	1,52,649*	1,99,347*	
Population					
Primary Workers	11578 (13%)	14018* (12%)	16792* (11%)	21928* (11%)	
Secondary	2282 (2%)	5840* (5%)	10685* (7%)	15948* (8%)	
Workers					
Tertiary Worker	74917 (85%)	96955* (83%)	125172 [*] (82%)	161471* (81%)	

Table 5-5: Workforce Estimation

* Proposed Population

5.4.2 Commercial Establishment

A five tiers system of Commercial Areas is envisaged to accommodate required shopping, commercial office and other service activities like cinema, hotel and restaurant and various community services and facilities in an integrated manner. In addition, some components of commercial use are also provided under mixed use, non-hierarchical commercial centers, and informal sector in the selected areas

Table 5-6: Land Area Requirement for Commercial Establishment

Category	Population Served per unit	Requirement based on population in 2041	Future Land requirement under commercial use (Ha)
City Centre	5,00,000	2	(40X2) = 80
Community Centre	1,00,000	7	(7X5) = 35
Local shopping including service Centre	15,000	42	(42X0.46) = 19.32
Convenience Shopping	5,000	125	(125X0.15) = 18.75



It has been observed that Shimla city is efficiently serving its local population, tourists as well as surrounding population. It is anticipated that number of commercial establishments is likely to be 153.07 Ha. by the year 2041 respectively. As per existing land-use, the area under commercial use is 100 ha, hence provision for remaining 53 hactare of land will be proposed in the zoning, mainly along the main roads.

5.4.3 TOURISM

Tourism has been driver for overall economy of the State. These would also be a consequent need to sustain and hence focus on entertainment and city beautification through development of entertainment/tourism zone, heritage precinct and parks/gardens. The strategies to sustain the tourism sector have been separately presented in Chapter- 10, Tourism in detail.

5.4.4 AGRI-PROCESSING AND TRADING CENTR

Shimla district in Himachal Pradesh is designated as Agro Economic Zone (AEZ) for Apples. Shimla being a major collection and distribution center for horticulture products, has potential for food processing and providing backward linkage in agri produce retailing chain. Looking towards the potential, major challenge lies in providing infrastructure for its sustainability. Integrated food parks with cold chains, ware houses, post harvest handling and grading, sorting, waxing, precooling, packaging center, processing units etc transport nagars, vegetable and fruit market would address the needs of the sector.

GoHP has entered into MoA with Government of India for development AEZs in 2002. GOHP has estimated an investment of Rs 57 Cr with about Rs 27.5 Cr to be contributed by GoI and GoHP and balance to be raised through private sector investments. So far, no investment has come through.

It is recommended that GoHP undertake development of food park in Shimla Planning Area on PPP leveraging the financial assistance available from GoI under the scheme. GoHP may initiate the development of Food Park through a Special Purpose Vehicle and later on induct the private sector partner through competitive bidding process at appropriate time. This would improve the marketability of project for private sector to walk-in and smooth transfer of project to implementing agency.

5.4.5 IT PARK

NASSCOM has projected Rs 20, 000 Crore IT potential for state by year 2009-10. GoHP has formulated the State IT Policy and is envisaging establishment of IT Park at Waknaghat in Shimla District. With extension of special industrial package to state upto 2010, the sector has potential to provide fillip to the economy of the region. It is recommended that the project should be taken up on the fast track for development in order to realize the potential.

Chapter 6



TRANSPORTATION

&



CHAPTER- 6 TRAFFIC & TRANSPORTATION

6.1 Introduction

The traffic characteristics of a city help in appreciating the spatial and temporal features of travel within the area, relationship of traffic intensity with network capacity and the prevailing level of service obtained on various corridors of the network in the Shimla Planning Area.

6.2 Existing Scenario

Assessment of traffic characteristics within a city is an essential pre-requisite to understand the problems with respect to traffic movement and to understand the need for organizing the same in an efficient and economical manner. The issues and potential of the planning area in transportation sector are detailed out along with the future proposals in this chapter.

6.2.1 Road Network

The primary survey for road network covered approximately 350 kms of the road network in Shimla Planning Area. Among them, about 13% of the road network has less than 5m Right of Way (RoW), 68% has RoW between 5 to 10 m while 19% has RoW between 10 to 15 m.



Map 6-1: Existing Road Network and Hierarchy in Shimla Planning Area



Category	Description	Characteristics	
1. Main Arterial Road	Cart Road or Circular Road or Motor Round Road , NH-5 and NH- 88	 The length of Cart road is 18 km On-street parking of vehicle on all sections of Cart road 	
2. Municipal roads	All the roads connecting to Cart Road are municipal roads and are maintained by Shimla Municipal Corporation	 The total length of roads for vehicle movement under the Municipal Corporation as per data available with the SMC is 74.6 Kms 	
3. Mall road	The road from Boileauganj to Scandal point and from Scandal point to Secretariat and from Scandal Point to Sanjauli Chowk	 The road along the Mall is for pedestrian movement and entry is restricted for vehicles except for vehicles with permits and emergency vehicles 	
4. Municipal pathways or staircases	Municipal paths are in form of blacktop streets along with stairs for pedestrian movement	 These paths or stairs are used for manual transportation of goods/payload s by porters The total length of walk paths under SMC is 73 Kms. 	

Table 6-1: Characteristics of Road Network in MC Shimla



Category	Description	Characteristics	
5. Lift	Connectivity between the Mall road and the Ridge with circular road	 The lift is the only mechanized transport system available for vertical mobility between Circular road and the Mall road. 	
6. Ropeway	Connectivity between Ridge to Jakhu Hill	 The Jakhu ropeway, a cable car, is a popular experience taken by tourists in Shimla as it provides breat htaking and an aerial view of Shimla. 	

6.2.2 Transportation & Accessibility

The analysis of transport and accessibility presented in this section focuses on mobility of the people of the town and location of their houses with respect to the work place, institutions/schools, or nearest bus stops or railway station. The location of housing in relation to other public facilities also affects overall energy use, lifestyles and personal costs for transportation.

Figure 6-1: Upgradation of roads



As depicted in figure ahead from the household survey analysis, approximately 89% of the dwelling in Shimla MC Area and more than 65% of dwellings in SADA areas of Ghanahatti, Shoghi and Kufri, have accessibility to Pucca roads, while rest of the respondent's household units have Kutcha roads in front of their houses.





Bottleneck situation is observed on some of the places in Shimla Municipal Corporation Area that obstruct the smooth flow of traffic at several locations. As per Existing Land Use Plan of Shimla Planning Area, around 4.81 sq.km area is under Traffic & Transportation which is around 19.99% of the total developed area (sufficient as per the URDPFI Norms).

(Source: Household, Primary Survey 2018)

6.2.3 Traffic Volume Count

Traffic volume studies are conducted to determine the number, movements, and classifications of roadway vehicles at a given location. These data can help identify critical flow time periods, determine the influence of large vehicles or pedestrians on vehicular traffic flow, or document traffic volume trends. Turning traffic volume count survey was carried out at 11 major intersections for 4-hour period (Peak 2 hours in Morning from 9:00 am to 11:00 am and peak 2 hours in evening from 5:00 pm to 7:00 pm) on a typical fair weather normal working day-



Map 6-2: Selected Junctions for Traffic & Pedestrian Counts

Based on Traffic Surveys, it was observed that at different locations in morning peak hour traffic volume varies from minimum of 1001 PCUs (Passenger Car Units) at Boileauganj Chowk to maximum of 3901 PCUs at Victory Tunnel Chowk. Similarly, the evening peak hour traffic volume varies from



minimum of 812 PCUs at Indira Gandhi Medical College Chowk to maximum of 4210 PCU's at Victory Tunnel Chowk.

Pedestrian volume surveys were conducted at all major intersections and mid-block locations to assess the pedestrian volume and flow across and along the intersections/mid-block for designing of pedestrian facilities. It was observed that the total pedestrian traffic at the major intersections varies from minimum of 257 at Victory Tunnel to maximum of 3086 at IGMC Chowk.



Chart 6-2: Traffic Volume Counts in Peak Hours in Shimla Planning Area

Source: Traffic Volume Count Survey, 2018

6.2.4 Mode of Transportation

Based on Household Survey findings, it can be concluded that 35% of the respondent depends upon the public transportation system and 23% reach their destination through walk. But there is very less footpath available within the city for the pedestrian movement in the region. Households depend upon the Private Vehicles are around 41% in the region.



Figure 6-2: Mode of Transportation

(Source: Household, Primary Survey 2018)



6.2.5 Public Transport

The newly developed ISBT is located at Tutikandi which has altogether 35 bays for entry and exit. At present, the old ISBT at Cart road is used as terminal for local bus service. On a normal working day, about 49,633 boarding and alighting were observed at these terminals.

Existing city bus service provided by Himachal Road

Figure 6-3: City bus

Transport Corporation (HRTC) and by private operators under HRTC permit is the only mode of public transport in Shimla Planning Area. At present HRTC it runs 45 buses in Shimla. Shimla Urban Transport Management Society, a society registered under Himachal Pradesh Societies Registration Act, 2006 runs 75 JnNURM buses on 98 routes. Private operators run 120 buses under HRTC permit within Shimla Planning Area. Department of Transport has established three bus depots for Shimla City one at



Tara Devi handling 82 buses and two other depots at Dhalli collectively handling 182 buses.

6.2.6 Non-Motorised Transport (NMT)

Pedestrian volume surveys were conducted at all major intersections and mid-block locations to assess the pedestrian volume and flow across and along the intersections/mid-block for designing of pedestrian facilities. It was observed that the total pedestrian traffic at the major intersections varies from minimum of 257 at Victory Tunnel to maximum of 3086 at IGMC Chowk.



Figure 6-4: Pedestrian Volume Counts in Peak Hours in Shimla Planning Area

(Source: Household, Primary Survey 2018)

6.2.7 Parking

Shimla city is experiencing increased use of private vehicles. Being a hill town, with natural constraint, together with shortage of off-street parking facilities, Shimla is facing acute parking problem. In order to quantify the severity of the problem, On-Street and Off-Street Parking Surveys have been carried out on major streets and the availability of parking facilities, both on and off street, have been recorded.







(Source: Primary Parking Survey, 2018)





On-street parking in Shimla can be seen all along the Cart Road and all other major arterial road and local roads throughout the SPA. The authorized on-street parking areas, area delineated by yellow color paint on the road.

Figure 6-6: On street Parking







6.3 Issues and Potentials

a. Road network Issues

As the roads of Shimla have less carriageway width due to limited scope of widening the road. The average speed of vehicle in the city during the peak hour is 10 km/hr. This results in congestion of vehicles on roads. There is very high traffic volume on the Victory tunnel and Kasumpti chowk. Also, there is high volume capacity ratio measured on Cart Road near Lift, Lakkar Bazar and IGMC. All these have a need of a bypass to divert the traffic from the high congested area.

b. Non Motorised Transport (NMT) Issues

There is lack of pedestrian infrastructure in the city and that has resulted in the mode share of pedestrian i.e., 23% which is less as compare to the other major cities of India. There is need to increase the number of roads with footpath with good quality and sufficient width of footpath.

c. Parking Issues

- 1. Most of the access roads in Shimla MC are Pucca Roads, with a good road density. However, most of the roads in Remaining Shimla Planning area, accept NH and SH are kutcha and in poor condition.
- 2. Most of people travel by public transport or by walk (i.e., 35% and 23%) transport to reach their destination of work / study.
- 3. Junctions like Old Bus Stand, Victory Tunnel, IGMC Chawk, Dhalli by-pass experience traffic congestions because of high traffic flow or bottleneck situations at turns/junctions/tunnels.
- 4. Because of insufficient provision of off-street parking, parking has become a major issue in Shimla and people park their vehicles on road by encroaching the road space at critical locations.

d. Public Transport Issues

Due to absence of dedicated lane for public transportation system, overloaded old buses find difficulties during the peak hours especially in the core city area. Most of the buses do not report on time. Also, there is lack of boarding alighting shelters for city bus in the city.

6.4 Transport Proposals

While developing the proposals and strategies for Traffic and transportation in Shimla Planning Area, the key proposals given in the CMP, 2012, Smart City Proposals and Action Plan for Mobility, prepared as per directions of the Hon'ble NGT have been taken into consideration. The proposals in Traffic and Transportation sector will include:

- 1. Proposed Road Network
- 2. Proposed Public Transport
- 3. Proposed Multi-Modal Hubs
- 4. Parking Proposals
- 5. Freight Mobility Improvement
- 6. Proposed Tunnels
- 7. Strategies for Pedestrian Movement
- 8. Junction Improvement



6.4.1 Road network Proposal

A. Bypass Roads:

Because of high congestion in the core city area, there is a need of a bypass which will work as mobility corridors for development of activity nodes. The proposed bypass road connects NH-5 to NH-205 passing through a newly proposed satellite town and further connects to education hub. The graphical representation of the proposed roads, has been shown in various parts of the Shimla Planning Area.

Figure 6-7: Proposed Bypass Road



Table 6-2: Proposed Road Network in Shimla Planning Area

	Proposed Road Name	Description
1) 2)	Road from Shoghi to Jathita devi (24 m RoW) Road from Jathiyadevi to Ghanahati (24 RoW)	These Road Corridors will serves as peripheral arterial road and will directly connect 4-Lane near Shoghi, to Jathiya devi, Airport, Ghanahati and Ghandal Area. The total length of this road is 21 kms.
3) 4)	Road From JubbarHatti Airport to Hiranagar Petrol Pump (18 m RoW) Road From Hiranagar Petrol Pump to road going towards Poabo (18 m RoW)	This road corridor will directly connect Jubbar Hatti, Hiranagar and Ghanahati market and further to Dhudhli-Poabo and will act is alternative entry-exit corridor in the Planning
		Area. The total length of these roads is 20.90 kms.



B. <u>Strengthening the existing road network:</u>

To connect the New Shimla and Khalini to the Shoghi Bypass and Taradevi Road there are two new roads proposed to strengthen the connectivity of New Shimla and Khalini Area to the major roads of city.





C. <u>Retrofitting of Circular Road:</u>

The main vehicular road of Shimla which has high demand of traffic need to be retrofitted for easing the movement of traffic. This proposal was under Smart City Mission for Smart Shimla.



Figure 6-9: Retrofitting of Circular of Road



Source – Smart City Shimla Proposals

6.4.2 Public Transport Proposal

The public transportation will have an extensive network of routes and options so as to reduce dependency on private transportation modes. In Shimla city where, people commute by walk or by using public transport, it is very essential to provide a good public transport for Shimla city. Moreover, new Public Transportation system (such as Ropeway etc.) shall be identified who runs on a dedicated path to reduce traffic congestion on the roads. The interfaces between different modes of transport must be well planned and integrated to increase the use of public transportation system (such as Multi Model Transit Hub which eventually integrate various public transportation modes at one location which eventually results in the reduce travel time.

6.4.3 City Bus Service

The existing bus service in Shimla, is being operated through Old ISBT, Lakkar Bazaar ISBT, Dhalli and New ISBT at Tutikandi. The Lakkar Bazaar ISBT being located at the one of the most congested part of the city, it is suggested to use it as local bus stand. In order to improve city bus service in Shimla, following infrastructure has been proposed:

1. Development of local bus stands at:

• Panthaghatti and Vikasnagar

2. Origin – Destination Terminal at:

- Ghanahatti, Shoghi and Fagu
- 3. Upgradation of Terminal cum Depot at Dhalli to modern ISBT located at Tutikandi
- 4. Improvement of exiting 65 bus stops cum rain shelters

5. Development of 65 new bus stops along proposed new city bus service routes on New proposed bypasses, Shoghi-Mehli by pass and 4 Lane with 1.5 to 2 kms spacing between the bus stops

Map 6-3: City Bus service





6.4.4 Ropeway

There is a need of a reliable alternative public transport, like Monorail, Ropeways etc. in Shimla, where roads are facing traffic issue already and there is not much potential for road widening on most of the major roads. Also at the time of snow fall, it becomes difficult for the bus system to operate with full efficiency. For solving major congestion issues of Shimla city, various tunnels are also required at strategic location which will decrease the intra city traffic through busy areas to a great extent.

The main constraints for development of public transportations in hilly areas are :

- Land resource for development of road/railway infrastructure is limited in hilly terrain.
- Land Holdings negligible with the private parties.
- Forest cover almost 2/3rd of total area.
- Congested towns with maximum built up area along roads.
- Surface expansion has reached threshold and further expansion is nearly impossible.

Hence, considering aforesaid constraints in hilly areas, ropeway proves to be the most feasible mode of public transportation. Ropeway project in Shimla, is already under pipeline, which is has been proposed by **Ropeways and Rapid Transport System Development Corporation H.P.LTD. (RTDC)**, Govt. of Himachal Pradesh. The alignment of Ropeway proposals, with Network and Stations have been integrated in the Draft Development Plan. Subsequently, the objective of developing the Ropeway in Shimla Planning Area is - *"To provide an ideal eco-friendly, tourism enhancing solution, which does not hinder the natural beauty of the state, besides providing a safe, quick, noise free and affordable mobility for everyone in the form of Ropeways, combined with Smart Parking, Walkways and Lifts."*

A. <u>Reasons to Choose Ropeways</u>

- 1. <u>Most Environmental Efficient:</u> Being powered by electricity, ropeways also have a lower environmental footprint and emit less CO2 than bus systems for an equivalent capacity. (7.5 x less per passenger)
- 2. Consistent, Predictable Travel Times & Continuous Transportation:
 - Aerial tramways are not affected by ground level traffic. The air transit route for the exclusive use of the cable guarantees consistent and regular travel times.
 - Passengers are transported continually –with no timetable and no waiting times
- 3. <u>Low Space Requirement</u>: Ropeway stations and towers take up little space and can blend harmoniously into the urban landscape. This results in Reduced level of resettlements. The infrastructure's ability to withstand in the little space ensures that it is ideal for congested cities and towns.
- 4. <u>Optimum System Capacity</u>: Ropeways have a capacity of Passenger Carrying Capacity of 10,000 Passengers/ Hour/ Direction. This makes it an ideal transportation solution for Medium Mobility Capacity Supply Cities like Shimla, Manali and Dharamshala.
- 5. <u>Ultra Safe:</u> After aircrafts, ropeways are the second most secure transport system. By changing the common base number from the number of carriage kilometers to the number of carriage the safety of ropeways is out of reach.
- 6. <u>Quick To Build</u>: Right after the order, ropeways can be constructed over a short period of time (12 to 24 months). This is mainly possible thanks to the use of a modular construction.



7. <u>Clearing Obstacles</u>: Being airborne, ropeways can overfly obstacles (rivers, roads, railways, etc) which enables it to enable connectivity without any hindrance to other land uses in the city.

B. The key considerations while proposing the ropeway are-

- i. Connections to the top and bottom stations of ropeways
- ii. Design of slopes and paths
- iii. Length and capacity of cabin
- iv. Optimization of pipeline routes
- v. Ropes and towers
- vi. Terminals
- vii. Evacuation and rescue systems

C. Proposed ROPEWAY Network in Shimla

As, suggested by RTDC, Govt. of Himachal Pradesh, the technology proposed for Shimla Ropeway would be MONOCABLE GONDOLA DETACHABLE (MDG), with Max Capacity would be 5500 PHPDT, having an Average Speed of 18 Km/ Hour.

Figure 6-10: Representative image of Ropeway



The whole project would be in 3 phases, the details of each phase has been described below:



Map 6-4: Phases of Ropeway development


PROPOSED SHIMLA ROPEWAY PROJECT (Phase-1)			
Network Length	30.80 Km		
Number of Lines	8		
No. of Stations	31		
Capital Cost (INR)	1232 Crore		

In phase 1, the total length of the ropeway network would be 30.80 km of 8 lines. Number of stations in phase 1 would be 31 and the capital cost 1232 cr.

Table 6-4: Details of Proposed Shimla Ropeway Project (Phase - 2)

PROPOSED SHIMLA ROPEWAY PROJECT (Phase-2)		
Network Length	19.14 Km	
Number of Lines	5	
No. of Stations	13	
Capital Cost (INR)	766 Crore	

In phase 2, the total length of the ropeway network would be 19.14 km of 5 lines. Number of stations in phase 2 would be 13 and the capital cost 766 cr.

Table 6-5: Details of Proposed Shimla R	Ropeway Project (Phase – 3)
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PROPOSED SHIMLA ROPEWAY PROJECT (Phase-3)		
Network Length	33.16 Km	
Number of Lines	5	
No. of Stations	6	
Capital Cost (INR)	1326 Crore	

In phase 3, the total length of the ropeway network would be 33.16 km of 5 lines. Number of stations in phase 3 would be 6 and the capital cost 1326 cr.

6.4.5 Integration of Multi Modal Hub with public transport

In Shimla, for the successful implementation of Ropeway, it is very important to integrate it with other transport modes, such as public bus stops, taxi stands or parking lots. In other wo24rds, for development of three tiers of public transport, it is imperative to develop adequate infrastructure. Considering the multimodal integration of following 3 types of public transport, there should be a complete and supportive public transport infrastructure.

- (A) Infrastructure for City Bus Service
- (B) Infrastructure for Ropeway
- (C) Infrastructure for Multi-modal Integration

A multimodal transport hub (MMTH) is a place where passengers transfer between different services or modes of public transport as a part of their journey. An MMTH zone is often a gateway to the public transport network, in that it represents the interface between the public transport services



and the surrounding area (or the 'urban context'). This includes connections by the most common mode of access, walking, but can also include provision for access by taxi or even the private car.

Importance of a Multimodal Transport Hub: A world-class multimodal transport hub, incorporating best practice, will help to meet the social, economic and environmental needs of a thriving and growing world city like Shimla including:

- Supporting the continued economic development of the city
- Minimizing the need to travel, by concentrating new jobs and homes around accessible locations
- Ease congestion and tackling climate change by promoting more sustainable modes
- ▶ To meet the increasing demand for travel by public transport
- Improving access to facilities and services in urban centres
- Providing links between neighbourhoods and employment, education and other opportunities
- Improving quality of life by saving time and improving the quality of travel
- Acting as a catalyst for socio-economic and physical regeneration in local communities
- Creating more attractive buildings and public spaces
- Removing barriers which prevent disabled people and others with reduced mobility from travelling freely
- Providing safer and more secure journeys

Map 6-5: Proposals for Multimodal hubs



To develop multi modal transit hub, following location have been identified, as shown in the map above.



(I) Multi- Modal Transit Hub - Old ISBT and 2)New ISBT



Multi-modal transit hub at New ISBT and Old ISBT will integrate the existing city bus service with proposed Metro cable and Medium Capacity Rapid Transit System (MCRTS).

(II) Major Transit Interchange Points

Major transit interchange points such as Shoghi, Taradevi bus stand, University point, Kusumpti, Chota Shimla will integrate more than one transport system. For example, at university point, Shoghi, Taradevi bus stand city bus service and Ropeway should be integrated. At locations such as Kusumpti, Chota Shimla, the public transport system such as proposed Ropeway and MCRTS should be integrated. These Multi Modal Transit Hub and major transit Interchange Points will have park and ride facility i.e development of private vehicle parking lots at these locations to support public transport. Developing parking lots at the transit locations will generate additional ridership.

6.4.6 Parking Proposal

Generally, in a tourist place and in a state capital (where daily commuters are high for availing the facilities related to education, medical, employment etc.), private vehicles spends more time in parking as compared to other cities.



Map 6-6: Proposed Multilevel Dedicated parking locations



Thus, due to this reason, suitable location have been identified for parking of vehicles in the immediate vicinity of the Hospitals, Offices, Institutes and tourism spots. Sites where developable area is less due to the terrain and green covers, Multi-Level car parking shall be the feasible option. In the core city there is gap of supply and demand of parking on Circular Road as well as on NH-205 and NH-5. So on 16 locations in the city the off street parking is proposed (as shown in the map above). The off street parking locations are-

1.	Taradevi	9.	DC office
2.	Ghanahatti Market	10.	New Shimla
3.	SDA Complex	11.	Panthaghati
4.	IGMC	12.	Vikasnagar
5.	Kufri	13.	Mehli
6.	HPU	14.	Tutu
7.	Naldehra	15.	Dhalli
8.	Chakkar	16.	Boileauganj

Also, in order to reduce on street parking in Shimla Planning Area, parking provision should be mandatory in the proposed development control regulation under each use.

6.4.7 Freight Mobility Improvement

Traditionally, movement of goods for local consumption and sale generally takes place from a certain location within a city which is closest to the wholesale markets. In other cases, where there have been successful planning interventions, the goods terminal is preferred to be located on the outskirts of the city, in order to prevent the entry of heavy vehicles in the congested parts of the city.







In Shimla, the wholesale market for grain, timber are located in the heart of the city areas of Lower bazaar and Lakkar bazaar etc. Existence of timber market at Lakkar bazaar creates traffic congestion during peak hours. From the analysis it was found that the shifting of non-conforming activities like timber market, wholesale grain market, wholesale vegetable market in the proposed activity will reduce 25% of freight related traffic form the congested core city areas like Lakkar bazaar.

Hence, as shown in the map above, it is suggested, relocation of non-conforming activities like timber market, transport hub, wholesale grain market, wholesale vegetable market in the peripheral areas to decongest the core areas.

6.4.8 Other Smart City Proposal- Tunnels & Escalators

Apart from the Dhalli Tunnel, Victory Tunnel & Auckland tunnel, based on Transportation analysis and study of CMP proposals and Smart city proposals; 4 more tunnels have been suggested in proposals for immediate future as mentioned below:

1) Tunnel No. I: From Tawi to Barrier measuring 700 m

The traffic destined towards Bilaspur takes the NH-205 which passes through Boileauganj Chowk having narrow Right of Way, the Boileauganj chowk is considered one of the most congested part of Shimla city. The existing Chakkar bypass is also unable to bypass the traffic from NH-5 to NH-205 due to right of way constraint. Thus, in order to smoothen the traffic from NH-5 to NH-205 and vice versa and also to decongest the Boileauganj chowk, a tunnel from Tawi to Barrier measuring 700 meters have been proposed.

Map 6-8: Proposed Tunnels



2) Tunnel No. 2: Lift to Lakkar Bazaar measuring 681.25 m

Lakkar bazaar area is one of the most congested area of Shimla, with the development of this tunnel connecting Lakkar bazaar with Lift will improve the chaotic traffic scenario along circular road particularly from Victory tunnel to Lakkar bazaar stretch.



3) Tunnel No. 3: Himfed Petrol Pump to IGMC measuring 890 m

Development of the tunnel connecting Himfed petrol pump with IGMC will improve the level of service of Cart road particularly from Himfed to Sanjauli chowk. This tunnel will lead to shift of 36% of traffic from Cart road to this new tunnel.

4) Tunnel No. 4: Parallel to Dhalli Tunnel measuring 190 m

At present staggered oneway traffic movement is allowed through Dhalli tunnel with one directional traffic at a time. With the rise in vehicular traffic, the existing Dhalli tunnel is experiencing heavy congestion which is apparent from the existing level of service of 1.05 and estimated level of service in 2041.

6.4.9 Pedestrian Movement

It was apparent from secondary data sources, that the Shimla city does not have adequate pedestrian infrastructure.

Primary data collected also shows the predominant mode of transport in Shimla is walk (42% of the total trips in Shimla are walk trips). However, only 16% of the total road network has footpaths. The existing footpath is also not continuous in nature. (CMP Report). Realising the need to improve pedestrian infrastructure specialy on main Circular Road and MC Roads, it has been to adopt suggested following strategies:



- i. Grade Separated pedestrian crossing facility at critical locations
- ii. Creation of Escalators, Lift, pathways for vertical mobility
- iii. Pedestrian friendly street furniture
- iv. Pedestrian friendly Transit facility

Grade Separated Pedestrian Crossing Facility:

- i. Chota Shimla
- ii. Bilaspur Chowk
- iii. Totu Chowk
- iv. Victory Tunnel Chowk
- v. Sanjauli Chowk
- vi. Dhalli Tunnel By Pass Chowk
- vii. KasumptiChowk
- viii. IGMC Chowk



- ix. University Chowk
- x. Lakkar bazaar

6.4.10 Junction Improvement

Junctions are the major sources for bottlenecks in the transportation network. As traffic increases on major roads, to improve safety and to provide orderly movement of vehicles, improvements of junction such as installation of traffic signals, geometric improvements etc. are necessary. **Map 6-9 Junction improvement**



Based on traffic volume and site observations and stakeholder consultation following are the list of junctions (also shown in the map above) for which requires junction improvement measures: **Table 6-6: Name of the Junctions**

1. Chota Shimla Chowk	2. Sanjauli Chowk
3. Boileauganj Junction	4. Dhalli Bypass - Tunnel chowk
5. Tatikhundi Junction	6. KasumptiJunction
7. Bilaspur Road Junction	8. Dhalli Bus Stand Chowk
9. Totu Chowk	10. IGMC Bypass Chowk
11. Khalini Chowk	12. University Junction
13. Victory Tunnel Chowk	14. Sanjauli Chowk

Improvement of these Junctions will involve:

- a) Signalization- Timing and Phasing
- b) Signage & Marking
- c) Geometric Design
- d) Installation of ITS
- e) Pedestrian facility



However, the junctions identified in this report needs to be further studied and analysed with detailed drawings and costing for implementation. Figures shown ahead, show the proposed intervention measures for Victory Tunnel, Tutikandi junction and at Talland respectively as a concept of junction improvement measures.







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PHYSICAL INFRASTRUCTURE

Chapter 7



CHAPTER- 7 PHYSICAL INFRASTRUCTURE

7.1 Introduction

Physical Infrastructure plays a significant role in proper functioning of any city. This chapter will help to understand the issues & potentials in the existing infrastructure profile of the city.

7.2 Water Supply

The provision of safe drinking water and basic sanitation contributes to sustainable improvements in peoples' lives regarding their health and education situation, the preconditions for productive employment is the most critical challenges for achieving sustainable development.

A detailed analysis has been done to study the service level of the present water supply scheme and requirement of the system to serve the future population by understanding the existing water supply system. The present gap and issues as well as the requirement for projected population have been explained in subsequent sections.

7.2.1 EXISTING SCENARIO





i. Water Sources:

The major sources of water supply in Shimla Planning Area are: Dhalli catchment area, ChuratNallah, Chair Nallah, GiriKhad, NautiKhad and Ashwani Khad.

SOURCE	CAPACITY (IN MLD)
Dhalli Catchment	1.80 MLD
Churat Nallah	4.80 MLD
Chair Nallah	2.50 MLD
Nauti Khad	19.75 MLD
Ashwani Khad	10.80 MLD
Giri Khad	20.00 MLD
Gumma	3.65 MLD
TOTAL	63.30 MLD

Table 7-1: Details of Water Sources

The total installed capacity of the various schemes of the Shimla water supply system is 63.30 MLD, however, over the period of times owing to the various factors such as competing demands from agriculture /horticulture and depletion of water in sources due to climate change, the availability of the water for Shimla city has gone down substantially, in the lean season availability of water from these sources is as low as 33 MLD.

These sources are situated in the different directions of planning area. Hill environs of Shimla adequately provide for constructing dams on all sides on the streams, which will on one hand cater for water

supply of the city and on the other will add to the attraction for tourists in Shimla.

ii. Water Supply Reservoirs:

Table 7-2: Details of Water Supply Reservoirs

Sr.no	Reservoirs	Capacity MLD
1	Carignano	3.00
2	Sanjauli	8.78
3	Ridge	4.63
4	Mansfeild	3.63
5	Mashobra	3.00
6	Seog	10.9
7	Kasumpti	2.00
8	Kasumpti	0.22
9	Vice Regal Lodge	0.23
10	Jakhu	0.32
11	Boileauganj	0.24
Total		36.95

Reservoirs are spatially distributed in and around the Municipal Area as well as Planning Area. Presently, there are 11 major reservoirs having storage capacity of 36.95 MLD.

Besides, 28 reservoirs having capacity of 5.8 MLD, water reservoirs are also available in different localities as per requirements of the various sectors. Existing reservoirs are as under:

Capacity of reservoirs has been installed in accordance with population size and commercial activities. 16 reservoirs have been proposed in order to ensure fulfillment of the demand of water supply for city residents, which are spatially distributed at various locations along the main reservoirs in Municipal Area, as well as Planning Area. 23 small and medium reservoirs are under construction at various strategic locations as per population size and commercial activities.

iii. Water Supply Network:

Municipal water is the major source of drinking water for urban areas in the Shimla District, with 96.7% households having access to tap water. Tap water, wells, hand pumps and tubewells are the



major source of drinking water for urban households in Shimla District. As per Census of India 2011 estimates, 96.7% of urban households in the Shimla district had access to tap water, which is 1.2% more than state level access of 95.5%. Tap water essentially refers to municipal water supplied by urban local bodies in urban areas². Hence, it can be said that municipal water is the major source of drinking water supply for urban areas in Shimla district, as well as for urban areas in the state.



Map 7-1: Water supply network Shimla

The piped water system at many places in Shimla is more than 100 years old which results in higher water losses. Also, any new connections are installed from the rider mains in parallel to existing connections. This practice is resulting in high frictional losses, pressure issues and water losses from service pipe due to leakage. In Shimla, current water demand is around 42 MLD. But, due to the water losses, daily water supply won't be feasible in Shimla Planning Area. In addition to piped water supply network, there are about 100 stand post that serves the population those who are not having the Household connections.

iv. Water Metering System:

Volume of Water supplied through public water supply system should be measured properly. It will be helpful to get a clear idea about the usage of water by any residential/ commercial buildings. Currently, only 74% connections are metered in Shimla Planning Area which results in unmeasured water consumption in few areas.

² which in case of Shimla city and surrounding urban areas under GSWSSC.



v. Water Treatment Plant:

Only two of the seven water sources are reliable. However, the intake structures and WTPs are not being utilized to 100% of its capacity. At present, Giri and Gumma are the most important sources in the Shimla water supply system. They not only contribute to 73% of the total water production but are also reliable sources. However, water from both these sources have been reported to have very high turbidity especially in rainy season. Although the Ashwani Khad source is not utilized, the water from Koti Brandi is treated at the Ashwani Khad WTP. Water from other sources is not considered reliable as the quantity decreases in the lean season. Capacity utilisation of Ashwani Khad is reduced as water is no longer sourced from Ashwani Khad. The water to Ashwani Khad WTP comes from Koti Brandi. Capacity utilisation of Churat and Chair intake structure low because of low water levels at the catchment area. However, the capacity utilisation has increased in the 2017-18 to about 75% of installed capacity. Water production at Gumma has reached it maximum capacity in recent years. Capacity utilisation of Giri WTP has also improved in recent years. Existing Water Treatment Plant Capacity of Shimla Planning Area is around 44 MLD (GSWSSC, March, 2018).

vi. Frequency of Water Supply & Other Water Sources

Water supply is around 1-2 hours, once in three days in the main city area, and lesser duration in the Peri-urban areas. Due to that reason, dependency on the Tanker Water is quite high especially in tourist places.



Chart 7-1: Frequency of Water Supply in Shimla Planning Area







A. ISSUES AND POTENTIALS

- Inadequate coverage: 21% of the municipal corporation is yet to be provided with network for water supply. In addition, pipeline crossing sewer, drains, roads having heavy traffic etc. should be appropriately mapped as they are potential hazard sources.
- Water metering: It is envisaged to implement 100% water metering on all consumer connections. At present only 74% connections are metered.
- System (Transmission and Distribution) Losses and Unaccounted for Water: Currently, the water supply is more than sufficient to meet the water demand in Shimla Planning Area. However, physical losses and unequal distribution appear to be the major reason for current supply of about 1.5 hours only every alternate day in Shimla Municipal Area. The non – revenue water is quiet high in Shimla Planning Area. Proper audit is required for getting the clear picture about the non – revenue water.
- Inadequate Treatment Facility and Outdated technology might be the reason of water losses in Shimla Planning Area. Short term measures has to be taken for its proper functioning,
- Adoption of Watershed management: Watershed management practices should be encouraged to improve water availability in the rivers and springs.
- Need for 24*7 Water Supply: interim and short-term plan should be made to meet growing demand due to increase in population and tourists.

B. FUTURE REQUIREMENT

i. Per Capita Water Supply Standards:

As per Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Water Supply & Treatments published in the year of 1999, per capita water supply standards is described in table given below:

Sr. No.	Classification of Town/ Cities	Recommended Water Supply (lpcd)
1	Towns provided with piped water but without sewerage system	70
2	Cities provided with piped water supply where sewerage systems is existing/contemplated	135
3	Metropolitan & Mega cities provided with piped water supply where sewerage system is existing/contemplated	150

Table 7-3: Per Capita Water Supply Standards

7.2.2 Water Demand Estimation:

The water demand calculated based on water requirements of a one person per day as per CPHEEO guidelines i.e. 135 lpcd. However, the requirement of a particular unit to be calculated separately as per the norms prescribed. The net water demand comprises consumption of domestic and non-domestic purposes. Nondomestic user includes consumption by Institutions (Colleges, School and Hospital), Commercial Establishment, Industries, Public Parks, Hotels, Tourist places etc. For non-domestic user also average demand of 135 lpcd is calculated. Gross water demand comprises network demand and physical and non-physical losses (assumed 15%). Being a tourist city, we also



need to calculate the water demand of the tourist population. Considering 40 lpcd for floating population, the final water demand of the region for the year 2041 is described below.

S. No.	Project Area	Resident Population	Floating Population	Total
1	Projected Population	4,98,368	1,26,795	6,25,163
2	Water Consumption (LPCD)	135	40	_
3	Projected Water Demand	6,72,79,680	50,71,800	7,23,51,480
4	Projected Water Demand- 2041* (MLD)	67.28	5.07	72.35
5	15% O&M Loss (MLD)	10.09	0.76	10.85
	Sub-Total	77.37	5.83	83.20
	2% Fire Fighting (MLD)	1.55	0.12	1.66
G	irand Total Water Demand (MLD)	78.92	5.95	84.87
	Available Water (MLD)	_		44.21
	Additional water Demand (MLD)	_		40.66

Table 7-4: Water Demand Estimation

The total population projected for the year 2041 is around 6, 25,163. Considering 135 lpcd for resident population & 40 lpcd for floating population, additional 40.66 MLD water will be required.

ii. Water Treatment Plant:

As per the projected water requirement, there is a need of 85 MLD till the horizon year. Current treatment capacity of 7 WTP's is around 44 MLD. So, additional requirement will be around 40 MLD. The total area required for the 40 MLD will be around 1.2 Hectare.

7.2.3 Proposals

Since May, 2018 after water crises, there has been an improvement in the water system, where 44 MLD of water is being supplied to the city, with on a daily basis. In addition, a new Chhaba scheme at Ghuma has been initiated, which has added the supply by 10 MLD.

Moreover, the project of carrying water from Satluj River to Shimla city has been initiated and as per the projections, after this project, there will be an additional supply of 42 MLD after 15 years and 67 MLD after 30 years. For the projected population in near future, the funds of 270 Cr for water distribution and 330 Cr for Bulk water production have been approved. It envisages gravitating additional water from upper reach of River Pabbar at a distance of about 180 kms from Shimla having altitude of 2800 metre and above, costing exorbitantly \$ 283.40 Million (2011 price level) to add additional 69 MLD. Augmentation cost per MLD works out to be \$4.11 Million.

In proposed project LSL at source is 600 m and Final discharge point RL at Sanjauli reservoir is around 2260. Hence there is huge static difference 1660 m in head. Also, quantity of water to be lifted is much more. Therefore, it is necessary to provide the pumping in stages. Accordingly, Pumping is proposed in following stages 1. Raw Water Stage – From Jack well to WTP 2. Pure Water Stage 1 – From WTP to Devidhar 3. Pure Water Stage 2 – From Devidhar to Dummi 4. Pure Water Stage 3 – From Dummi to Sanjauli.





Figure 7-2: Water Augmentation Project from Satluj River

Moreover, the existing water supply network of Shimla needs prioritization as there has been 40-50% water loss recorded over the past few years. The water supply pipes crossing sewer, drains and roads with heavy traffic shall be mapped in order to avoid hazardous situations .Also the water theft and ghost pipeline are to identify with the intention of saving the maximum portable water. However, watershed management practices should be encouraged to improve water availability in the rivers and springs. The anthropogenic activities viz., overgrazing, collection of wood as fuel, fodder, timber and expansions of orchards in the higher elevations must be stopped, which has led to the depletion of forests.

7.2.4 Other Recommendations for improved water supply

While developing strategy and identification of interventions so as to improve water supply system-, the key proposals provided in the Action Plan for water supply, submitted to Hon'ble NGT have been taken into consideration. Some of the key recommendations provided in the document have been mentioned below:



Chart 7-3: Recommendations for improved water supply



a) The water supply system for Shimla is unbundled system as

- i. Bulk Water Supply: Bulk Water Supply would comprise of abstraction of water from source, treatment and transmission to the bulk consumers
- ii. Local Supply: Local supply would comprise of distribution, supply of water to end consumer, billing and collection of revenue
- iii. A phased approach is to be implemented simultaneously to remove the operational efficiencies and meet the water demand. The Phase 1 shall provide short-term solution of augmenting water supply through realization of additional water through reduction in losses. The Phase 1 would involve improving the performance of existing system through rehabilitation and upgradation. The Phase II shall address the augmentation of water supply through exploration of new sources like river Pabbar to meet medium and long-term requirements.

b) Rehabilitation and Upgradation of main water distribution network of Shimla Planning Area

- i. Rehabilitation of entire water production, transmission and distribution system is warranted with an objective of reducing losses, improving water quality and pressure. It would also include enhancing coverage to slum areas, public standposts and conversion of unauthorized connections to authorized connections.
- ii. The incremental revenue generation due to efficiency gain can offset the revenue loss from merger of special areas and may be leveraged to raise the investment required for expansion and augmentation.

c) Augmentation of water supply distribution system for SADA Areas

i. Augmentation of water supply and distribution system is required for provision of water supply to newly merged areas of Dhalli, New Shimla and Tutu and special areas of Ghanahatti, Kufri, and Shoghi. This shall include provision of water storage system and laying of new distribution pipelines.

d) Rainwater Harvesting

i. In order to tackle the water scarcity problem of Shimla, the strategy should aim at conservation of water through rooftop rainwater harvesting and creation of water bodies/storage tanks at suitable locations along the hill slopes through construction of check dams. Roof top rainwater has been made mandatory in new buildings and hotel through local bylaws.

7.3 Sewerage and Sanitation System

Sewerage, the core element of physical infrastructure, determines the environmental status of any settlement. Development of appropriate sewerage system with efficient treatment acts as a prerequisite for facilitating balanced and harmonized development.

7.3.1 Existing Scenario

i. Sewerage System:

Sewerage systems is an integral part of physical planning. It is a crucial urban utility. Sewerage system for Shimla was originally designed for a population of 18000 persons in 1880. The same

system continued for approximately 100 years without any augmentation. Population has grown exponentially during this period. As a result, system has grossly become inadequate.

The city has 221 km of sewerage network providing connectivity to 71% of the households (WAPCOS 2013 and Census 2011). As per the city sanitation plan, 68% of the residential population is being served by sewerage network. While 29% of the population have septic tank, 3% of the population dispose their wastewater in open drains. The existing sewerage network caters to the needs of Central Shimla, Chhota Shimla, Brockhurst, Khalini, Nabha Estate, Phagli, TutiKandi, Chakkar, Boileauganj, Summer Hill, Annandale, Kaithu and Bharari. The sewer network grid is incomplete due to the missing connections between the hierarchies of sewers.





However, the network has many missing links. Although there is coverage of sewerage network in the entire city, only 20% of the water reaches sewerage treatment plants. Further, Totu ward does not have a coverage of sewerage network. The city has nearly 12300 sewerage connections. The eight sewerage zones are divided based on hydraulics and is catering to six existing STPs. The total length of network and treatment capacity is presented in the table below:

S. No.	Sewage Zones	Length (in km)	Existing treatment Capacity (MLD)	Proposed treatment Capacity
1	Lalpani	90.2	19.35	22
2	Summer Hill	22.1	3.93	4.5
3	North Disposal	56.1	5.80	7
4	Dhalli	14.5	0.76	

Table 7-5: Details of evictin	a coworago troatmont nl	ante
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5	Dhalli 2	9.8	-	1
6	Sanjauli- Malyana	29.1	4.44	6.5
7	Snowdon	17.9	1.35	2
8	Totu	28.5	-	3.5

(Source: Detailed project report for underground sewerage system for Shimla).

The sewerage network in the core city area collects only black water whereas the grey water is discharged directly into the adjacent open drains. MC Shimla lacks an adequate O&M system for sewer network which results in frequent leakages. Due to functional overlaps between Water Supply & Sewerage Department (WSSD), MC Shimla and Irrigation & Public Health (IPH) department, the accountability for provision of efficient services is not ensured.





Source: City Sanitation Plan for Shimla, 2011

ii. <u>Sewerage Treatment Plant:</u>

There are six STPs catering to the eight sewerage zones as presented earlier. Details of treatment capacity and technology of each STP is presented in the table below:

Name of STP	Installed capacity	Inflow	Technology and remarks
			UASB technology;
Lalpani	19.35	6.05	UASBR of capacity 13.5 MLD are not functional;
			two clarifiers not constructed
Summer Hill	3.93	0.143	Extended aeration

Table 7-6: Technologies used in various STP's



			No sludge management unit. Filter press removed and shifted to Sanjauli Malyana
North Disposal	5.80	1.52	Extended aeration
Dhalli	0.76	0.83	Extended aeration
Sanjauli Malyana	4.44	2.48	Extended aeration One aeration tank not constructed and another aeration tank is converted to sludge holding tank
Snowdon	1.35	0.3	Extended aeration

Source: Detailed project report on newly proposed STP for Shimla Municipal Corporation

Most of these STPs were constructed between 1999-2006 through an OPEC aid. While the installed capacity is high, the wastewater received by the STP is low due to missing links in the sewerage collection network. It is observed that these STPs only treat 10 - 12 MLD of waste water against a total treatment capacity of 36 MLD and only two out of six STP are operating at the design capacity.

7.3.2 Issues and Potentials

- Inadequate sewer network coverage across Shimla city and outskirts which results in lesser collection efficiency.
- Actual Treatment Capacity in Sewerage Treatment Plan is far below the full design capacity.
- As per the MoUD rating and categorization of cities based on Sanitation Practices, Shimla coming under RED category which shows unsatisfactory performance in regards discharged wastewater.
- There are some areas where sewer lines have been laid but still households are not connected to sewer lines. In some areas toilets may be connected to sewer lines but kitchen or bathroom wastes are not connected to sewerage system.
- Currently there exists no systematic and organized method to collect and treat waste from septic tanks. Septic tanks were cleaned when they start overflowing by manual means from some private agencies or labours. Generally, overflow from septic tanks is directly discharged into open drains, open fields and sewerage lines etc.
- O&M of the existing sewerage system is not adequate. The O&M of sewerage system is often done on ad-hoc basis as there is no routine maintenance system/schedule. Maintenance is usually done after breakdown. Cleaning of sewer lines is done when lines are clogged by manual means and there is no sewer jetting machines available. However, no mechanism for preventive maintenance exists at present.
- Leakages in the sewer network (nearly 25% of the existing network is choked and is needs to be replaced)
- The treated sewage is not reused or recycled at present and generally released in nallah/ rivulets. Treated water can be used for irrigation or industrial purpose. Unlike in some other cities, the option of power generation has also not been explored in Shimla. The planning for reusing the treated water is under consideration.

7.3.3 Future Requirement

As per the 'Handbook of Service Level Bench marking' published by Ministry of Urban Development, Government of India. Benchmarks for proper sewerage and sanitation facility in any city is described below:



Table 7-7: Service Level Benchmarking for Sewerage and Sanitation Facilities

Sr. No.	Description	Coverage (%)
1	Coverage of toilets	100
2	Coverage by sewage network services	100
3	Collection efficiency of sewerage network	100
4	Adequacy of sewage treatment capacity	100
5	Quality of sewage treatment	100
6	Extent of reuse and recycling of sewage	20
7	Cost recovery in sewage management	100
8	Efficiency in collection of sewage charges	90

1. Estimated Sewerage Generation:

Presently, total sewerage generation is around 12 MLD. For projected population, details of estimated sewerage generation is described in table given below.

Table	7-8:	Estimated	Sewerage	Generation
TUDIC	, 0.	Lotinated	Jeweinge	Generation

Project Area	Resident Population	Floating Population	Total
Projected Population	4,98,368	1,26,795	6,25,163
Projected Water Demand	67.28	5.07	72.35
Estimated Sewerage Generation (MLD) @80%	53.82	4.06	57.88

2. Sewerage Treatment Plant:

By 2041, sewerage generation will be around 57.88 MLD. Current Installed Capacity of STP's is around 36 MLD. So, STP will be needed for additional 21.88 MLD. Additional Land requirement will be around 4.38 Hectare.

7.3.4 Proposal & Recommendations

Shimla requires sewage treatment plants for treating around 57.88 MLD of sewage that is expected to be generated by the year 2041. However, it was found the existing STP's of Shimla are underutilized at present. Thus, these STP's need upgradation and maintenance over a regular interval of time. For monitoring the same technical guidance to be provided by the professional institutions. In addition, the location of the proposed STP's is shown in the map below and have been incorporated in DP proposals. However, it should be noted that this location only resembles the landuse for now and will be detailed out later after final discussion with authority.

The city of Shimla is expanded uncontrolled and there are significant number of houses and other constructions beyond the municipal limits. Some of these areas are deprived of sewage collection facilities, which may have adverse impacts on water bodies/streams. The proposed plans suggest provision of sewage collection and treatment in these areas as well, however the same must be implemented adhering to the scheduled and specifications. The DPR for extension and improvement of sewerage network is being prepared for which detailed survey of the sewer network has been completed. 25 kms of new pipelines have laid and the collection of sewage at STP's has increased by about 50%.





Figure 7-5: Sewerage Disposal Mechanism

Source: City Sanitation Plan for Shimla, 2011

Some of the strategy and identification of interventions that could also be taken up so as to improve sewage system-

Recommendation 1: Sewage & Storm water management

• SMC to engage professional agency for technical guidance on site specific technological solutions for improving efficacy of sewage management & treatment.

Recommendation 2: Water availability & Storm Water Drainage & Collection

- The storm water drainage coverage should be enhanced to capture entire storm water by laying storm water drains in the remaining adjoining areas.
- Storm water may be used for agriculture purpose, while adequately treated storm water could be used for different purposes.

Recommendation 3: Construction activity v/s water & sewage infrastructure

- Construction activities would put pressure on the existing urban infrastructure by demanding more water supply & increase in wastewater generation.
- The major concern is un–authorized unplanned constructions, for which even sewage collection system is not in place.

<u>Recommendation 4:</u> Sewage collection from areas beyond MC limits and those not easily accessible

• The proposed plans suggest provision of sewage collection and treatment in these areas as well, however the same must be implemented adhering to the scheduled and specifications.



7.4 Solid Waste Management

Shimla Being a tourist place and eco sensitive area, solid waste management has to be one of the priority activities for the State as well as Local Government. All steps of Generation, Collection, Storage, Transportation, Treatment, Processing and Disposal have to be scientific and environmentally sustainable.

7.4.1 Existing Scenario

1. Solid Waste Generation:

As per Shimla Municipal Corporation's present status the daily waste generation in Shimla city is approximately 86.01 MT. This depicts that waste generation per capita per day is 350 gm/capita/day.

2. Solid Waste Collection:

The collection of the waste through door to door collection and community bins is approximately 70-75 MT (collection efficiency – 87.20%). But, it is observed that no segregation is performed at source level by the workers. Also, Ignorance of Safety measures by the workers during the waste management is a critical point in terms of health of the workers. As per Household Survey results, waste collection frequency into Shimla Municipal Corporation limit is considerably good in comparison to remaining area. Around 50% Household is covered with daily waste collection facility and only 10% Household's are not covered with the waste collection facility.



Chart 7-4: Solid Waste Collection Efficiency in Shimla Planning Area

3. <u>Waste Treatment:</u>

MC Shimla established its first scientific waste processing and treatment unit with Norwegian assistance in 2001 at the Darni-ka-Bagicha at foothill of the central Shimla which later created nuisance for the public and tourists. A new waste treatment and disposal facility was commissioned outside the municipal limit in June, 2012 based on a PPP (Public Private Partnership) model.

7.4.2 Issues and Potentials

- i. Implementation Mechanism is ineffective due to:
 - a. lack of availability of funds
 - b. No user category based charges
 - c. NGO's Profit based approach
 - d. Absence of Complaint Redressal System
 - e. Lack of Community partnership





- f. No legal obligation
- g. Inefficient recovery of user charges
- h. Inadequate pay to staff
- i. Inadequate human recourses
- ii. No Segregation at Source Level
- iii. Littering of Garbage by Tourist and Taxi Drivers on Hill Slopes
- iv. Ignorance of Safety Measures by the Workers
- v. Burning of Garbage by locally hired workers of commercial establishments/offices

7.4.3 Future Requirement

i. Solid Waste Generation Norms:

The following table indicates the waste generation per capita per day for estimation and forecast of waste generation for future for planning purpose.

Table 7-9: Solid Waste Generation Norms

Sr. No.	Category	Per Capita Generation Rate
1	Residential Population	400 gm./ capita/ day
2	Floating Population	300 gm./ capita/ day

ii. <u>Service level Benchmark:</u>

The Ministry of Urban Development has introduced Service Level Benchmarking (SLB) as one of the appropriate systems for information management, performance monitoring and benchmarking. This system is aimed at improving not only the service provision but also the delivery of services to the consumers. These are indicators to measure the stepwise performance in MSWM at ULB level. The table below shows the Current Status of MC Shimla as against the required benchmarks set under the criteria.

Table 7-10: Service level Benchmark for Solid Waste

Performance Indicator	Benchmarks	Current Level
Household level coverage of solid waste management	100%	84.8
services		
Efficiency of collection of municipal solid waste	100%	77.8%
Extent of segregation of municipal solid waste	100%	10%
Extent of municipal solid waste recovered	80%	15%
Extent of scientific disposal of municipal solid waste	100%	0%
Extent of cost recovery in solid waste management	100%	9.9%
services		
Efficiency in collection of solid waste management	90%	44.4%
charges		
Efficiency in redressal of customer complaints	80%	74.1%

iii. Estimation of Solid Waste Quantity:

Solid waste generation is estimated considering 400 gm. / capita/ day for residential population and 300 gm. / capita/ day for floating population. The details are described in table given below. For the population of 6, 25,163, estimated waste generation by 2041 is around 237 Metric Tonnes per day.



	Shimla Planning Area	Resident Population	Floating Population	Total
1	Projected Population	4,98,368	1,26,795	6,25,163
2	Estimated Solid Waste (in Grams)	19,93,47,200	3,80,38,500	23,73,85,700
3	Estimated SW Generation (Metric Tonnes)	199.35	38.04	237.39

Table 7-11: Estimated Solid Waste Generation

iv. <u>Requirement of Disposal Landfill Sites:</u>

For disposal of 237.39 Metric Tonnes of Waste, near around 12 Hectare of disposal site will be required.

7.4.4 Proposal and Recommendation

While providing the basic strategies for SWM, the key recommendations/ updates provided in the Action Plan for Solid Waste Management, submitted to Hon'ble NGT have been taken into consideration. Some of the key recommendations provided in the document have been mentioned below:

- The analysis shows that at present the solid waste generation is collected door to door in Shimla. However, segregation of solid waste at source would be more beneficial and it will enhance the quality of solid waste collected. MC Shimla has already initiated segregation at source level on pilot basis in three wards. Further, it will be initiated in all the 34 wards of Shimla Municipal Corporation and 3 SADA areas of Shimla Planning Area with adequate Infrastructure.
- Bio-gas may be produced by decomposition of all the segregated bio-degradable solid waste and this decomposition should be mandatory to at least all the commercial establishments, hotels, vegetable market and meat market. Also for bio-Methanation expert guidance and proper technologies should be implemented.MC has established biomethanation Plant for recovering the energy from wet/dry waste. Its Environmental Clearance is already obtained from the respective authority. Organic Waste Convertor Machine of adequate capacity be procured by respective authorities once the waste segregation initiated in all the 34 wards of Shimla Municipal Corporation and 3 SADA areas of Shimla Planning Area. Biogas produced from Bio Methanation will be used for Street/ Park Light or for cooking in kitchen.
- Training on various aspects of SWM, Public Awareness and necessary Health Measures of the staff is already taken care by the Shimla Municipal Corporation and Special Area Development Authority.
- Land fill sites are already finalized by the Municipal Corporation under SMW Rules and further land fill sites will also be finalized in accordance to it.
- The method of recycling the solid waste management i.e., the use of three R's (Reuse, Reduce, recycle) should be adopted. Health and safety of the sanitation workers should be improved and they should be insisted to wear uniforms, gloves and Gum boots etc. while collecting waste. Also, Landfill site should not be created in the hilly areas in accordance with the SWM Rules. Solid waste collected must be stored in an enclosed areas so as to protect the natural resources of Shimla as per Municipal laws of Shimla.
- Also, Plastic Management rule should be mandated to all the citizens of Shimla so that the recycling process can be done efficiently.





Figure 7-6: Representative Flow Diagram of SWM

7.5 Storm Water Drainage

Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too. Some lining is visible along these major nallahs but is not effectively coursing the storm water. Most of the natural drains (nallahs) are encroached upon and disposal or debris is a common view of the nallahs.

The Storm water management system in Shimla reflects large non-compliance to CPHEEO Manual on Sewerage and Sewage Treatment with respect to several parameters like estimation of peak flows & design of storm water drainage system, collection, conveyance, and disposal of storm water run-off generated, in addition to parameters like pollution prevention, and water-quality monitoring.



Map 7-2: Storm water Drains



7.5.1 Existing Scenario

i. <u>Collection and Conveyance:</u>

- 1. In Shimla, there are not many initiatives present to collect storm water apart from some minimal efforts of the residents for rainwater harvesting.
- 2. The drainage system in Shimla consists of natural drainages and 67 storm water drainages. The natural system takes care of the majority of the run-off and in the plain areas where this natural system is not sufficient, storm water drainages have been built on the hill side of the roads where the storm water does not find its way to the valleys on its own. The man-made hill side drainages direct the water from the rocks and water springs via cross culverts to the downstream areas where the run-off is discharged into the natural drains and finally discharges into the natural water bodies.
- 3. The total length of the drainage network is 42.33 km, translating into coverage of 29.43% (total road length 143 kms). The total length of nallahs within MC Shimla is approximately 20 kms.

ii. <u>Disposal:</u>

Under the current system, the storm water eventually discharges into the downstream natural water bodies. As the drains do not only carry storm water but also wastewater and solid waste the downstream water bodies inevitably are being polluted.

iii. Institutional Assessment

The department responsible for the design, planning, construction and physical maintenance of the storm water infrastructure is the Roads & Buildings Department. The Health Department of MC Shimla is responsible for cleaning of the drains from solid waste. Due to that reason, there are functional overlaps between the departments happens many times and weak coordination between departments results in non – accountability thereby hindering O&M of storm water drainage system.

7.5.2 Issues and Potential

- 4. At present **70 % less coverage** of storm water drainage is observed; about **5% sewerage mixes with storm** water and water logging incidence is high about 70%, especially during winter snow melting.
- 5. Shimla lacks a dedicated unit that is solely responsible for all matters concerning the storm water drainages.
- 6. Public outreach and education are deficient and foster the continuation of encroachment of the storm water drains.
- 7. There is no stringent zoning regulation that encourages the implementation of the source control efforts.

7.5.3 Proposals & Recommendation

The coverage of storm water drainage within the planning area is inadequate and there is no specific project for storm water collection. Thus a framework of collecting the storm water has to be prepared which will specify the storm water collection strategies and simultaneously ascertaining the coverage of entire planning area with storm water drainage network. Collecting storm water can be later utilized for agricultural purposes or if treated properly can be used for various other things. The concept of closed drainage system should be adopted and it should be planned with full technical support and guidance of experts in the same field.



7.6 Electricity

Shimla Planning Area is divided into nine major zones. The Electric sub-stations are placed in accordance with population size and commercial activities. About 577 medium and large range capacity electric transformers have been installed at different places. Major power supply to city comes from the Dehar Power Station, Northern Grid and other power houses. Main Electric Station is located at Totu, which is supplying power to urban as well as rural areas. Two main divisions are City as well as Rural and Urban. City Division serves localities namely, Boileauganj, Ridge, Kalibadi and Sanjauli, whereas Rural and Urban division caters areas including Mashobra, Dhalli, Khalini, Jatog and Junga. The capacity details of transformers are as below:-

Capacity	No. of Transformers	% age
20-200 kva	184	32.17
250-500kva	265	46.33
630 kva	108	18.88
2-3.5	15	2.62
Total	572	100.00

Table 7-12: No. of Transformers and their capacity

Shimla is not having any heavy industry. Provisions of HT lines are existing in Planning Area which accounts to 2.87 % of the total electric installation. In addition, 46.33 % of transformers having capacity of 250-500 kva are also installed followed by 20-200 kva, which constitute 32.17 % of the total installation. Spatial distribution of transformers is as below:-





The table reveals that highest number of transformers are existing at Jatog, which accounts for 18.15 % of the total including Cantonment area followed by 13.63 % at Mashobra. Sanjauli zone caters 14.37 % of the total. In addition, 15.00 % of total transformers have been installed at the Ridge and the Mall areas, which is the major hub of the city as well as socio-cultural space of the Planning Area. Adjoining rural areas have also been provided with sufficient number of such facilities to cater for requirements of growing population efficiently. Number of different types of electric connections are as under:

Sector	No. Of Connections	% age
Domestic	56141	82.80
Commercial	9081	13.39
Industrial	1895	2.80
N.D,NC	416	0.61
Public &	65	0.10
Semi Public		
Others	198	0.30
Total	67796	100

Table 7-14: Purpose wise connections

Source: H.P SEB Shimla Division I & II

Domestic consumption of electricity in city is high as compared to other sectors on account of Shimla being an administrative and service city accommodating a huge influx of migrant population as well as possesses peculiar climatic conditions. Therefore, 82.80 % of the total connections are recorded in domestic sector followed by 13.39 % connections in commercial sector. 67796 connections have been recorded, out of which 54.05 % connections are in urban area and 45.95 % connections in rural areas. Percentage total rural and urban connections are given below:-

Table 7-15: Distribution	of connections in Rura	l and Urban Areas

Sector	Connection	% age
Urban	36646	54.05
Rural	31150	45.95
Total	67796	100.00

Source: H.P SEB Shimla Division I & II

7.7 Telecommunication

Shimla is being served by extensive networks of telecommunications. Private communication providers like Air-Tel, Reliance, Tata Indicom and BSNL are providing efficient services to the masses. Telephone exchanges are spatially placed at strategic locations in Planning Area. Majority of households are enjoying communication. Thus, Shimla being a capital has efficient telecommunication networks as compared to other areas.

7.8 Imperative

Physical Infrastructure: Shimla being a premier city and tourist destination has potential to strengthen economy of the state. Its basic infrastructure problems are required to be sorted out on priority. Round the clock water supply is required to be ensured. In Water supply augmentation for the water sources has been worked out, which will be able to cater the demand of projected population by 2041. Also, water supply networks and sewage networks are required to be improved and losses be reduced to minimal. Subsequently it would enable STP's to work on their full capacity. Structures under major electric networks have to be looked in terms of their safety and action against unauthorized constructions has to be ensured. Proper sewerage system for entire Shimla including newly developing peripheral areas need no emphasis. Drainage networks have to be fully geared up to meet with new challenges posed by haphazard construction activities, on one hand and coverage of nallahs, on the other.

Chapter 8

SOCIAL INFRASTRUCTURE



CHAPTER- 8 SOCIAL INFRASTRUCTURE

8.1 Introduction

Social Infrastructure plays an important role in both the economic development of a nation and development of the society's quality of life. Development of Physical Infrastructure cannot lead in overall development at the desired level, if the social infrastructure is not simultaneously developed. This chapter will help to understand the issues & potentials in existing social infrastructure profile of the city. Future requirement for proposed population under each sector is also identified based on Standard Norms.

8.2 Education Facilities

Shimla, the Queen of the Himalayas is a heart of quality education. Since the British India, Shimla had been the hub of good schools. In addition, there is a University, medical college, 5 Govt. and Semi-Govt. Colleges, 31 Senior Secondary Schools (22 Govt. & 9 Pvt.) 25 High Schools (14 Govt. & 11 Pvt.) and 24 middle schools (22 Govt. & 2 Pvt.). There are about 15 C.B.S.E. affiliated schools in Shimla Planning Area. Therefore, literacy rate in Shimla Planning Area is high as compared to other towns and Shimla district as a whole. As per 2011 census, there are 2,02,168 literate persons in Planning Area, who accounts to 84% of whole population of Planning Area. It has been observed that literacy rate of male and female is 87% and 82% in Shimla Planning Area.

8.2.1 Existing Scenario

Some of the famous colleges in Shimla Planning Area under Himachal Pradesh University are:

- 1. St. Bedes College, Shimla
- 2. Government Degree College, Sanjauli, Shimla
- 3. Rajkiya Kanya MahaVidayaliya (RKMV)
- 4. H P U Evening College, Shimla
- 5. Institute of Vocational Studies
- 6. Indira Gandhi Medical College, Shimla
- 7. H P Government Dental College & Hospital, Shimla
- 8. AP Goyal Shimla University

1) University

The Himachal Pradesh University is a premier institution of teaching and research in the country. It was established on 22nd July, 1970 by an Act of the Himachal Pradesh Legislative Assembly. It is entirely financed by the Government of Himachal Pradesh and the University Grants Commission, New Delhi. The University is situated nearly 5 km away from the main city, at Summer Hill, a quiet suburb of Shimla in the vicinity of the Indian Institute of Advanced Studies. Its beautiful surroundings present a panoramic view of snow peaked mountains and are ideally suited to pursue higher learning amidst rhododendron, silver oak, pine and deodar forests. The campus is spread over an area of about 80.94 hect. The various teaching departments, library, offices, residential complexes and hostels of girls and boys are housed in aesthetically designed buildings matching with the hilly terrain and climate. The University is both residential and affiliating in character.



Apart from an International Centre for Distance Education and Open Learning, a University Evening College, a University College of Business Studies, a Regional Centre at Dharamshala and nearly 80 affiliated Under-graduate, Post-graduate, engineering, medical, dental, education and Sanskrit colleges, the Himachal Pradesh University has 27 Teaching Departments offering various courses. The University has 12 facilities, out of which 8 are campus based. It houses 15 specialized teaching, research and training centres. The campus has 283 teachers, out of whom 67 are professors, 91 Readers and 125 lecturers. Out of 4096 students, 59 % are male students and 41 % female students. It reveals that teacher- student ratio in the campus is about 1:19.

In the campus, there is an Auditorium with a capacity of about 750 students and two main Libraries. The University has 11 hostels for boys and girls. The University has acute shortage of hostel accommodation. So far as basic amenities are concerned in the University, it has own water supply system, sewage and solid waste disposal management system. The M.C Shimla is also providing services. The University however, has problems like lack of hostel accommodation, scarcity of water supply during summers, lack of professional courses and lack of computerized library.

2) <u>Colleges</u>

At present, there are five colleges in the Planning area, which have 7500 students. There are 312 lecturers in these Colleges. Teacher student ratio is 1:23. The premier 100 years old St. Bedes private college for girls has 1400 students.

3) <u>Schools</u>

Shimla is known for residential schools. Important schools are Tara Hall, Chapslee, St. Edward, Dayanand Public School and Central School. As per survey conducted by the Town and Country Planning Department, there are 31 Sr. Secondary Schools (Private and Govt.), 25 High Schools (out of which 2 school for SHS & impaired /SHV Challenged Children), 24 Middle Schools and 65 Primary Schools.

Sr.	Category of School	No. of Students	Percentage	Teachers	% Age to
No.			To Total		total
1	Primary Schools	7800	28	195	17.00
2	Middle Schools	1333	5	115	10.00
3	High Schools	2761	10	160	14.00
4	Sr. Sec. Schools	16140	57	692	59.00
	Total	28034	100	1162	

Table 8-1: Number of Students & Teachers in Govt. Schools

Apart from above main institutes, there are many other institutions and colleges providing education in and around Shimla. The availability of educational institutes in the entire planning area has been presented in the table below.

Settlement	Р	Р	М	S	S	А	Е	Μ	М	Pt	V	Ν	S	Other	Total
(No. of	Р				S	S	С	С	1		Т	F	S		
Villages)						С					S	Т	D		
												С			
Kufri Special	13	23	14	9	7	0	0	0	0	0	0	0	0	0	66
Area															
Shoghi Special	15	22	15	5	4	0	0	0	0	0	0	0	0	0	61

Table 8-2: Educational institutions in Shimla Planning Area



Settlement	Р	Р	Μ	S	S	А	Е	Μ	Μ	Pt	V	Ν	S	Other	Total
(No. of	Р				S	S	С	С	1		Т	F	S		
Villages)						С					S	Т	D		
												С			
Area															
Ghanahatti	1	10	4	0	0	0	0	0	0	0	0	0	0	0	15
Special Area															
Additional	23	66	22	12	8	0	0	0	0	0	0	1	0	0	132
Planning Area															
MC Shimla	0	116	55	24	28	12	1	2	5	0	2	1	3	5	254
Jutogh	0	2	2	1	1	0	0	0	0	0	0	0	0	0	6
Cantonment															
Board															
Total Planning	52	239	112	51	48	12	1	2	5	0	2	2	3	5	534
Area															

Note: PP: Pre-Primary School, P: Primary School, M: Middle School, S: Secondary School, SS: Senior-Secondary School, ASC: Degree College of Arts, Science & Commerce, EC: Engineering College, MC: Medical College, MI: Management Institute, Pt: Polytechnic, VTS: Vocational Training School/ITI, NFTC: Non-Formal Training Centre, SSD: Special School for Disabled (Source: Census of India, 2011)

With reference to the existing population, Gaps is identified especially in Pre Primary School and School for Disabled.

Sr. No.	Category	Population served per unit (URDPFI Norms)	Existing Facilities (No.)	Gap, if any (No.)
1	Pre – Primary School	2500	52	72
2	Primary School	5000	239	0
3	Senior Secondary School	7500	211	0
4	Other Colleges	1,25,000	17	0
5	Engineering College	10,00,000	1	0
6	Medical College	10,00,000	2	0
7	Polytechnic, Vocational	10,00,000	4	0
	Training School, Non Formal			
	Training Centre			
8	Special School for Disabled	45,000	3	4

Table 8-3:	Availability of	Educational	Amenities into	o Shimla I	Planning Area
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8.2.2 Issues and Potentials

Modernisation of education in view of technological advancement is required to be ensured. Requisite basic amenities are required to be provided. Availability of water is required to be improved. Parking facilities require attention. Repair and maintenance of old buildings is needed. Environment of Schools in built up areas is required to be improved. Multistorey concrete buildings have come up in the University complex, which do not coincide with the surrounding natural environs. There is a mushroom growth around the complex. The deteriorating environs of the complex is the prime concern. Environmental improvement scheme is therefore, required to be devised and implemented in the complex. Similarly, improvement schemes for other educational complexes are required to be prepared and implemented by involvement of local communities, parents-teachers associations, public representatives and N.G.Os.



8.2.3 Future Requirement

Being an educational hub, Shimla Planning Area is having educational amenities more than its population requirement. For the projected population, Additional no. will be required in sector of Pre Primary School and School for Disabled. Details are described in table given below:

Sr. No.	Category	Population served per unit (URDPFI Norms)	Existing Facilities (No.)	Additional Requirement (No.)	Area Requirement (Ha.)
1	Pre – Primary School	2500	52	250	=(0.08*250) = 20
2	Primary School	5000	239	0	0
3	Senior Secondary School	7500	211	0	0
4	Other Colleges	1,25,000	17	0	0
5	Engineering College	10,00,000	1	0	0
6	Medical College	10,00,000	2	0	0
7	Polytechnic, Vocational Training School, Non Formal Training Centre	10,00,000	4	0	0
8	Special School for Disabled	45,000	3	11	=(0.20*11) = 2.2

Table 8-4: Future Requirement in educational amenities

8.2.4 Proposal

a. Pre-Primary School

There are only 52 number of pre-primary schools and 3 Special School for disabled exists in the Shimla Planning Area and there is requirement of 250 additional pre-primary schools and 11 Special School for Disabled. So, this requirement will be fulfilled in the proposed education infrastructure which is located near the Challi Chaula, Mehli, Jalf village located in the southern part of Shimla and in the Additional planning area of Shimla there are major educational institutions proposed, to fulfill the requirement of education facilities.

b. Proposed Government High School

The Smart City, Shimla has proposed government high school in the Krishna Nagar. This proposed high school is proposed to be made into a model smart school which will include smart classrooms and smart infrastructure. Also, since there is lack of pre-primary school identified in the table above as per the URDPFI guidelines, it is also proposed that the school will be expanded to include primary wing.

8.3 Health Facilities

The city provides very good and effective health services. People from across the State come here for treatment and health care. Presently, area is served by General Hospital, Multi-Specialty Hospital, Family Welfare Centers as well as Veterinary Hospital.



8.3.1 Existing Scenario

The main Hospital in Shimla Planning Area are as follows:

Table 8-5: Details of Government Hospital

Govt. Hospitals	No. of Doctors	Bedding Capacity
IGMC	298	857
Kamla Nehru	55	274
Rippon	30	300
Ayurvedic	14	35
Dental Hospital	40	20
Tara Hospital	3	15
Sanatorium	6	49
Tanzin Hospital	20	25
Shri Ram Hospital	14	20

Source: Town & Country Planning Deptt. Shimla

1. Snowdon Hospital and Indira Gandhi Medical College

Snowdon is a state level hospital, which renders specialized medicare facilities. Indira Gandhi Medical College came into existence in the Year 1966. Attached with State Medical College it has 400 students. At present, it is equipped with 298 doctors and has bed capacity of 857. About 2500 patients are taking regular medical services. Modern medical facilities in Medicine, Indira Gandhi Medical College- Chest and Tuberculosis, Surgery, Cardiology, radiotherapy, Neurology, Plastic Surgery, Pediatrics Surgery, Obst and Gynae, Neonatology, Urology, Neuro-Surgery, Gastroentology, ENT, Radiology, Orthopaedics, Nuclear Medicine and Ophthalmology are available in the institute which are of all India level.

In order to decongest the IGMC campus located within Core Area of Shimla Planning Area, Super Speciality Block has come up in Mohal Shurala (outside Planning Area) near Chamyana, along the proposed 4-Lane highway.

2. Dental Hospital and College:

It is situated along the IGMC and Snowdon amidst sprawling Oak, Pine and Rhodendron trees. The 40 doctors cum professors and lecturers are imparting Dental education to students as well as serving the dental patients. About 100 patients are attended daily. Bedding capacity is 20.

3. District level Hospital (Ripon)

It is the oldest Hospital of Shimla, which caters for city as well as regional population. Located near the Bus stand, it has 300 beds and 30 doctors in the hospital. About 1000 patients regularly visit for medical treatment. On an average a doctor is attending about 35 patients.

4. Kamla Nehru Hospital

Traditionally known as Lady Reading, it renders specialized services. There are 55 doctors and 274 beds in the hospital. About 200 patients are being treated on daily basis.

5. Walker Hospital

The hospital was a premier British Heritage building. However, it has been burnt. The Ministry of Defence has sanctioned a grant of Rs. 22 crore for total overhauling of the Historic Walker Buildingburnt Military Hospital. The old façade has been proposed to be retained. It will be equipped with ultra-modern infrastructure and will cater for requirements of soldiers, ex-servicemen and their dependents. Along with separate inlet and outlet, it will help in easing the traffic congestion on Cart Road.



6. Ayurvedic Hospital

This hospital is located in Chhota Shimla. It caters for the city as well as regional population. It has a bedding capacity of 35 beds and there are 14 doctors. On an average 135 patients regularly given Ayurvedic treatment.

7. Veterinary Hospital

There is one veterinary hospital and about 20 veterinary dispensaries in Shimla Planning Area. About 60 animals are treated daily.

Apart from above public health services, there are many other health services in and around Shimla city. The availability of health facilities in the entire Planning Area from Census of India 2011, have been presented in the table below.

Settlement (No. of Villages)	CH C	РНС	PH S	MC W	TBC	HA	НО	D	VH	MH C	FWC	Total
Kufri	0	5	0	1	0	0	0	8	1	0	0	15
Shoghi	1	3	1	1	0	0	0	2	4	0	0	12
Ghanahatti	0	0	2	0	0	0	0	2	1	0	0	5
Additional Planning Area	0	2	1	0	0	0	0	7	3	0	0	13
MC Shimla				3	3	4	1	26	4	0	2	43
Total Planning Area	1	10	4	6	3	5	1	46	13	0	2	91

Table 8-6: Availability of health facilities in Shimla Planning Area

Note: CHC: Community Health Centre, PHC: Primary Health Centre, PHS: Primary Health Sub-Centre, MCW: Maternity & Child Welfare Centre, TBC: T.B Clinic, HA: Hospital Allopathic, HO: Hospital Alternative Medicine, D: Dispensary, VH: Veterinary Hospital, MHC: Mobile Health Centre, FWC: Family Welfare Centre

(Source: Census of India, 2011)

8.3.2 Issues and Potentials

The medical institutions have 485 doctors. There are 1585 beds in these institutions. About 5000 patients visit for medicare daily. Two private hospitals namely Indus and Sanatorium are also serving the population. Presently, in Shimla Planning Area number of beds per 1000 persons is seven and number of doctors per 1000 persons is 2 only. As IGMC is only state level hospital, therefore it is proposed to increase the carrying capacity of this hospital in terms of Number of doctors and beds. The Snowdon complex being located on the northern face has limited sun during the winters. This area becomes very cold during winters. Moreover, due to multi-storey construction of hospital, on one hand and increasing congestion in and around the complex, on the other call for concrete measures for up-gradation of its deteriorating environs.

It has been observed that health institutions are located either in congested localities or at lop-sided locations. Therefore, proper width and maintenance of roads is a major concern, so that the ambulance services can be provided effectively. Lack of proper disposal of hospital waste, is a matter of concern. It is imperative that all medical institutions should furnish their requirements of space for expansion and shifting of their activities as deemed fit, in view of paucity of space in existing complexes. Preparation and implementation of improvement schemes for the complexes need no emphasis. Improvement schemes are required to be devised for important hospitals and implemented by involvement of local communities, elected representatives and N.G.Os.


8.3.3 Future Requirement

For the projected population, additional no. will be required especially in sector of Family Welfare Centre. Hospitals are sufficient for the current population, but additional no. will be required for the proposed population. General Hospital & Other Hospital and nursing home, child welfare & maternity center.

Sr. No.	Category	Population served	Existing	Additional Requiremen	Area Requirement
		Norms)	Facilities (NO.)	t (No.)	(na.)
1	Dispensary	15,000	46	0	0
2	Nursing home, child welfare and maternity centre	45,000 - 1,00,000	6	1	(0.3*1) = 0.3
3	Family Welfare Centre	50,000	2	11	(0.08*11) = 0.88
4	General Hospital	2.50.000	6	0	0
5	Other Hospitals	1,00,000	4	3	(3.7*3) = 11.1
6	Veterinary Hospitals/ Dispensary	5,00,000	13	0	0

Table 8-7: Requirement of Medical Amenities in Shimla Planning Area

8.3.4 Proposals

As per the URDPFI guidelines it is estimated that there is requirement of additional Nursing home, child welfare, maternity center, family welfare center, general hospital and other hospitals. The total required area of the healthcare facilities is around 25 Hectare. And there is availability of 7.5 Hectare, in the Shimla Planning Area. The remaining land will be allocated in the Additional Shimla Planning Area near the proposed Counter Magnet Towns/ New Settlements that will be 18 Hectare.

8.4 Recreational Activities

The recreational facilities play a very crucial role in the development of the people and the city growth. The benefits of recreational facilities make them irresistible to surrounding residents. In urban areas, community parks or any recreational space may be the only options for residents to enjoy nature, socialize with the community and be active. There is a strong correlation between recreational activities and physical health & mental well-being of people. In addition to the variety of amenities, community playgrounds and parks are beneficial in many other ways:

- Contribute to community identity
- Provide active and passive recreational opportunities
- Appeal to all ages
- Contribute to the health and wellness of a community
- Create valuable green space

So, it is important to provide emphasis in developing such facilities in to the Shimla Planning Area. In this section along with the existing recreational facilities, the requirement for horizon year is also discussed.

8.4.1 Existing Recreational Facilities

Apart from the picturesque landscapes, the Shimla city houses man-made gardens and amusement parks to help people drain away their fatigue when they come to these parks and gardens and enjoy the peaceful surroundings and try out various rides and adventure activities.



Shimla has Botanical Garden, Hip Hip Hurray Amusement Park, Himalayan Nature Park, Indira Tourist Parks, Shimla Water Catchment Wildlife Sanctuary, Chadwick Falls, Kufri Fun World & Ski Resort, Annandale Ground as some of the main city's level recreational open spaces. These open spaces are visited by numerous local people during weekends and vacation time and tourists also come here in great numbers during their stay in Shimla.

8.4.2 Issues and Potential

However, at the neighbourhood level and community level in residential areas in Shimla, open spaces provided are not sufficient, based on URDPFI requirements. Residential areas such as Sanjauli, Cymentry, Khalini, Kuftadhar, Malyana, Panthaghati, Mehli etc, lach the availability of open playgrounds, parks and gardens. As per existing land use plan, total land under Shimla Planning Area is around 246.09 sq.km. in which area under recreational activities is only 0.20 sq.km. which is only 0.02% of the total Shimla Planning Area.

Figure 8-1: Recreational Facilities



In Shimla bygone, there was no need of parks because all roads were parks here as these meandered through the woods and were bereft of traffic. Walking on roads in Shimla was like breathing fresh air, no dust and no fear of fast vehicles coming from one's behind. In fact, Shimla, in the first decades after independence had plenty of open spaces, playgrounds and other spaces used by city residents for recreation and sports. Most of these spaces are today occupied by multi-story buildings, government quarters, hotels and guest houses even in the core town areas. Except for its sprawling iconic Ridge are and some British–era convent schools, most children have no access to playgrounds and open spaces.

However, now a days, where traffic has become a major issue on the roads of Shimla, and resident of Shimla don't have many options for leisure walks, it becomes very essential to develop more open spaces in forms of parks, gardens and playgrounds.

At present, as per Shimla MC, there are 44 parks, mainly in Sanjauli, New Shimla, Nav Bahar, Annandale, Banmore, Mall Road and Ridge, which have been recently developed. There is an ultramodern multi-purpose park coming-up at Annadale and another Rani Ground in Sanjauli area for children and senior citizens. One Dada-Dadi park, which opened next to the Ridge on the road connecting US club and Rich-Mount. However, inspite of these proposals, local parks require foremost attention, as in the absence of proper recreational spaces, children are forced to play on the roads and streets.

8.4.3 Norms/Standard for Recreational Facilities

As per URDPFI Standards, 12 - 14% area should be reserved for recreational activities and 10 - 12 sq.m. per person is the desirable open space as per URDPFI Standards. Many cities of India fail to



reach these standards. There is a need for developing spaces for the community and the people as it promotes community wellness, clear and healthy air, encourages community activities, improve property values, and creates social equity. In the built-up area (excluding recreational space, vacant land, flood plain, forest) the NBC suggests 3 sq.m. / Person as minimum norm Shimla planning area does not fulfill these standards.

8.4.4 Future Requirements and Strategies

To fulfill the gap in hierarchy of organized recreational spaces, and for creating sufficient spaces for projected population, additional numbers will be required in each sector as open spaces are quite less in the planning area as per URDPFI Norms.

	Category	Population Served per Unit	Existing Facilities (No.)	Additional Requirement (No.)	Area Requirement (Ha)
1	Housing Area Park	5000	44	63	(63X1) = 63
2	Neighborhood Park	10000	31	32	(32X2) = 64
3	City Parks/ playgrounds/ maidan/ exhibition grounds/ cultural gathering grounds	For entire town at one or more sites, depending upon design and space availability	1 (Ridge can be considered at present)	-	-
4	Botanical Garden	1 for every town	1	-	-

Table 8-8: Future Requirement for Parks

As shown in the map below, during the land suitability analysis, land parcels were identified, which have a slope of less than 10 degree. Some of these parcels can be developed as playgrounds, parks and gardens based on the feasibility and the ownership of these land parcels.







Moreover, the hierarchy for organised green should also be organised such as parks, play fields and other open spaces like specified park, amusement park, community garden, a multipurpose open space, botanical garden and zoological parks, etc. are as under:

Sr. No.	Planning Unit	Number of Organized Green Spaces
1	Housing Cluster	3 - 4 local parks and playgrounds
2	Neighbourhood	3 - 4 local parks and playgrounds
3	Community	2-3 community level park and open space
4	District/ Zone	1 district level park and sports centre, maidan
5	Sub City Centre	1 city level park, sports complex, botanical / zoological garden, maidan

Table 8-9: Hierarchy of Organized Green

Figure 8-2: Hierarchy of Organised Green

	Housing level	\mathcal{O}
1	Housing Area Park	SHAL
2	Residential unit play area	
		Ť
	Neighbourhood level	
3	Neighbourhood park	AREAL
4	Neighbourhood play area	
		¥ ć
	Sector level	and a second
5	Open space (1 sq.m. per capita)	AND AND AND A
	Community Level	a prof
6	Community park	T
7	Community level Multipurpose ground	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
		COPOLITIC COP
	District Level	STATE STATE
8	District Park	TES STE SECON
9	District level multipurpose ground	- Que

In hilly areas, the protected zones and ecological conservation are considered over and above this open space requirement. Keeping this in mind, the open spaces located within the Shimla Planning area can act as a dynamic and active pockets, that could be integrated with proposed interconnected running trails/ pedestrian walkways passing through the forest/ green areas.

8.5 Religious institutions

Though Hinduism dominates most of the place, one finds a beautiful amalgamation of different religions and places of worship in the region. The major religious centers of the region are as follows:

i. **Bhimakali Temple:** Also known as Bheemakali Temple of Shimla, this architectural wonder is one of the representatives of 51 Shakti Peeths. The style of architecture is a unique amalgamation of Hinduism and Buddhism. It is built of wood and is no less than an architectural masterpiece.



- ii. Jakhoo Temple: The Jakhoo temple is located at a height of 2455 meters and is situated on the highest peak in Shimla. It is hardly 2 kilometers from the Ridge and is an uphill climb through the beautiful deodar trees. It is dedicated to the monkey God, Hanuman.
- iii. **Kalibari Temple Shimla:** The temple was built in the year 1845 and is dedicated to Goddess Kali who is also known as Shyamala. It is from the name of Goddess Shyamala that Shimla derives its name.
- iv. Christ Church & St. Michael's Cathedral: The famous Christ church & St. Michael's Cathedral of Shimla is a beautiful architectural masterpiece. The construction of this church took a span of 11 years (1846 - 1857) and is considered to be the second oldest church in North India. This splendid church is located just near the Ridge in Shimla and can be reached very easily from anywhere.
- v. **Sankat Mochan Temple:** One of the most popular tourist attractions of Shimla, the Sankat Mochan Temple is located among lush green and tranquil locales on the Kalka Shimla highway, on the National Highway 22. The temple is a place where one can actually meditate and enjoy the calm and peaceful surroundings.
- vi. **Tara Devi Temple Shimla:** Tara Devi is situated at a distance of around 11 kilometers from Shimla and can be accessed while traveling on the Kalka Shimla National Highway. It is situated at the top of a hill in Shimla and the lush green environs surrounding it give the temple a very peaceful and tranquil atmosphere.
- vii. The Main Jonang Takten Phuntsok Choeling Buddhist Monastery: Located in Sanjauli along a hilly cliff on one side, the main aim of this establishment is to gather children from remote places where there are no proper schools, educational facilities, or means of transportation (and children of poor parents and orphan children) and to nurture them by giving both monastic and moral education.
- viii. **Gurudwara Sahib Sanjauli:** A famous place of worship for the Sikhs of Shimla, this Gurudwara is also visited by a lot of tourists.
- ix. **Dhingu Mata Temple-Sanjauli:** Dhingu Mata temple is in Sanjauli approx. 5 km from Shimla. There are more than 400 steep stairs to reach the temple. It is a 150-200 years old temple.

8.6 Other Public Services

Population pressure is increasing in Shimla because of better services and facilities. There are six Police Stations, three Fire Stations, Banking and insurance services, 9 petrol pumps and various services catering for the local and regional population as well as tourists. Presently these services are not adequate to cater for the existing demand of local and regional population as well as tourists. A rapid growth of population, floating population and tourists require more facilities to be provided to cater for the needs by the year 2021. The area requirement for various facilities and services is given in the 16th chapter. The description of above services is as under:

Description	Number	
Library	5	
Reading Room	2	
Post Office	5	
Sub-Post Office	15	
Telegraph Office	5	
Police Station	6	

Table 8-10: Public Services



Police Post	12
Cremation Site	13
Cinema Hall	4
Community Hall	8
Club	3
Auditorium	4
Local Park	6
Petrol Pump	9

Source: Town and Country Planning Department Survey.

8.7 Socio-Cultural Characteristics

The locals here are known as the Pahari People. Shimla arts and crafts are highly in demand by the tourists. They range from excellent pieces of jewelry, embroidered shawls and garments to leather made articles and sculptures. Shimla is full of pine and deodar trees. The wood has been extensively used in all major buildings of Shimla. The various kinds crafts of Shimla made out of wood includes small boxes, utensils, image carvings and souvenirs.

Carpet making of Shimla is a great attraction for the tourists. Different floral and other motifs are used. Wool is used to make blankets and rugs. The embroidery includes handkerchiefs, hand fans, gloves and caps. The shawls of Shimla are very well known for their fine quality. The leather craft of Shimla comprises shoes, slippers and belts. The other arts and crafts of Shimla includes a huge collection of beaded and metal jewelry.

With largely cosmopolitan crowds, a variety of festivals are celebrated here. The Shimla Summer Festival, held every year during peak tourist season and lasting 3–4 days, is celebrated on the Ridge. The highlights of this event include performances by popular singers from all over the country.



Figure 8-3: Shimla Handicrafts and arts

Gaiety Theatre have traditionally been used as a place for socio-cultural activities and congregations. Similarly, U.S. Club was being initially used as a club and recreational place

8.8 Imperative

Social Infrastructure: Public services lack proper environs. In view of inherent requirements of specific services, alike library requiring peaceful and pleasing atmosphere, community hall and club having distinct premises, they need to be planned and developed accordingly. As many cremation sites have now been surrounded by the maze of new development and constructions, the same are required to be shifted and relocated.

Chapter 9

HOUSING AND SLUM



CHAPTER- 9 HOUSING & SLUMS

9.1 Introduction

This chapter provides the existing housing characteristics, condition of slums and housing requirement in Shimla Planning Area. The prevailing issues of slums in Shimla are identified and possible interventions that can be taken to improve their situation are discussed. Housing requirement to meet the demand of the projected population for 2041.

9.2 Existing Housing Scenario

a. Introduction

As per Census 2011, a total no. of 61,743 Households are present in the Shimla Planning Area. Compared to Census 2001 data, housing stock is increased at a decadal growth rate of 27.3%. An **average Household Size** is observed around **5 Person/ Household**. Major Residential Neighborhoods are - Core City, part of Kaithu, Shankli, Longwood, Chhota Shimla, Jakhoo, Kasumpti, Sanjauli, Summer Hill, Boileauganj and Tutikandi. But, like any other city, the housing system through private supply does not have the sufficient provision of Economic Weaker Section (EWS) & Lower Income Group (LIG) Housing and lack facilities like open spaces, schools & even adequate access.



(Source: Primary Household Survey, 2018)

As per the Household Survey Analysis, maximum households are having either 2 or 3 dwelling rooms and maximum buildings in Shimla Planning Area is either 3 or 4 storey. Concrete, Tin and Brick are used as a construction material. As far as the typology of housing is concerned, maximum houses are detached, semidetached or row houses. As far as the ownership are concerned, around 40% of the household's lives in rented properties.



Settlement	Households	Households (%)
M.C. Shimla	46306	75%
S.A Ghanahatti	2429	4%
S.A Kufri	2950	5%
S.A Shoghi	2814	5%
Additional Shimla Planning Area	6850	11%
Total	61349	100%

(Source: Census of India, 2011)

b. Vulnerability of the built environment

Issues in Construction Techniques are identified during the building survey in Shimla & Surrounding Area. The major issues in constructions are:

Figure 9-2: Construction Issues



- i. Presence of Soft Storey:_Soft story usually exists in a building when the ground story has less stiffness and strength compared to the upper storey. The ground floor, which have level access from the street, are employed as a street side store, a commercial space, or a parking lot whereas residents occupy the upper floors. The upper storey benefit from the additional stiffness and strength provided by many partition walls, but the space at the bottom is mostly left open between the frame members rendering it weak. Soft storey collapses have been seen in many past earthquakes in India. In Shimla, soft storey is not only seen in the ground storey as mostly evident in the metro cities but even in intermediate floors. It is a general practice in Shimla to leave some of the intermediate floors as frames without infill walls and on top of these empty frames additional floors are added for housing purposes. This dangerous construction practice can sometimes be attributed to the accessibility from the road level.
- ii. Irregular Plans:_Many buildings in Shimla have an irregular plan i.e. L shape, U shape etc. Buildings with regular plan (rectangular or square) perform better during earthquake. If irregular shape like L, H, U or + are designed, construction joints should be provided at the junction of two different wings to avoid re-entrant corners. If a construction joint is not provided, buildings have the tendency to separate out from these corners. The dimension of the offset and the proportion of the derived wings will determine the vulnerability of a building. Each wing will



react to the displacements and the torsional effects produced by ground motions in a different way. Under the action of earthquake forces, each wing will have a different dynamic behaviour because of its particular stiffness and position relative to the direction of horizontal forces. The movement of different parts of the building can be very complicated, producing considerable diaphragm deformation, torsional effects and concentration of stress at the vertices of reentrant corners.

- iii. Pounding:_Pounding is damage caused by two buildings, or different parts of a building, hitting one another. The number of buildings damaged by pounding is small. Pounding is the result of irregular response of adjacent buildings of different heights and of different dynamic characteristics. In situations where two buildings are located too close to each other, they may collide during strong shaking leading to substantial damage. The pounding effect is more pronounced in taller buildings. When building heights do not match, the roof of the shorter building may pound at the mid-height of the columns in the taller building; this can be quite dangerous, and can lead to storey collapse. In Shimla, most of the buildings located in high density wards are almost touching each other which mean earthquake shaking of one building will also affect surrounding buildings.
- iv. Incorrect Stirrup Detailing:_In most construction sites surveyed during the field visits (and in some already constructed buildings), it was observed that there was no proper alignment of columns of different floors. Also, the beams did not properly align with the columns. As a result, beams and columns were not perfectly orthogonal to each other. This means that the purpose of providing a frame structure was lost. In a few cases, beams and columns were found detached without proper joining at the beam column junction. This will lead to collapse of the structure even in a moderate earthquake.
- v. Lack of Frame Action in RC Frame Structure:_In Shimla, almost all buildings under construction observed during the field visit provided only a 900 (as opposed to the stipulated 1350 extended sufficiently as per the building codes IS 13920:1993 and IS 1893:2002) hook in the stirrups. This can open very easily in an earthquake shaking leading to failure of the column and an inevitable collapse of the building.
- vi. Short Column Effect on Buildings Built on Slope:_Due to scarcity of flat land in Shimla, majority of the buildings is constructed on the hill slopes with irregular structural configuration having foundations at different levels. Such buildings pose special structural and constructional problems. Due to site condition, buildings on hill slopes are built with unequal column heights within a storey, which results in drastic variation in the stiffness of columns of the same storey. The short stiff columns on uphill side attracting much higher lateral forces are prone to damage. In case of downhill building, storey built at road level is most susceptible to damage.





9.3 Existing Slum Scenario

a) Reason for Development of Slum

It is vicious cycle of population growth, opportunities in the cities (leading to migration to the cities), poverty with low incomes, tendency to be closer to work hence occupying any land in the vicinity etc. The key reason out of all is the slow economic progress.

After independence Commercial and industrial activity needed cheap labour in the cities. Plentiful was available in the rural area. They were encouraged to come to cities and work. People, who migrated to the cities and found work, brought their cousins and rest of the families to the cities. Unable to find housing and afford it, they decided to build their shelter closer to work.

b) Status of Slums

There are 53 slum pockets identified in the Shimla Municipal Corporation Area (Source: SMC). In which 1972 households/ structures are there with 11874 population which is around 4% of the total population in the city. There are many slums which lie in the Sinking Zone of Shimla. These areas are can be prone to landslides.

Figure 9-3: Slum pockets



9.4 Issues and Potentials

- Large share of population lives in the rented accommodation
- Plenty of mistakes are observed in construction techniques which may results in Destruction during the natural disasters
- Before NGT Order, construction was happening in haphazard and unplanned manner which has disturbed the environment and ecology of the city.
- Housing Density is very high in the core city area which needs to be decongested.

9.5 Future Requirement

With an increasing number of slum rental units in the city, the demand for Economic Weaker Section (EWS) & Lower Income Group (LIG) Housing has been increasing. At present, the supply of housing in the city and the region is primarily driven by the private sector. Government authorities have been providing low cost housing as a part of various national housing schemes and programs. However, there is a need to analyze the actual demand for such housing and take pro-active measures at city level. Before calculating the housing need assessment for the Shimla planning area. Few assumption has been made for urban areas, those are listed below.



- Based on Household Survey Findings, out of the total Household's, 40% are living in the rented property in Shimla Planning Area
 - There will be decrease in Household Size from 5 to 4 because shift from the traditional joint family structure to nuclear structure.
 - Share of Floating Population (Work/ Business/ Education) State Capital + Tourist City + Education Hub 3 to 5% of the Resident Population/ 25 30% of the total floating population
 - Additional housing requirement for the proposed population is coming around 98,614. Details are described in table given below:

Title	No.	Remarks	
Total Household's in Shimla	61,349	In Urban Areas only	
Planning Area			
	52,527	Household 's living in	31516.2
Actual Housing Stock available		Own Properties (No.)	
for the existing population		Household's living in	21010.8
		Rented Properties	
Considering 3.5 Person/	1,42,391		_
Household, housing requirement			
for the proposed residential			
population			
Net Housing Requirement for the	89,864	_	
Proposed Residential Population			
	8,750	Floating Populatio	n: Work/ Business/
		Education	
Considering 2 Person/		3 to 5% (15,000) of	the total residential
Household housing requirement		ρορι	llation
for the floating population		(DR
		25 - 30% (17,500) of the total floating	
		рори	lation.
		Whicheve	er is higher
Net Housing Requirement for the	98,614	4	
proposed total population			

Table 9-2: Housing Need Assessment

Chapter 10

TOURISIM PROFILE



CHAPTER- 10 TOURISM PROFILE

10.1 Introduction

Situated at a height of 2200 m, Shimla is one of the most eminent tourist destinations in the country. Set amidst beautiful hills and mystical woods, Shimla is one of the most aesthetically planned cities in India. An erstwhile summer capital of British India, this city's captivating natural beauty, and the atmosphere are bound to leave any tourist overwhelmed. This city has colonial-style buildings alongside the historic temples and the amalgamation of the worlds' leaves everyone visiting this region spellbound. Shimla is also used as a base to cover other nearby tourist destinations like Chail, Kufri, Naldehra, Mashobra, Tattapani and Narkanda. The toy train to Shimla from Kalka passes through beautiful hills and valleys and is one of the most beautiful train routes in the world. Shimla has rich 92 heritage buildings & 6 heritage zones dating back to colonial era (Comprehensive Mobility Plan for Shimla, 2012). The main tourist attractions in the region are: Table 10-1: Tourism Profile

<image/>	 (i) The Ridge: The Ridge is located alongside the Mall roads and is a major location where many cultural activities of the City are hosted. Many notable tourist locations such as Christ church, the state library and gaiety cultural complex are located in the vicinity. It acts as the lifeline of the city. The water reservoir beneath the ridge has storage of ten lac gallons of water. (ii) The Mall Road: The mall road is the main shopping street of Shimla. Many tourist spots are located along it. It is visited by almost all the visitors that visit Shimla and enjoy the beauty of this unique
	(iii) Kufri: Kufri is located 13 km away from the city of Shimla. The region around Shimla including kufri was once a part of the Kingdom of Nepal. In summers, travelers enjoy the panoramic view of the surrounding verdant valleys and snow-capped peaks. A number of trekking trails and hiking activities are located in and around Kufri. A winter sports festival is organized every year in the month of February at Kufri.



(iv) Mashobara Located 3 Km away from Shimla, Mashobara is a better alternative to Shimla to avoid the tourist rush. It is covered with lush green vegetation like oak, cedar, pine and deodar. Mashobar was a residence to Lord Kitchener as well as Lord Ripon during the British Raj.
(v) Jakhu Temple It is an ancient temple located in Shimla. The Haniman temple located at the top of the Jakhu Hill is the highest point of Shimla City. A festival is held each year on Dusshera at this temple. It is a spot for excellent view of sunrise.
(vi) Sankat Mochan Temple Sankat Mochan temple is one of the most popular tourist attractions in Shimla. The temple, which was established in the year 1950, was the result of an initiative taken by the noted religious figure-Baba Neem Karori Ji Maharaj, who was amazed by the beauty of the place. He stayed in the deep dark woods for ten days and decided to establish a Hindu temple on the location.
(vii)Naldehra Naldehra is located 22 km away from Shimla. It has one of the oldest Golf Clubs in the world. It is not just confined to Gold but also day hikes and excursions through the woods and villages are other attractions for the tourist and nature lovers. The "Naldehra" name is regarded to have come from the Temple of 'Nag Devta' whose temple is situated inside the beautiful and serene Golf Course.









(xii)Kalka railway line:

Through its length of 60 miles, it runs at places 7000 feet above the sea level. It runs through 103 tunnels and crosses 800 bridges. It took 3 years and one million pound sterling investment to complete. On November 9, 1903, Shimla was linked with outside would through railways.

HP Tourism Development Corporation (HPTDC) was established in 1972 to facilitate development of tourism in the State. Besides operating hotels in Shimla, HPTDC manages Tourist Information Centre and passenger lift between Cart road and Mall Road. Realizing the potential that tourism offers, the State government has striven to develop this sector as a major source of employment generation without disturbing ecology and environment. The State government seeks to transform the State into a "destination for all seasons and all reasons" and increase the share of Tourism in the State Domestic Product to 15% by 2020 (City Development Plan, 2007).

Government of Himachal Pradesh has formulated "Tourism Policy of Himachal Pradesh 2000" which has been revised in 2005 and "Policy on Development of Ecotourism, 2001" to promote economically, culturally and ecologically sustainable tourism in Himachal Pradesh and generation of employment opportunities.



Map 10-1: Tourist Spots







From a figure of 33.54 lakh tourists in 2012, the number of tourists visiting the State has decreased to 31.63 lakh in 2019 due to various reasons such as water shortage in Shimla in 2018. Thus, there was a need to ensure that this growth continues а in sustainable The Sustainable manner. Tourism Development Policy, 2013 was developed with an attempt in this regard. This policy has been framed for achieving sustainable tourism development based on global and national good practices, situation analysis, stakeholder engagements, rapid destination diagnostics and participatory planning exercises. This policy has acted as a guide for Shimla and the entire State to ensure

(Source: Toursim HP,2020)

sustainable development and inclusive green growth in the tourism sector.

Total numbers of available beds in MC Shimla area are 14000 (approx), including 236 hotels, 9 Dharmashala, 1 youth Hostel and bed & break- fast scheme home stays. (Final Report for Himachal Pradesh – Tourism Survey April 2011- March 2012). The table shown below gives the total number of hotels and beds available in Shimla city by year 2021.

Table 10-2: Details of hotels and homestays

District	No of Hotels	Home Stay		
Shimla	16000	8000		
Source: himschaltourism gov in (2021)				

Source: himachaltourism.gov.in (2021)

10.2 Issues and Concerns

- Shimla has become more of a weekend tourism destination with bag packers adding stress to existing strained infrastructure without contributing much to the economy. The origin survey conducted by Tourist Economic Survey Report 2012 indicates that more than 38% tourist origin from neighboring Punjab, Haryana and Delhi
- ii. Due to lack of adequate air connectivity, international quality tourism infrastructure and tourism activities, Shimla lacks high-end tourism with higher revenue potential. The foreign tourist constitutes only 3.4% of the total tourist flow to Shimla
- iii. Presently, the average duration of stay is very low limited to 1.35 days. This is due to lack of enough tourism activities/options for various category of tourists.
- iv. Except for road connectivity, Shimla lacks adequate rail and air connectivity for promotion of tourism



- v. About 80% of the tourists coming to Shimla are using own vehicles demanding parking facilities. The survey conducted with tourists indicated that the locating parking facility for vehicles is the major hassle in the town. The inadequate parking and water supply are major constraints faced by the tourism service providers in attracting tourists.
- vi. Lack of basic infrastructure especially water supply is the constraint in giving permissions for development of new tourism infrastructure like theme parks, resorts etc.
- vii. Limited vertical accessibility to Mall area due to restricted roads for old and disabled tourist.

10.3 Tourism Proposals

10.3.1 Agro based tourism in Kufri and Mashobara

The Kufri and Mashobara area in the eastern side of Shimla has very naturally green surroundings with valleys, beautiful houses farms, and has mesmerizing views with mountains in the background. It is a major attraction of tourist coming to Shimla.

Figure 10-1: Agro Based tourist



Agro tourism is agriculture based activity that brings tourists to the farm for the purpose of entertaining, educating the visitors and generating income for the farm or business owners. There are homestays near apple orchards in Kufri and Mashobara region near Shimla, where people can stay and enjoy different activities related to growing and cultivating apples. These home stays could provide an extensive experience to the tourists as they could engage into activities like plucking apples and other apple orchard related activities.

10.3.2 Forest tourism

The eco-tourism development approach based on natural preservation imperatives, recognized to be most suited for Shimla also call for utmost care in preservation of traditional green cover, on one hand and plantation of evergreen long lasting trees, on the other. Recognition and implementation of interface between tourism, heritage and environment is foremost requirement. Forest tourism is the activities done in the forest areas for the entertainment of tourists. It provides business opportunities for the local citizens which helps in increasing the economy.

Figure 10-2: Forest Tourist





The Kufri area has large forest area which can be converted into adventure camping for the tourist. The adventure camping will include natural walks, zip linings, camping, night trails, nature games and trekking.

Figure 10-3: Adventure camping



In the forest areas cycling will be fun and adventurous for the tourist, so the cycle tracks are proposed so that the family and friends will enjoy. Also, cycling is great way to spot wildlife.



There is similar forest tourism activity exists in Taiwan's Ming Chi which is a tourist spot made with a wood, bamboo and create interesting spot.

10.3.3 Walking Sky Bridge

The walking sky bridge is an elevated pedestrian way connecting two peak points of a mountains or hill or any elevated natural structure having recreational zone. This will be one of its experience for the tourists coming in the Kufri area because of the view and the experience of walking on bridge at such height. There exist on proposal of walking sky bridge in the Kufri Planning Area in Hassan valley. The below map shows the ideal location to propose Sky Walking bridge in the Kufri Area. The



proposed walking sky bridge is located near the Kufri bypass road (NH 5).



Case Study: Langwaki Sky Bridge

Figure 10-5: Langwaki Sky bridge





10.3.4 Toy train

The Shimla-Kalka Toy Train stretch is a UNESCO World Heritage property. The 96 km long track goes through 103 tunnels, 864 bridges and viaducts. The most scenic stretches are along the Kaushalya River, Koti, Barog, Kanoh, and Jabli. The Barog tunnel is the longest tunnel en route and takes about three minutes to cross.

Figure 10-6: Borag Toy Train



The entire route could be extended to Mashobra for more scenic route and different nature walks in the area. Mashobra is part of Shimla Water Catchment Wildlife Sanctuary.

10.3.5 Heli taxi

Heli taxi concept was proposed and implemented in 2019 by Himachal Pradesh Government. This service is provided from Chandigarh to Shimla. For providing better air connectivity services and fast commutation facilities, to the people of Himachal Pradesh and Chandigarh at the time of illness and other emergencies, Helicopter taxi Services has been launched on under the UDAN-II scheme. There are already existing Helipeds in Shimla at various locations such as Chalonti, Jubbarhatti, Chharabara (Kalyanni Hallipad) and Annandale. The main aim behind this is to promote air connectivity to the hill station and to provide a fast and securest flight to the common peoples who could not reach hospitals in time because of the hectic conditions of the Shimla highway. It will also help to boost up the tourism development in Himachal Pradesh and will be able to attract domestic as well as foreign tourists. Besides this effort and vision for providing connectivity, there is a need of Heli taxi within Shimla and surrounding area solely for strengthening the tourism network of Shimla. One of our objectives for the Shimla Development Plan 2041 is to develop the Shimla as the Tourism Network Centre, so the proposal for Heli Taxi will support the notion of this objective and help achieve the overall aim for Shimla.



Figure 10-7: Heli Taxi Services



Figure 10-8: Heli Taxi Network

Description	Network
The North circuit trip would be of ½ day and will cover following major locations: Shimla – Mashobra – Naldehra – Narkanda – Karsog – Shoja – Tirthan Valley – Shimla	
The Eastern circuit trip would be of 1 day and will cover following major locations: Shimla – Kufri – Fagu –Chanshal – Sangla- Chitkul- Shimla	Contractions of the second sec
The South-Western circuit trip would be of 1/2 day and will cover following major locations: Shimla – Shogi – Chail – Solan – Kasauli – Nahan – Shimla	Stolar St



The service will have a 3 direction network i.e. North, East and South West directions connecting the major tourism nodes. Helitaxi covers the distance that takes two hours by road in just 15 minutes. It will have a capacity of 6-14 sitting. In future, the helitaxi network can be expanded to connect important tourist destinations like Kullu-Manali and Kaza-Keylong etc. along with tourist destination of Uttrakhand like Auli etc.

Case Study:

The Vaishno Devi Temple is an important Hindu temple dedicated to Vaishno Devi located in Katra at the Trikuta Mountains in Jammu and Kashmir. It is one of the most famous shrines of Hindus and it is situated at a height of 5733 ft. it is about 13.5 km from Katra. It is one of the most visited pilgrimage centers of India. Every year millions of visitors visits the temple. During festivals like Navaratri, the count even increases to one crore visitors. The easiest and the fastest way to reach there is through helicopters. Helicopter Service is started by the Mata Vaishno Devi Trust to promote tourism. One can opt for helicopter services up to Sanjichhat, which is 9.5 km from Katra.

Figure 10-9: Heli Taxi service- Katra



Global Vectra and Himalayan Heli services have been operating between Katra and Sanjichat. Helicopter takes 5 min flight from Katra to reach Sanjichat which is situated at a height of 6080 ft. The helipads are located at 2 km away from Katra bus stand and 5 km away from Temple.

10.4 Tourism Strategies

In order to sustain tourism economy in Shimla, it is essential to focus at attracting high-end tourist and increasing duration of tourist stay. The strategy should aim at:

- 1) Improving basic infrastructure of the city like provision of adequate water supply, parking facility, transportation, decongestion etc will improve service delivery and shall provide impetus to the tourism
- 2) Improvement in transportation linkages especially with respect to air connectivity is essential to attract high-end tourism. Promoting tourism by improving accessibility and connectivity with various parts of Himachal Pradesh is essential. Promotion of railway between Kalka and Shimla commissioned in 1904, as Heritage Railway Line packaged with tourism products will provide an alternate transportation. The limited air connectivity of Himachal Pradesh may be addressed by taking up Air Taxi and Heli Taxi Services in the State with Private Sector Participation. This would also necessitate upgradation of airport at Jubbarhatti and rehabilitation and upgradation of helipads
- 3) In order to attract high-end tourism and also ensure protection of ecology, it is essential to promote ecotourism projects. There is a need for replicating the success of Potter's Hill ecotourism project conceptualized and developed by GoHP. For promoting ecotourism, it is proposed to upgrade existing forest rest houses and inspection huts of Forest Department and



develop eco-trails. These projects are amenable for private sector participation and may be taken on PPP format.

- 4) In order to enhance duration of stay and sustain tourism economy, there is need to add activity based tourism like international golf course, theme parks, nature park/botanical garden etc which can cater to different category of tourists like foreign tourists, senior citizens, children etc. Some of the interventions identified are as follows
 - Upgradation of Naldhera Golf Course to international standards
 - Development of Nature Park at Craignano
 - Development of Theme Parks
 - Upgradation of existing parks
 - Upgradation of Ice Skating Rink
 - Redevelopment of horticulture museum at Navbahar
 - Heritage Train ride for sight seeing from Shimla to Kanoh with activity based tourism at Kanoh
 - Beautification of Mall area
- 5) The concept of Shimla by evening/night may be introduced to explore the cultural and heritage aspects of the city at night with light and sound shows at suitable location
- 6) The elevators, lifts, ropeways, ecofriendly golf carts at appropriate locations may be some of the options for improving vertical accessibility. A Comprehensive Transportation Study is suggested to assess locations, routes, mode, and feasibility. The proposed strategy and options for vertical transport is presented in "Traffic and Transportation" Chapter
- 7) Upgradation of Tourists Information Centre providing online as well as 24X7 offline services
- 8) Developing and promoting mountain based soft and hard adventure activities creating "Himalayas" as the brand and icon of Indian adventure tourism
- 9) Establishment of Tourism Destination Fund for Shimla for channelising the investments and funds for development, operation and maintenance of tourism infrastructure as well as basic infrastructure at tourism spots. It is recommended that a green fee concept implemented in Manali should be replicated in Shimla.

Chapter 11

HERITAGE PROFILE



CHAPTER- 11 HERITAGE PROFILE

11.1 Introduction

Shimla was the Summer Capital for the British during the colonial period primarily owing to the scenic beauty and cool climate. The British established many architectural masterpieces such as Vice Regal Lodge, Gorton Castle, Railway Board Building, Gaiety Theatre, Town Hall, Auckland House, Ellerglie, Barnes Court, Bungalows, Churches and Challet Day School

Figure 11-1: Heritage structure of Shimla



Apart from those, the city possesses distinct British heritage including institutional buildings, bungalows, churches, socio-cultural spaces, hotels, cemeteries, coffee houses, clubs, theatres, schools, hospitals, street pattern and street furniture, immensely adding to grace of the city with their distinct expressions.

Figure 11-2: Details of British Heritage



Layout of Railway Board & SBI area

Lay out of Ridge & Mall Road area



British planned Shimla strictly in consonance with contours and levels of topography. All out-efforts have been made to orient the plans in such a fashion so that maximum sun is brought even inside the building. The British took utmost care of the natural scenery and did not prefer to raise any construction against the view, vision and vista. Rectangular buildings on various levels, specious environs thereof and accessibility by roads and pedestrian paths were the essential features of the layouts of those days.

The colonial imperial space concept is manifested in Bandstand, The Mall and pedestrian domination. Limitation of structural material and lack of innovative potential of British engineers provided Shimla with a rare architectural homogeneity.

11.2 Type of Heritage

Shimla has two type of Heritage:-

- A. Natural Heritage
- B. Built Heritage

11.2.1 Natural Heritage

In Shimla, natural vegetation has always caught the attention of the visitors. Prominent among these were the thick growths of Acer ablongum Ushan in Valley near Chhota Shimla. At Mt. Jakhu there are white oaks and rohododendron. The valley commencing at Elysium Hill is thriving with Pinus Excelsa. Several St. Helena weeping willows can be seen growing in and around Shimla. Himalayan Holly (ilax dipyrena) is much commoner in Shimla along the Mall on the northern side of Jakhu. The elegant pines, stately deodars, large oaks, interspersed with hilly shrubs 'gave an idea of looking over a gaudy carpet of scarlet and green".

11.2.2 Built Heritage

Shimla was dotted with various nodes of development amidst natural ambience. Bara Shimla around the Ridge and Scandal point was the central hub. It possesses institutional and socio-cultural buildings including Municipal Corporation, Gaiety Theatre, Bazaars, hotels, coffee houses, Command, cinema halls and Skating Rink. In the vicinity of Bara Shimla, there is Gorton Castle- Railway Board building, Vidhan Sabha and State Bank of India building complex along the Mall towards its west. On the western extreme there is viceroy and, in its vicinity, Boileauganj Summer Hill. Amidst Bara Shimla & Vice plex and Sanatorium at Chaura Maidan., bus stand, Western master pieces in these complexes express their saga of planning and development which is a feast to the eyes. Jakhoo is known as fountain head of the city. It is a vantage point for witnessing the changing skyline as the sun rises and sets. Built heritage in Shimla has been listed below in detail.

A. <u>HERITAGE FEATURES</u>

1. Mall Road

The concept of Mall, borrowed from the west, meaning 'a sheltered walk' or 'promenade', generally bordered with trees clearly indicates its social function as the centre of interaction. Starting from Boileauganj along Vice Regal Lodge (Indian Institute of Advanced Studies) and linking Peter Hoff, Cecil Hotel, Gorton Castle Building, Railway Building, State Bank of India, Telegraph Building, Town Hall, Gaiety Theatre, Clarkes Hotel, Chalet Day School Building, Oak Over and Post Office, it joins the Cart Road at Chhota Shimla. The important commanding locations of the mall from where view of high snow-clad Greater Himalayas in the North and Outer Himalayas in the South is visible are namely University-Boileauganj Road junction in front of Vice Regal Lodge, Chaura Maidan, Scandal Point and the Ridge. The 6.00 Km. Long Mall Road walk, covered in about one and half hour, makes



any body or tourist fully satisfied. The variable scenery throughout, comprising of lush green Deodars, Parks, Open Spaces, Heritage Buildings and Shopping Centre makes one spell-bound.

2. The ridge

The Ridge, located in the centre, commandtown and the snow-covered peaks of the Grein the West, Lakkar Bazar, Library and Chirst Church in the East, along with Town Hall and Goofa on the Southern side, the Ridge is a commanding site s a glorious panoramic view of the ater Himalayas. It is place of congregation and social cultural space.

3. Kalka -Shimla Railway line

Through its length of 60 miles, it runs at places 7000 feet above the sea level. It runs through 103 tunnels and crosses 800 bridges. The 96.5 km. Kalka- Shimla Section of the Northern Railway is considered to be one of the most spectacular narrow-gauge lines in the world.

4. Railway station, Summer Hill

When the Railway Line between Kalka and Shimla was commissioned in 1903, this was the first station from the direction of Shimla. The structure has gabled roof and decorative woodwork.

B. Government Buildings

The Vice Regal Lodge is a masterpiece of British Architecture and Heritage. The Gorton Castle (A.G. Building) at a commanding site is a jewel of Architectural manifestation. The Railway Board Building, alongwith overwhelming use of iron pipes in its façade, is a distinct framed structure in an unique style. The Town Hall has unique façade and a saga of British Heritage. The Telegraph building has simple and elegant style. The Western Command Building on slope in the vicinity of the Mall is an attractive complex. The Bantony (Old Police Headquarter Building) is a rare poetry of roof-scape and façade along with attractive windows, doors and columns. The two storeyed Y.W.C.A. Building has an impressive façade. The State Bank of India Building is beautiful and well proportioned. The Library Building on the Ridge is a rare architectural feast to heritage lovers.

Figure 11-3: Details of Government Buildings



Town Hall Shimla



Railway Board Building



Vice Regal Lodge



Gorton Castle





Telephone Exchange Building

Ellerslie Building

A. The Churches

There are four Churches in Shimla namely the Christ Church at the Ridge, the Catholic Church near Western Command, Church in St. Bede's Complex and a Church in Bishop Cotton School Complex. The Christ Church, being nucleus dominates townscape of the City. Whereas, the Christ Church is a yellow painted structure in a typical style, the other three Churches are in original stone masonry.

Figure 11-4: Details of Church



Christ Church



Catholic Church

B. Bungalows

The British were fond of Bungalows having unique architecture and settings. They preferred commanding sites and harnessed maximum sun and view in their architectural style. They gave distinct names to their Bungalows. Generally constructed in locally available materials namely, Stone, Wood and Tin, they have typical roof-scape, chimneys, windows, doors and façades. Dormers, glazing effect and bay windows formed integral part of Bungalow style. The British liked natural surroundings for their abodes.

Figure 11-5: Details of Bungalows



Bantony

Woodville



11.2.3 Architecture

The British in trying to recreate homely atmosphere used English architecture, while constructing their houses. But with time, they also incorporated the indigenous style so that new buildings displayed the attributes of a different style, "the Anglo-Indian Architecture". 'Swiss Chalet' Bungalows were the most common in Shimla. Other main architectural styles were that of 'Boronial chateaux' with corrugated iron roof and Tudor Gothic, a dull but dignified style.

The roofs of most of the houses were either slated or shingled in an angular form to allow the rainwater to run down. A brittle kind of stone was most common, while cement was almost absent except in the outer coatings. Some houses were lined with traputus on their outer surface. Sometimes tar was used in small quantities. Most of the houses had a boundary line, defined by a wall or hedge. The open space between the boundary line and the house structure was developed as a garden. There usually was one main entrance linked to some main road by a footpath.

Unlike these, the houses of the Indian community were of typical vernacular style, covering a small area, made of local material and local techniques of construction, occupying sites on the lower slopes. "Form and structure of the hill residences was based on long established vernacular principles and not on imported European know-how."

1) **Types of Facades:** The Buildings in Shimla display a variety of facades in Western style.



Figure 11-6: Details of Facades





2) **Types of Entrances and Doors:** Institutional buildings have their monumental scale. Though there is a variety entrances, porches and doors, a few thereof which possess typical shape, dimensions and scale are as under:-



3) Types of Windows: As windows provide multi-faceted impact to the facades, they have been designed with foremost attention by the British architects and designers. Their shape, size, scale and details differ from one set of buildings to another. Institutional, commercial, residential and religious buildings have therefore, different style from each other. Typical types of windows are as under:

Figure 11-8: Type of Windows







4) **Types of Roofs:** Slanting slate and tin roofed structures, resting on wooden frames thereunder dominated the townscape of Shimla. Major typical roof types of prominent buildings are as under:-

Figure 11-9: Roof of Town Hall and Deepak Project Building



Figure 11-10: Roof of Bishop Cotton School





As we can see, in Shimla variety of roofs, facades, doors, windows, chimneys and dormers exhibit a great deal of variety, yet they have symmetry in their style. Generally, all these features taper towards upper side and express their grandeur and unifying criteria with the almighty, the all powerful and pervading force. All the buildings and features are in harmony with the nature. Shimla in snow becomes an unique chemistry of its symmetry.

11.3 Heritage Conservation

Restoration, preservation and conservation of built heritage of Shimla is essential to maintain the unique aura of this hill station. The heritage buildings have been well preserved. Time to time renovations of structures like Gorton Castle, Gaiety Theatre, Betony Castle, Cecil Hotel, Ellerslie Building etc. has been done. Due to these efforts, tourists are able to get a glimpse of Shimla's glorious past. Govt. has constituted State Heritage Advisory Committee, who's approval is necessary for any construction and reconstruction in Heritage Zone.

- i. The Heritage buildings located in Core Area of the city or at potential sites, are witnessing an enormous pressure from consumerism and urbanization forces.
- ii. The increasing appetite of vested interests led to manifold increase in encroachments in heritage areas during recent decades.
- iii. Intrusion and collision of commercial pursuits with heritage feature is a bitter reality.
- iv. Blind race for modern structures is posing threats.

11.4 Strategies

In view of importance of heritage features it is proposed that construction activities have to be discouraged in and around important heritage features. If any construction is necessarily required to be undertaken in premises of heritage areas, it should inevitably follow the architectural style of such features. Adequate setbacks and open spaces should be left around heritage features.



Structures which have been constructed without harmony to their surroundings are required to be remodelled in harmony to adjacent historical features

11.5 Other Proposals with respect to Shimla Heritage

11.5.1 Heritage walk

Heritage walk is a tool to explore the unexplored and neglected richness of a place. It plays an important role for the development of history and character of the city through generating interests and involvement of the local community in the urban conservation activity. Heritage walks can encourage people to support projects like conservation and preservation of historical monuments to collect authentic information about them and to publish it through various media. Residences of renowned citizens who have passed away are also part of heritage.

In Shimla, as one explores the Heritage Zone, they will observe the different style of architecture used to build the offices, the castles, the hotels and the cottages. The importance of these structures back in the time is worth knowing. A heritage walk can be proposed to attract tourists and contain the vernacular architecture of the city. It will bring in investments, generate employment and development. This heritage walk can be proposed along the major road i.e. Mall road where most of the tourist activities occur.



Figure 11-11: Heritage Walk along Mall road

The heritage walk along Mall road will be a good way to showcase the uniqueness of the city. It will show the type of ancient architecture, structure of building, local culture, local character of the streets, recreational amenities etc. The proposal of heritage walk can be a good mode for development of tourism sector. Below are the places which could be included in the heritage walk:

1.	Gorton Castle	2.	Town Hall	3.	Ridge	4.	LIFT
5.	Kali Bari Temple	6.	Lower Bazar	7.	Gaiety Theatre	8.	St Beade's
9.	Christ Church						

Table 11-1: Places to be included in the Heritage Walk



The urban living makes all the cities too familiar to notice anything extraordinary about it. People pass by the beautiful heritage buildings every day in a hurry to reach their offices or schools without noticing them. Heritage of a city communicates the history of that place. Heritage walk is a tool to explore the unexplored and neglected richness of the country. It plays an important role for the development of history and character of the city through generating interests and involvement of the local community in the urban conservation activity. Each of these places in Shimla possesses many Historical and Heritage buildings with a different style of architecture and holding many storey of the past Era.

Case Study: Ahmedabad

The city of Ahmedabad is endowed with a rich architectural heritage that is vital to the local identity and continuity of the place. Along with the foremost heritage Indo-Islamic monuments of the 15th to 17th centuries, there are potential heritage precincts in the form of the Pols, the traditional residential clusters of the medieval period, which makes Ahmedabad exceptional. Combining these all, the historic walled city of Ahmedabad has it all to be the first city in India to be inscribed in UNESCO's World Heritage City list of 2017.

The heritage walk organized by AMC. One can have the opportunity to enjoy heritage walk of Ahmedabad and its starting from the 19th century Swami Narayan Temple Kalupur, numerous Pols, Chowks with very popular and famous 15th century Jama Masjid, Ahmedabad heritage walk also known as the journey of 'Mandir to Masjid'.



Figure 11-12: Ahmedabad Heritage Walk Network

Above is the map of the heritage walk showing all the rich heritage sites of the city. The walk includes 22 such sites with different character and significance. Places like temples, mosques, pols, vav, markets, haveli, dome, etc. are included.



11.5.2 Development of more walkable Streets

Planning and designing for walking is crucial for promoting a healthy public life, creating sustainable neighborhoods, enhancing social life and economy. Walkable neighborhoods gives residents, visitors and businesspeople greater opportunities to mingle while they work, shop and dine, enhancing their sense of community. In addition to traditional health benefits, increased social interaction can improve individuals' health and happiness. Walking and walkability provide a variety of benefits, including basic mobility, consumer cost savings, cost savings, community livability, improved fitness and public health. Streets should have parking facilities, optimizing streets to support public activity, safe pedestrian infrastructure offering easily accessible transit services, complete streets and safe paths for biking or walking, public transport, affordable, accessible, convenient and efficient, Reducing speed and volumes.





Above is the map of Shimla with red circles, these are the location of streets which could be developed ad more walkable street.

- 1) Location 1: State Highway-16 Near Jathiya Devi Temple.
- 2) Location 2: Mall Road located in Municipal Area.
- 3) Location 3: State Highway-13, Shimla Tatapani Mandi Road in Municipal Area.
- 4) Location 4: National Highway-5, Kufri Bypass road in Kufri Special Area.
- 5) Location 5: Masho bara to Crignano

Similar type of development is in Switzerland. Where walkability is encouraged and development is carried out in such a way that it supports the pedestrians.

Figure 11-14: Walkable Streets in Switzerland




11.6 Imperative

Shimla possesses a unique and distinct heritage. It possesses numerous master pieces along the Mall road. The British Shimla is dotted with heritage buildings of various styles which are required to be notified and regulated in accordance with heritage regulations. All buildings facing Mall and the natural heritage having direct bearing are required to be regulated so that nothing contrary to natural and built heritage comes up in and around heritage areas. Regulations to govern the development activities if any to be carried out in heritage zone have been prescribed under separate chapter of Regulations and the same are required to be adhered strictly.

Chapter 12

ENVIRONMENT & NATURAL HAZARD



CHAPTER- 12 ENVIRONMENT

12.1 Introduction

Environment is the vital aspect of any city's development. The present-day development trend and high urbanization causes a heavy degradation of the natural ecosystem and features in the urban areas. There are several causes for urban degradation such as- population, migration, environmental considerations not adequately being incorporated into development plans, uncoordinated and haphazard development, weak implementation of plans and laws and inadequate institutional competences. This chapter focuses on different aspects of environment. Shimla has been a favourite holiday destination since ages owing to its dense forests and beautiful landscape. Spread over seven hills/ spurs, covered with various tree species of deodar, pine, Oak, Kail, Rai and rhododendron, Shimla has lush green environs. Some common fruit trees are Apple, Almond, Cherry and Plum. However, at present, depleting green cover due to massive constructions is the prime concern. Wild life is vanishing or migrating to greener pastures. Land, water, air, noise pollution and vegetation loss have grossly affected its eco-system. High rate of construction activity is damaging the natural setting as well as its scenic beauty.

12.2 Rivers and Water bodies

The Kufri-Dhalli-Sanjauli-Ridge-Tutu spinal is a drainage divide of Shimla city. The tributaries on southern side go to Yamuna and those on northern side to Satluj. Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too. Some lining is visible along these major nallahs but is not effectively coursing the storm water. **Map 12-1: Rivers and Water Bodies**



Most of the natural drains (nallahs) are encroached upon and disposal or household debris is a common view of these nallah, that has in turn spoiled the vegetation cover to a greater extent.



The Shimla being on hill town, natural drains carries the water to valleys into Khads, which are used as source of water supply for Shimla. There are no major surface water bodies both natural and artificial within Shimla Planning Area.

12.3 Forest and Green Cover

Forest plays an important role in shaping the ecosystem, economy and social life of the people. The climatic condition of Shimla Region as a whole is very much suitable for the growth of forests. The forests provide valuable timber, medicinal herbs, raw material for large and small scale industries and also provide employment. Forests play a vital role in protecting/ conserving the soil water holding capacity. It also plays in shaping the climatic condition of the area and ensures timely and sufficient rains. Geographically, Shimla city comes under lesser Himalayas. It has subtropical and temperate forests. Spread over seven hills/ spurs, it is covered with various tree species of deodar, pine, Oak, Kail, Rai and rhododendron. During the early period of the princely states some of the forests were reserved by the then ruling chiefs for games. It was in the year 1872 that Superintendent of Shimla Hill states directed the then ruling chiefs of the states to afford adequate protection to the forests. Thus, all the hill states got this work of demarcation done in stages by the creation of forest department and all possible protective measures were adopted.

Table 12-1: Details of Forest Area

S. No.	Administrative Area	Forest Area* (in Hectare)
1.	17 Green Pockets	414
2.	Remaining Forest area in SMC	1130
3.	Forest area in remaining SPA	9118
	Total	10662

Note *: Forest area here depicts forests, tree clad area and plantation areas, which may include Government and private land as well.



Map 12-2: Location of Forest and Green Belt



As per existing land-use analysis, the forests (includes forests, tree clad area and plantation areas) constitute about 43% of the Shimla Planning Area. The predominant species in the forest are Deodar, Pine, Oak, Kail, Rai and Rhododendron. The forest within SMC area was managed by SMC till recently under Himachal Pradesh Municipal Corporation Act, 1994 and now has been transferred to Department of Forest for better and efficient management.

In addition to forest lands, GoHP in August 2000 notified (Vide Notification No. HIM/TP-RW-AZR/2000-III dated 11.8.2000) that all areas possessing substantial green cover but not classified as forest, whether public or private ownership designated as Green Belts. 17 such Green Belts covering 414 hectares were identified and notified on 07.12.2000 in Core and Restricted zone for construction. The 17 green belts identified in Shimla Region, include Tutikandi Forest bounded by Bypass and Cart road,- Nabha Forest, Phagli-Lalpani Forest, Bemloe Forest, Himland Forest, Khalini, Chhota Shimla Forest, Chhota Shimla Forest above Cart road, Kasumpti Forest, Charlie Villa Forest, Forest between Himfed Petrol Pump and Secretariat, Jakhoo Forest (3 portions), Bharari-Shankli-RulduBhatta Area in between Boileauganj.

Figure 12-1: Green Belts



In 2013, "Environment Impact Assessment Report" was prepared by Department of Environment, Science & Technology, HP, in order to have a detailed study of green pockets in Shimla Planning Area. As per the study, the identified green belts in Shimla Planning Area are spread over 414 hectares, out of which 76% area is either under Govt. Land/ forests and 24% is Private land/properties. The Core wherein many green pockets are situated, comprising of most of the Shimla, possess a precious natural and built heritage, requiring preservation at any cost.

		Area Details in Hectare			
S no	Name of Green Belt	Area under Govt Land	Area under Pvt Land	Total Area	
1	Barrier	11.88	3.45	15.33	
2	Nabha	12.62	0.44	13.06	
3	Phagli-Lalpani	32.07	1.81	33.88	
4	Bemloe	13.00	7.50	20.50	
5	Himland	4.32	0.88	5.20	
6	Khalini-Chotta Shimla	23.36	16.15	39.51	

Table 12-2: Details of Green Belts



		Area Details in Hectare			
S no	Name of Green Belt	Area under Govt Land	Area under Pvt Land	Total Area	
7	Chotta Shimla	1.39	0.76	2.15	
8	Kasumpti	3.83	0.80	4.63	
9	Charlie Villa	9.54	2.82	12.27	
10	Himferd - ICAR Complex	2.89	7.07	9.96	
11	Jakhoo	84.49	33.03	117.52	
12	Benmore	5.17	6.83	12.00	
13	Sanjauli Chowk	12.19	1.83	14.02	
14	Bharari-Shankli-Ruldu Bhatta	53.19	13.57	66.76	
15	Summer-Hill	26.87	0.80	27.17	
16	Boileauganj	4.68	1.53	6.21	
17	Elysium Hill	12.82	1.37	14.19	
	Total	314.22	100.14	414.36	
	%age	75.83	24.17	100	

Further, in EIA report, the landuse details in 17 green pockets have also been elaborated, with respect to Built-up area, area under path/road, open area and forest area. The description of the same has been listed below in table:

S no	Description	Area (ha)		%age wrt total Greenbelt area of 414 ha			
		Govt	Pvt	Total	Govt	Pvt	Total
1	Built up Area	23	32	55	5.56	7.73	13.29
2	Area under path/road	35	1	36	8.45	0.25	8.70
3	Open Area	124	26	150	29.95	6.28	36.23
4	Forest Area	132	41	173	31.88	9.90	41.78
	Total	314	100	414	75.84	24.16	100.00

Table 12-3: Land Use Details in 17 Green Pockets

There is no doubt that the urban forests in Shimla contribute to value of Shimla by absorbing storm water and improving air and water supply besides quality. Urban forest is part of the fabric of Shimla bringing nature into urban landscape. Overall, the dense forest cover provides environmental buffer for the city. Large areas under scrub forest also provide adequate scope for expansion. Deodar Trees in Shimla has reached maturity level which is an issue of great concern. GoHP has banned the green felling of trees and therefore limiting its regeneration. The regeneration of Deodar is through artificial regeneration on the forest blanks. Tree felling for construction activity and unregulated



dumping of solid waste and debris along the hill slopes by people causing degradation of forests. Soil erosion and landslides especially along the natural drains is causing widening of drains especially during flash floods and exposing trees along the drain to felling, besides the fact that the soil compaction has lead to deterioration of soil quality and which in turn has led to phenomenon of tree felling in the entire Shimla region.

In view of soil conditions and pressure of already existing terrestrial development, tree cover has been affected in Shimla area. The survival rate of plantation is very poor. Uprooting/ tree falling in normal rain has become very common phenomenon. It needs to be stopped otherwise the entire ecosystem will get adversely affected living long term impacts.

During the stakeholder meeting of Shimla MC, Elected Councillors, pointed out that prior to notification of Green belts on 07.12.2000,, buildings were already constructed in the green pockets. However, some of the residents, who own the land in green area, could not construct their house because of financial incapacity and their plots lie sandwich between built-up areas. These landowners pleaded that they should be allowed to build residential homes of 2 floor+ attic, for their families on their own private land in green areas. In many cases, these sandwiched plots, are being used to dump the garbage and the plot owners are not able to construct even a boundary wall to safeguard their property.

As such it was felt that their grievance was genuine and construction on privately owned, open land which constitutes only about6.28% (26 ha) land may be permitted in the Green area subject to the condition that no cutting and felling of tree would be allowed and construction permission will be solely given on sandwiched plots and barren land for residential purposes only.

Realising the need to preserve the rich bio-diversity, in and around Shimla Town, the Green Belts already notified must remain intact. Moreover, in order the conserve the forest in Shimla Planning area, there is need to protect remaining forest land in Shimla Planning area, which is approximately 26 times more than 17 green belt area. At present, as per NRSC base-map land-use, 10,662 hectares land is under forests, tree clad area and plantation areas, which includes government as well as private land. Therefore, in terms of ecological and environmental perspective, minimum and limited construction may be allowed on vacant and sandwiched plots within the 26 ha of private open land, but simultaneously more strategies should be adopted to preserve these forests areas, which is approximately 10,662 (43.27%) Hectares of land in complete Shimla Planning Area. If low density construction with limited storeys and FAR is allowed in the green areas, the overall population pressure on the area is likely to be minimal.

To increase the forest cover it is proposed that the forest Department shall plant pine trees in the vacant govt. land patches and steep slopes under ambitious tree planting programmes combined with natural expansion of forests. The massive plantation and landscaping is required to be ensured in the entire Shimla Planning Area. Species of trees, plants needs to be identified for specific areas so that the plants survive in these conditions.

12.4 Geological Profile of Shimla

The rock profile of Shimla region mainly comprises of phyllites, mica-schists, garnetiferous mica schists, quartzites and limestones etc. These terrains are usually, seen exposed along steep hill slopes, roads and nala cuttings.

These rocks are mainly differentiated into the Jutogh Group and the Shimla Group. The Jutogh Group occupies the main Shimla area, occurs at higher elevation and extends from Annadale - Chhaura



Maidan - Prospect Hill – Jakhu - US Club and high land area and is surrounded by the younger Shimla Group and is brought in to its present position by a thrust sheet. Whereas the Shimla Group represented by shale, slate, greywacke, quartzite and local conglomerate are exposed in Sanjauli – Dhalli area, NW part of Walker Hospital, Sterling Castle and Golcha village area





Source: HRVA, Study of Shimla, 2016³

In general, the rocks constituting the entire area are highly jointed, fractured and at places crushed in nature. However, at many places these rocks dip in-hill. It has further been observed that the upper portion 0.5 m to 1.0 m of these rocks are highly weathered and contain high percentage of clay infilling along the foliation planes.

The weathering and disintegration of the upper portion of these rocks, at places, have resulted in the formation of soil cover. The thickness of overburden / Quaternary cover on the slopes of the Shimla hills varies from area to area. It is less than a meter in the Core area (Jakhu hills, near lift, Victory Tunnels, HP Secretariat, Chotta Shimla area etc) to as high as ~15 m on the northern slopes of the Ridge (Lakkar Bazar area) and in the geomorphic low areas like in the nallas/drainage. Structurally, the area form synform whose main axis trends WNW-ESE. The rocks have gone three distinct phases of deformations resulting in variation of attitude of foliation and weakening of the rock mass conditions. Jutogh Thrust separates the Jutogh Group from the underlying younger rocks of the Blaini Formation and Shimla Group along road cutting that leads to the Ridge via Tibetan Market. As per Geotechnical Report prepared by the Geological Wing, Deptt of Industries, the safe bering capacity of Shimla township ricks ranges from 20-25 tonnes/ sqm.

³ Report on Multi-Hazard Mapping and Analysis, Development of Exposure and Vulnerability Assessment (Physical, Economic, Social and Environment) and Risk Assessment; Capacity Assessment, 2016, UNDP & USAID



12.5 Eco-sensitive zones

There is only one Eco-sensitive zone in the entire planning area which is called Shimla Catchment Wildlife Sanctuary. It is one of the most popular sanctuaries of Shimla. The place is not only famous for providing some of the best sightings for common and rare wildlife but it is also a major source of water supply in the region.

The **Water Catchment Sanctuary** is spread over an area of 10.25 Sq.km (The Eco-Sensitive Zone shall be of 7.71 sq. Kms with an extent upto 1.5 kilo meter around the boundary of Shimla Water Catchment Wildlife Sanctuary) and its altitude ranges from 1900-2620 m. It is located on the northern side of Kufri and is about 8 Km away from the eastern boundary of Shimla. The sanctuary was declared as an Eco-sensitive zone by the Ministry of Environment, Forest and Climate Change in the year 2015.

List of activities prohibited or to be regulated within the Eco-sensitive Zone.- All activities in the Eco sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder. The list of activities as specified in the above mentioned act are as follows:

- 1. Prohibited Activities
 - a. Commercial Mining, stone quarrying and crushing units.
 - b. Setting up of saw mills
 - c. Use or production of any hazardous substances
 - d. Setting up of industries causing water or air or soil or noise pollution
 - e. Establishment of new major thermal and hydro-electric projects
 - f. Protection of hill slopes and river banks
 - g. Commercial use of firewood
 - h. Use of plastic bags
 - i. Undertaking activities related to tourism like over-flying the National Park Area by aircraft, hot-air balloons
 - j. Fishing
 - k. Discharge of untreated effluents and solid waste in natural water bodies or land area
- 2. Regulated Activities
 - a. Establishment of hotels and resorts
 - b. Construction Activities
 - c. Trenching ground
 - d. Discharge of treated effluents and solid waste in natural water bodies or land area
 - e. Air and Vehicular Pollution
 - f. Noise pollution
 - g. Extraction of ground water
 - h. Felling of trees
 - i. Migratory grazers
 - j. Existing establishments
 - k. Insulation of electric lines
 - I. Widening and strengthening of existing roads and construction of new roads
 - m. Fencing of existing premises of hotels and lodges



- n. Timber Distribution (TD) Rights
- o. Collection of small Fodder
- p. Muck Dumping
- q. Drastic change of Agriculture system
- r. Commercial use of Natural water Resource including Ground water Harvesting
- s. Movement of vehicular traffic at nigh
- t. Introduction of exotic species
- u. Sign Board and Hoardings

3. Promoted Activities

- a. On-going agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries
- b. Organic farming
- c. Adoption of green technology for all activities
- d. Small scale industries not causing pollution.
- e. Rain water harvesting
- f. Cottage industries including village artisans
- g. Use of renewable energy sources

Table 12-4: List of Villages falling in the Eco-Sensitive zone

S no	Name of Forest Division	Name of Forest Range	Name of Village	Area in Ha
1	Shimla	Mashobra	Badah	7.34
2	Shimla	Mashobra	Saruila Baruila	21.13
3	Shimla	Mashobra	Ajadhar	10.60
4	Shimla	Mashobra	Lindidhar	4.00
5	Shimla	Mashobra	Chharabra	32.50
6	Shimla	Mashobra	Wildflower Hall	5.00
7	Shimla	Koti	Garhog	1.00
8	Shimla	Koti	Tipra	7.35
9	Shimla	Koti	Kalali	4.25
10	Shimla	Koti	Maluthi	12.56
11	Shimla	Koti	Karyali	2.00
		Total		107.73

(Source: ESZ Notification by the Ministry of Environment, Forest and Climate Change, 2015)

12.6 Natural Hazards & Vulnerability Problems

1) Earthquake

Shimla and its surrounding areas lie in seismic zones IV and V, which represent the highest levels of seismicity in India. This area has historically experienced frequent tremors and periodic major earthquakes. Shimla can experience earthquake intensity VIII on the Modified Mercalli (MM) scale. Such an earthquake can cause collapse of poorly built structures and partial collapse of ordinary buildings. Structures designed and built to withstand earthquakes may sustain minor damage.



Chimneys, hoarding boards, free standing spires of old buildings and monuments may collapse. Heavy furniture may get overturned. Damage will vary depend upon the vulnerability of buildings and infrastructure as well as on specific sub-soil conditions in different locations.





Source: HRVA, Study of Shimla, 2016⁴

Based on the city's soil profile, much of the city is on either soft or medium soils, which mean that ground shaking, will be amplified leading to more damage in buildings. The eastern part of the city is slightly less hazardous compared to the western part.

2) Flash Flood

Shimla district's geographical location is such that it spreads from mid Himalaya to greater Himalaya and the river Satluj, Andhra, Pabbar, Nogali, Ganavi and other many smaller khuds/rivulets flowing through it makes the area and the people living around these more vulnerable to the floods /flash floods as is evident from the history.

3) Landslide

In addition to earthquake, Shimla is also susceptible to landslides due to its terrain, soil conditions and steep slopes. As per landslide hazard zonation atlas of India (2003), 18% area of Shimla district comes under severe to very high landslide risk while 67% area is susceptible to high risk. Between 2000 and 2009, Shimla was the most landslide prone district in Himachal Pradesh in terms of number of landslide events occurred in the state of Himachal Pradesh.

⁴ Report on Multi-Hazard Mapping and Analysis, Development of Exposure and Vulnerability Assessment (Physical, Economic, Social and Environment) and Risk Assessment; Capacity Assessment, 2016, UNDP & USAID





Figure 12-3: Landslide Hazard Zones in Shimla

Source: HRVA, Study of Shimla, 2016⁵

4) Cloud Burst

Sudden heavy rains are occurring in some part of the district (like Rampur/ Chirgaon) due to cloud burst during the last two decades causing the situation of flash floods and landslides resulting in devastation in terms of huge loss to the human life and property. It is being attributed to the climate change caused due to the large human interference with the nature. Activities like deforestation, unchecked development like construction of roads, bridges, buildings etc. is largely responsible for such catastrophe.

12.6.1 Other Issues

Shimla is not only expanding horizontally, but it has recorded high density of population in various pockets, which is not only causing undue stress on nearby vegetation but also is detrimental in view of the high-risk earthquake ZONE-IV and sinking zone. As Hazard Risk and Vulnerability Assessment (HRVA) study of Shimla, it is observed that in a severe earthquake, 39% of the buildings are likely to suffer collapse or severe damage. Due to such earthquake, estimated number of casualties was calculated to 20,446.

In addition, there are two prominent subsidence/sinking zones in the area, particularly, Ridge, Grand Hotel, Lakkar Bazar, Central School, Auckland Nursery School, Dhobighat, Ladakhi Mohalla and surrounding areas of Hotel Clark. They have been identified as high sinking zones and any further addition of building load could be disastrous.

⁵ Report on Multi-Hazard Mapping and Analysis, Development of Exposure and Vulnerability Assessment (Physical, Economic, Social and Environment) and Risk Assessment; Capacity Assessment, 2016, UNDP & USAID



As against the recommended density of 450 persons per hectare in hill settlements, the town's localities have densities ranging from 2,500 to 3,500 persons per hectare for the same area. Slope violation is a regular occurrence in Shimla Planning Area. Construction on slopes higher than 45 degrees has been observed in many areas. Therefore, risk analysis based on slope is important and a prerequisite for planning process in any hilly and mountainous state.

The main environmental key issues have been highlighted below:

- High level of construction activates are damaging the natural settings as well as its scenic beauty.
- Non availability of proper boundary delineation of the forest area creates a lot of issues especially to the private land owners as no development can be done on these lands.
- Vehicular usage are the main reason of increasing air pollution
- Untreated disposal of waste water degrades the water quality of the region
- Shimla and its surrounding region lie in seismic zone IV & V.
- Due to its terrain, soil conditions and steep slopes, Shimla is also susceptible to landslides.

12.7 Pollution Aspects

Environmental pollution such as air, water, noise and land pollution have not assumed serious proportions in the city of Shimla unlike some other towns in plain areas of north India. Nevertheless, Shimla has shown increasing trends with respect to some important pollution parameters. Details are described in sub sections given below:

1) Air Pollution

Air pollutants have shown increasing trend in Shimla. State Pollution Control Board monitors some of the important air quality parameters regularly at two places: one at the Ridge and another at Bus Stand Shimla. There is a certain increase in the level of RSPM at both the locations. Even the Ridge Maidan falling in sensitive zone category has registered an increase and is close to the permissible limit. Vehicular pollution is the prime cause of increasing air pollution particularly along road networks and bus-stands.

The maintenance of air quality of Shimla is big challenge due to traffic jams, soil erosion dust. The air quality gets affected adversely. The tree cover gives immense protection for air pollutants and therefore needs to be protected at any cost. The mains concerns during activities whether building or demolition true the emissions generated by various means excavation, vehicles and the machineries. Air Pollution is also caused by areas or point sources such as cities, commercial areas, or by linear sources such as highways. Vegetation buffers minimizes the build–up of pollution levels in urban areas by acting as pollution sinks, therefore, the vegetation in Shimla acts as lungs to the entire habitat.

• A dense belt provides greater shelter immediately to leeward but the sheltered area is not as extensive as when a more permeable zone of vegetation is provided.

• More plantation should be done. Plants are good absorbers of sulphur dioxide. Parks with trees have an SO2 level lower than city streets, minimize the pollution load.

• Evergreen trees should be planted which are found to be more effective.

• The species chosen for plantation must be resistant to pollutants, particularly in the early stages of their growth.





2) Water Pollution

Water pollution is also one of the key concerns of Shimla Planning Area. Since Shimla is facing crises owing to its limited water resources available for drinking water and other consumption of the city, water conservation becomes one of the important aspects to be considered for development and proposals. As drinking water problem of the city is well acknowledged by all sections of the city dwellers, improper use of water and further pollution of this scarce resource are evident from the data analyzed by the board. A large number of hoteliers are discharging waste water openly into various *Khads* and *Nallahs* along with domestic discharges. As sewage concentration in waste water is very high in surrounding khads of Shimla and there is not enough water for effective dilution and purification (self-corrective measures of the running water) in the *khads*.

Another important parameter of surface water quality viz. Total Coliforms (TCs) are observed to be on the rise for quite some time reflecting higher concentration of sewage and untreated disposal of wastewater. The State Board monitors surface water quality of about 4-5 khads and nallahs in and around Shimla. The quality of these khads has deteriorated because of untreated disposal of waste water.

3) Noise Pollution

Noise pollution level above desirable limit is observed especially at the bus stand and commercial areas such as Lower Bazaar, Lakkar Bazaar, Sanjauli and Khalini localities where higher concentration of residential area is also observed.

Noise pollution though is not big issue here but increase in number of private vehicles, transportation vehicle is matter of concern. Green belts and landscaping are effective means to control noise pollution. Therefore it should be enhanced in and around Shimla town. Strong leafy trees be planted to act as noise baffles. Shrubs and creepers may also be planted for additional protection between tree trunks. As little hard paving and as much grass as possible should be used.

12.8 Ecology Conservation Strategies

- a. Create vegetative cover on the sites on which developmental activity has already been done and not to disturb the vegetation in adjacent areas at all. No land clearing activities should be done.
- b. Landscape, open areas, create eco sensitive zones.
- c. Paved areas to be installed with permeable paving.
- d. Check dams built near muck dumping sites to reduce the quantity of eroded soil particles reaching free-flowing streams of downstream areas.
- e. Action for retaining the natural topography of the area or design the landscape with at least 15% to 25% of the area. Parking areas, walkways and landscaping should be created and considered in Shimla planning area.

12.9 Disaster Management – Vulnerability and Risk Assessment

For planning for prevention of hazards, the authority must identify and evaluate options for controlling hazards, using a "hierarchy of controls." Use of hazard control plan to guide the selection



and implementation of controls, and implement controls according to the plan. Develop plans with measures to protect workers during emergencies and no-routine activities.



The proper system of the hazard prevention must follow the above given 4 steps. There is a need to prepare for the hazards beforehand and a plan for risk must be prepared. A hazard prone area mapping must be carried out for further planning. Hence first task is to identify the potential Hazards for Shimla planning area. Shimla city is exposed to multiple Natural and Human induced hazards. They may include, but are not limited to the following:

NATURAL HAZARDS	HUMAN INDUCED HAZARDS		
1) Earthquake	1) Accidents- Train, Road, Air		
2) Landslide	2) Monkey Menace		
3) Land Sinking	3) Traffic Jams		
4) Hailstorm	4) Tree Falling		
5) Severe Storms, including lightning and high	5) Fires: Household, Forest		
winds (Thunderstorms)	6) Lift Disorder		
6) Flash Flood/cloud Burst	7) Stampede		
7) Heavy Snow Falls	8)Utilities Failure: Energy, Telecommunication,		
	Water and Sewerage System		

Followed by which, Risk assessment associated with each of the hazard should be taken into account with the various vulnerabilities. Subsequently, the Mitigation Plan should be prepared for each of these hazards and vulnerabilities. Mitigation efforts are attempts to prevent hazards from developing into disasters altogether or to reduce the effects of disasters. The mitigation phase differs from the other phases in that it focuses on long-term measures for reducing or eliminating risk. The implementation of mitigation strategies is a part of the recovery process if applied after a disaster occurs. Mitigation measures can be structural or non-structural. Structural measures use technological solutions like flood levees. Non-structural measures include legislation, land-use planning (e.g. the designation of non-essential land like parks to be used as flood zones), and insurance. Mitigation is the most cost-efficient method for reducing the effect of hazards although

Table 12-5: Details of Hazards



not always the most suitable. Mitigation includes providing regulations regarding evacuation, sanctions against those who refuse to obey the regulations (such as mandatory evacuations), and communication of risks to the public.

In addition, while providing the basic strategies for Disaster Management, the key proposals provided in the Action Plan on Disaster Management, submitted to Hon'ble NGT has been taken into consideration. The highlights of the actions taken so far are as following:

- i. Emergency Operation Centres (1 at State Level and 12 at District Level) is already in place with 24X7 operation facility for effective disaster response and DRR Planning. State Government may facilitate it with internet, connectivity, satellite phones etc. for better communication.
- ii. Disaster Management Cell will launce scheme on conduct of structural and safety audit of life lines buildings and hospital safety. After that, the District Disaster Management Authority, Shimla and Municipal Corporation, Shimla may conduct detailed structural audit of the building with the help of NIT Hamirpur.
- iii. For Safe Construction Practice and earthquake risk reduction, report will be prepared by Urban Development department for modern building byelaws which will be adopt by all the ULB's individually. Apart from that, Training will be provided within the staff as well as practicing engineers and architects for safe planning and construction.
- iv. Himachal Pradesh State Disaster Management Plan and District Disaster Management Plans of 12 Districts has been prepared and approved in the year of 2017 as per 'Disaster Management Act, 2005. To prepare the Disaster Management Plan for Shimla Planning Area, Hazard Risk & Vulnerability Analysis (HRVA) will be conducted.
- v. The High Powered Expert Committee will also be identified and delineate passages for providing emergency services, medical assistance and relief work, so enough openings are created for ingress and egress of fire tenders and emergency medical vehicles/ ambulances.

12.10 The Hon'ble NGT Directives

As per direction of the Hon'bel National Green Tribunal, GoHP constituted an Expert Committee to carry out study related to Carrying capacity of Shimla city. The Committee submitted its Carrying Capacity report in relation to the ecology, environment and protection of the declared forest area, according to which the carrying capacity of Shimla has been exhausted.

Further, the Principal Bench of the Hon'ble National Green Tribunal, in the matter of Original Application No. 121/2014 titled as "Yogendra Mohan Sengupta vs Union of India & Others" have passed a detailed judgement on 16.11.2017. The Hon'ble NGT vide order para 112 has prohibited new construction of any kind, i.e. residential, institutional and commercial in any part of the Core and Green/Forest area. The details of restrictions on construction in various zone has been mentioned in the table below:

Zone	NGT Orders Dated. 16.11.2017
Green Belts	Complete ban on Construction
&	Reconstruction on old lines- 2 + attic



Core Area	(only for Residential Use)
Non-core Area	Permitted upto 2 + attic More floors in Govt. projects of public utility can be permitted by the High Powered Expert Committee

12.10.1 Highlights of Ld. NGT Order para 112 dated 16.11.2017

- i. Prohibition on new construction of any kind, i.e. residential, institutional and commercial in any part of the Core and Green/Forest area.
- ii. Beyond the Core, Green/Forest area and the areas falling under the authorities of the Shimla Planning Area, the construction permitted up to two storeys plus attic floor.
- iii. No regularization of unauthorized constructions within the Core area and Green/Forest areas.
- iv. Restrain on cutting of hills/ forest and penalty to be imposed (Rs. 5 Lakhs min) thereof.
- v. Deviations to be compounded at the rate of Rs. 5,000/- per sq. ft. for residential construction and Rs. 10,000/- per sq. ft. for commercial buildings.

In addition, the following High Powered Expert Committees were also formed to consider and evaluate the need for construction of buildings of exceptional nature and make recommendations, if necessary.

- 1. Supervisory Committee
- 2. Implementation Committee

A Carrying Capacity Report was prepared by NGT. The report covered some of the crucial aspects which stressed on increasing pressure on existing resources in Shimla City. The issues raised in Carrying capacity report have to be studied carefully and addressed in the proposed Development Plan of entire Shimla Planning Area for horizon year 2041.

The NGT report has specified the carrying capacity of the Shimla and has imposed certain recommendations that are of utmost importance to its local community. The recommendations suggested that the built environment of Shimla Core City has already exceeded its carrying capacity and further increase could lead to extreme hazardous conditions. Hence, in the following sections, these concerns related with carrying capacity have been described in detail.

12.11 Narrative of NGT's Carrying Capacity Report

12.11.1 Carrying Capacity of Shimla Municipal City & Shimla Planning Area

The issues raised in Carrying capacity report focus mainly on the Core area/ municipal area of Shimla, where situation is more critical and the resources have nearly been exhausted. However, considering the aforesaid carrying capacity report, the restrictions on construction has been imposed on the whole Shimla Planning Area, which includes not only Shimla Municipal Area, but also, Shoghi Special Planning Area, Ghanahatti Special Planning Area, Kufri Special Planning Area and Additional Planning Area.

While the area incorporated under the ban is huge, the carrying capacity of these surrounding areas are still a matter of discussion. As per analysis from the Demographic profile and spatial distribution



of settlements, these per-urban areas have very low density and intensity of development. These areas beyond the MC limits have more potential to accommodate the future population than the MC Core area of Shimla City.



Figure 12-5: Hazard Profile for working out carrying capacity of Shimla



Moreover, ban on construction of more than two and half floor in these areas has not helped much and in turn has encouraged the illegal developments in outskirts as well.

12.11.2 NGT Report & it's parameters

Furthermore, the concept of carrying capacity of Shimla as a city and issues emphasized in the carrying capacity report have been studied in detail in order to understand the severity of the situation. The carrying Capacity (CC) Constituents of and Urban Area as follow has been considered.

- **Supportive Carrying Capacity:** Refers to the resources carrying capacity to support its population and activities.
- Assimilative Carrying Capacity: Refers to the capacities of natural sinks to absorb and/or recycles the waste produced by its such population and activities.

The committee included the following main issues highlighted below in the carrying capacity report:

	C	ritical Issues of NGT Report		
Unsafe & Haphazard Constructions	Water Supply and Distribution	Sewerage & Solid Waste Management	Traffic & Transport	Forests
Natural Hazard, Exposure, Vulnerability, and Disaster risk in Shimla What kind of built environment (Density and quality) Shimla can carry	With current source of water what is the level of supply that Shimla can support?	What kind of solid and liquid management systems need to be installed so that assimilative carrying capacity is not exceeded?	What kind of internal transport system can the city carry without spoiling air quality?	What is the minimum extent and quality of forests cover require so that the carrying capacity of city that can be sustained and enhanced?

Figure 12-6: NGT Report and its parameters



Revolving around these parameters, NGT committee raised following questions which addresses following concerns:

- A. Natural Hazards, Exposure, Vulnerability and Disaster Risk in Shimla: Given the geology and the hazard profile of Shimla, what kind of built environment -- in terms of density and quality -Shimla can carry without jeopardizing the safety of its residents and visitors.
- **B.** Mobility: What kind of internal transportation systems can the city support to ensure reasonable commute time and without affecting the air quality of the city?
- **C.** Water Supply: With the current natural sources of water supply, what is the level of supply that Shimla can support and sustain? How can this supply be sustained and augmented in view of the increasing demand.
- D. Liquid and Solid Waste: What kind of liquid and solid waste management systems which need to be installed so that the assimilative carrying capacity of Shimla is not exceeded?
- E. Forests: What is the minimum extent and quality if forest cover require so that the supportive carrying capacity of the city can be sustained and may be even enhanced?

Stressing on these issues, the Committee made an analysis of the carrying capacity of Shimla city based on the trends of population growth, construction, vehicular population and ecological impacts of solid waste, sewage, destruction of forest, water supply, etc. on the ecology.

With reference to disaster risk, mobility, water supply, liquid and solid waste management and forest management, the Committee came to a conclusion that the carrying capacity of Shimla has been exhausted and restrictions on development activities need to be enforced in complete Shimla Planning Area.

12.11.3 Criteria for Determining the Carrying Capacity for the Shimla Planning Area

However, the carrying capacity report missed some other important parameters which are crucial while analysing the carrying capacity of any area. Carrying Capacity report of Shimla has duly raised the right key concerns but it misses out detail about the population density and it has not examined that how much of population, per unit of land the complete Shimla Planning Area is capable of carrying and accommodating in future.



Figure 12-7: Criteria for determining Carrying Capacity



At present, based on the sector wise analysis and the future requirements, it is inferred that the major issued related to water, sewerage and solid waste, transportation and the overall decongestion of the core area have been addressed to a great extent. Hence, some of the aspects are also required to be considered in the carrying capacity report are- Population Density, Availability of Social Infrastructure such as Open spaces, Health Facilities, Educational Facilities and other amenities etc. Also, while analysing the carrying capacity of a city, another essential parameter is to see, how much of vacant land available, which is suitable for new development. Therefore, identification of suitable areas for new development should also be considered while determining the carrying capacity of an area have been listed. The points highlighted in blue have already been covered in Carrying Capacity Report, but points shown in red color are crucial as well and need to be incorporated while analysing the carrying capacity of Shimla. So, criteria for determining Carrying Capacity for Core area are:

Table 12-7: Criteria for determining the carrying capacity of the core area

1. Population Density	4. Protection of Ecologically Sensitive Areas
a. Residential Density	a. Forest/Green Cover/ Tree Plantation
b. Tourist Density	b. Water body & Natural Drains
c. Gross Density	c. Slope
2. Availability of Social Infrastructure	d. Soil Bearing Capacity
a. Open Space/Parks/Gardens	5. Effect of Building By-Laws FSI & Density
b. Health Facilities	Relationship
c. Education Facility	a. FSI
d. Other Amenities	b. Ground Coverage
3. Availability of Physical Infrastructure	c. Setbacks
a. Transportation System	d. Building Heights
b. Water Supply	e. Common Open Space
c. Sewerage/Drainage System	f. Parking
d. Storm water System	g. Identification of suitable areas for new
e. Electricity	development

Density is defined as the number of persons living in a unit area. It is one of the most important parameters to evaluate factors such as physical and social infrastructure projections, living conditions, housing typology, floor area etc. in Shimla, being a hilly town and ecologically sensitive area, density plays a major role in determining the carrying capacity of an area in the sense, that how much of population per unit of an area in Shimla can carry.



Map 12-4: Population Density of the Shimla Planning Area



As can be seen from the map shown above, population density in Shimla MC area is 77 persons per ha. Whereas, area outside the MC such as in SADA's and Additional Planning Area the population density is below 7 persons per ha. Which indicates that the area outside MC area can still accommodate more population and settlement development, if planned well.

Settlement	Population Density (ppha, as per 2011 Census)
M.C. Shimla	77
S.A Ghanahatti	7
S.A Kufri	4
SA Shoghi	5
Jutogh Cantonment Area	15
Additional Shimla Planning Area	3
Average Density of SPA	11

Table 12-8: Population Density	of Shimla Planning Area 2011
TUDIC IZ 0. I Opulation Density	

In another exercise of estimating the existing densities, the floating population (tourist density) was incorporated with resident population in different wards of MC Shimla (as Shimla is also a major tourist destination), based on number of hotels available, number of beds and number of tourist destination in each ward. As can be seen from the resultant population density map, population Concentration has considerably increased in the wards along the major highways. Maximum tourist accommodations are also available within the same wards which makes the situation even worst during the tourist peak season.

While comparing these densities with the URDPFI Guidelines (where desirable densities in the hilly areas ranges between 60 PPH to 90 PPH), population densities in 8 out of 25 wards (Ward No.3,9,11,12,13,19 and 22) have exceeded the target density of 100 pph. Whereas, in 14 out of 25 wards the population density is less than or about 50 pph. Only two wards out the eight wards where population density is above 100 pph falls in Core Area of Shimla Planning Area. Rest of the wards are within Non-Core area and enjoys direct connectivity and accessibility with the Core Area and the peri-urban areas. Thus, the urbanisation trend the pressure is spilling over to the outer areas and is likely to continue in future as well.

12.11.4 Implication of Ld. NGT Order

That it is a settled position of law that normally a Tribunal will deal with the controversy brought before it. That is to say, it will adjudicate upon case put up by any aggrieved party before it. Without conceding on the point of limitation, that the Learned Tribunal could have only adjudicated upon the case put up before it. The case put up before it in nutshell was that no construction should be allowed in forests and green belt area. As already submitted green belt areas are those areas in which the land is also owned by the private land owners and is occupied by the structures. As per IDP Provisions, only reconstruction is permitted in the area and that too on old lines. No new construction or increase in constructed area is permissible in these areas. So far as the forest lands are concerned, no construction upon that is permissible unless there is a clearance from the Central Government as per the provisions of Forest Conservation Act. Further, no construction is permissible on the forest land until or unless proposal is cleared by the Competent Authority i.e. Central Government, but while disposing of the case, the Learned Tribunal has entered the field, which does not belong to it. Whether the building should be one storey or three storeys is for the Competent Authority to decide. Town Planning does not come under the purview of the NGT.



Further the state of Himachal Pradesh is not a non-compliant State. It has been taking care of environment and has also been taking care of Town Planning.

The Town Planning Act came into force in the year 1977 and different plans for different planning areas were formulated and these plans have been formulated after taking all possible care with regard to Town Planning and the factors relevant to Town Planning. For example for Shimla Planning Area, the appellant has done Zoning of areas. Some areas are in the Heritage Zone where carrying out construction is very difficult, for the reason that the rules and regulations are very stringent and different Committees are involved in getting clearances including getting clearance from State Heritage Advisory Committee. Certain areas fall within core areas where only limited construction is permitted.

12.11.5 Building Construction vis-à-vis EIA Notification, 2006, MoEF

In the State of Himachal Pradesh, entire construction activities including sanction of maps of a proposed structure/building falls under the purview of Town & Country Planning Act, 1977 legislated by the State legislature. The Town & Country Planning Department consists of experts relating to architecture and town and country planning and when an application for erecting a proposed structure in a particular area comes for sanction before the department, the department looks into all the aspects of a proposed building and only once the department is satisfied then only the map of the proposed building is sanctioned. Moreover, as per the EIA Notification 2006 issued by the Ministry of Environment, Forest & Climate Change, Govt. of India (herein after referred to as "MoEF"), which envisages that any construction which is proposed and is having less than 20,000 square metres of built area then all such constructions are exempted from taking any Environmental Clearance from any authority i.e. SEIAA or EAC of MoEF. Thus in view of the above, the Hon'ble Tribunal failed to appreciate that by way of impugned judgment, the Hon'ble Tribunal has rendered the law ineffective in as much as the Hon'ble Tribunal has been pleased to direct the appellant State that no new construction will be permitted beyond 2 storeys plus attic floor.

Further as per the EIA Notification issued by MoEF, it is mentioned therein that any construction can be carried out which is less than 20,000 square metres without obtaining EC from respective authority and it is understood that EIA Notification is the Bible for Environmental issues and this law also does not prohibit construction less than 20,000 square metres, however by way of impugned judgment the Ld. Tribunal has sat over and above the law without declaring the law existing as ultra vires which is violative of Article 14 of the Constitution of India in as much as though the law permits construction up to 20,000 square metres of built up area without any sanction or EC from any authority but as far as Shimla is concerned the said law remains ineffective as the impugned judgment has directed the appellant State to not to permit any construction beyond 2 storeys plus attic floor.

12.11.6 Urbanisation Aspects

Further, the aspects relating to the urbanization of Shimla City, it is imperative to point out here that Shimla has been playing multiple roles including administrative, educational, tourist centre and heritage city. This has led to the formation of a primate city in the State and consequently it is growing rapidly. With growing population, greenery in Shimla is fast disappearing due to construction sprawling outside the municipal areas and in the forests. Shimla is experiencing massive growth in the form of unplanned ribbon development along the highways and roads emanating from the city. Along with highways, the city slopes are also experiencing urban sprawl reducing forest and agricultural area



- i. Vertical Development -The current urbanization rate of Shimla coupled with growing tourist foot fall over the years is creating immense pressure on the city administrators to provide for more land for accommodating ever increasing population and creating economic infrastructure to support various segments of tourism & hospitality sector. However, the city is primarily witnessing the following constraints.
- ii. **Geographical constraints** Shimla is bounded by forests, valleys and other natural features. The development while penetrating these areas to accommodate urbanization is constrained by governing rules & regulations.
- iii. **Terrain** The hilly terrain with slopes, make the cost of laying the urban services viz water supply, sewerage & sanitation, etc comparatively higher to cover large geographical areas.
- iv. Transportation constraints Limited possibilities to further develop transport infrastructure on hilly terrains do not support sub-urbanization and horizontal sprawl. Thus the issue to meet the urbanization challenge without compromising the larger ecological concerns of deforestation, reduced green cover and economic development challenges of accommodating ever increasing from tourism demand and hospitality sector calls for doing with restrictions on away



vertical growth, liberalize land use rules, and provide incentives for redevelopment of underutilized lands. The high-density vertical development will avoid sprawling and depletion of green cover outside the city as well as within the city. Vertical development would also help in creating open spaces within the developed area.

However, the recent ruling of Hon'ble National Green Tribunal of height restriction in Shimla Planning Area is a dent on meeting the future urbanization challenges due to the following few reasons:-

- a) By repudiating the relaxation of FSI norms/Height restrictions, there is a possibility of restricting the effective infrastructural development that may help support a higher carrying capacity.
- b) The restrictive development control regulations may implicitly constrain the optimal utilization of existing economies of scale, followed by a resultant increase in per capita operation and maintenance costs incurred on creation of urban infrastructure.
- c) Further, the regulatory restrictions limit the effective supply of land available for construction, and force up rental and land values, which act as a virtual tax, imposed on those searching for housing and accruing to those who already own houses.
- d) The need of the hour is to take the approach of looking upward and not looking outward, while planning the cities. The Niti Ayog and MoHUA also strongly support the high density vertical development and relaxation in FSI to meet the urbanization challenges.
- e) As per URDPFI guidelines of MoHUA, the gross densities of hilly cities can go up to 100-150 pph, however in case of Shimla MC its about 77 and for complete Shimla Planning Area it is



10 ppha only, which presents that, if city is developed in planned manner and incorporates the densification strategy it can maintain the balance between development and ecology.

- f) Also, most of the old buildings existing on the Mall Road Shimla are 4 to 5 storeyed and the construction of these buildings had been raised from either the Lower Bazar or Middle Bazar Shimla. Thus restricting the rebuilt buildings to a maximum of two and half storeyed would lead to a situation where the Mall Road would cease to exist. It would not be possible to have any shops, showrooms or flat on the Mall Road Shimla as two and half storeys of the reconstructed building would be completed much below the present Mall Road Shimla. There are different owners/occupants of different floors of such buildings and restricting the reconstruction of these buildings to only two and half storeys would not only lead to various disputes but would also deprive the owners/occupants of their property without any authority of law and in gross violation of Article 300-A of the Constitution of India.
- g) The impugned judgment /order of the Hon'ble National Green Tribunal is also violative of Principle of natural justice as no opportunity of being heard was afforded to other affected persons of the locality against whom the order is passed. The orders would also adversely affect the rights of co-owners of old properties having more than two stories in a building owned by more than 2 co-owners, if it is to be reconstructed. The Constitution makers bestowed right on every citizen of the Country to acquire, hold and dispose of property and also provided ample safeguards against deprivation of the property by Legislature by confining such deprivation for public purpose only and only on payment of compensation to the expropriated owner either by fixing the amount of compensation or by specifying the principles upon which it could be determined or fixed. As such the impugned judgment/ order is against the provisions of Article 300-A of the Indian Constitution which provides that no person shall be deprived of his right to property save by the authority of law. Further it has been provided under article 19 (1) (g) of Constitution of India the right to practice any profession or to carry out any occupation, trade or business to all is citizens.
- h) Building height up to 18 to 21 mts. is accepted as low rise development as per the fire norms, URDPFI guidelines and some of city master plans having same profile. Same can be followed (including top of sloping roof, solar panels, lift rooms etc.). In order to cater to the housing demand and other livelihood demand of growing local population of Shimla, new construction is required in Shimla Planning area and core area. Various proposals in shape of the recommendations that form part and parcel of the Shimla Smart City Project include retrofitting old area, decongesting Shimla, improving mobility, water supply, sanitation and solid waste management, ICT services, eco-friendly development, etc. These proposals are planned to provide adequate infrastructure to the local population. For these reconstructions/ retrofitting should be permissible on old lines and as per the existing Statutes, subject to permissible slope and soil conditions. The construction in core area may be permitted strictly in accordance with the provisions of Town & Country Planning Act, Development Plan and Municipal Bye-law in force.

12.12 Building By-laws with respect to NGT's Carrying Capacity Report

Building regulations are the root cause of many issues of built environment of cities. . In many cases the local governments adopt the building bye-laws of other cities/ Specified in the State/ Central Guidelines. Every city has its unique context in terms of its location, geology, topography, climate and neglecting these factors would cause a great harm to not just the citizens who resides in these cities but also affect the natural environment, flora and fauna etc. In Shimla, Frequent changes in the building byelaws – permissible height, F.A.R., ground coverage, issuance of completion certificates at



different stages – has meant that it has been very difficult, if not impossible, to manage the growth of the building stock in the city such that the proportion of safe buildings in the city can be increased. Some of the specific aspects of Building Bye-laws and guidelines that directly impact the level of vulnerability are described below:

12.12.1 Allowable Slope for Construction

As per the current building regulation, maximum allowable slope for construction is 45 degree. Prohibition on construction activities on steep slopes was imposed much later when damage had already been done. As per one estimate, approximately 90% Shimla is built on 45-60 degree slope and in some places like Kachighati, Dhalii, Cemetery, Sanjauli, buildings are also built on 70-75 degree of slope and are covered with average 4 to 5 storied buildings.9 Buildings in these areas may fall like a pack of cards as most of them have a soft storey and earthquake safety design parameters were not taken into consideration.

12.12.2 FAR

When we talk about building bylaws, FAR is the most important component of guidelines, which directly determines the dwelling density, household density and as well as population density in a city. Therefore, while proposing FAR Shimla planning area, it would be mandatory to justify that respective change in FAR will not result into increase in population density to such extent that it



would exceed the carrying capacity of the Shimla Planning Area. Currently the FAR in core and noncore area of Shimla is 1.5 and 1.75 respectively. In order to propose the FAR guidelines, an exercise was done to determine, how much of FAR should be allowed so that it doesn't result into population density exceeding the carrying capacity of Shimla. Keeping the same purpose in mind, 100 ha of land has been taken a sample, where it has been assumed that 40% of land is undevelopable because of hilly topography and eco-sensitive region.

Table 12-9: Sample details

1	Area for development in hectares	100
	Undevelopable area (Topography ,and	
2	ecosensitive region) (40%) in hectares	40
3	Developable area (60 %) in hectares	60

	Area allocated in circulation- roads ,open spaces and amenities as per	
1	URDPFI Guidelines (40% of Developable Area)	40%
	Area for land acquisition (Road, infrastructure & Amenities) in hectares	24
2	Net Plot Area for Developments per URDPFI Guidelines (%)	60%
	Net Plot Area for Developments in hectares	36
		150 sq m (including
3	Avg. Dwelling Size in Shimla	staircase)/
		120 sq m (net)
4	Avg number of Member in a Household	4



In the remaining developable area which is 60 ha of land, again land will be allocated for infrastructure and amenities such as roads, gardens, schools which has been assumed to be 40% of developable area i.e. 24 ha. Therefore, the remaining developable area available for plot development would be 36 ha (60% of developable area). Considering this as built up area for building development, dwelling density vis-à-vis population density can be derived, if we know avg dwelling unit size of a household in Shimla and also avg number of members in a family. As per the primary household surveys conducted in Shimla Planning Area, the avg dwelling unit size of a household vas 130 sq m. However, in this area, the area of staircase was not included and after incorporated that area the average size of a household comes out to be around 150 sq. m. The average number of members in a family in Shimla is 4.

	Case 1	Case 2	Case 3	Case 4	Case 5
Dwelling size	150	150	150	150	150
HH Member size	4	4	4	4	4
FAR	1	1.25	1.5	1.75	2
Total Built up area (ha)	36	45	54	63	72
Total Built up area (sq m)	360000	450000	540000	630000	720000
Total Dwelling Unit (sq m)	2400	3000	3600	4200	4800
Net DU Density (Per ha)	66.7	83.3	100.0	116.7	133.3
Gross DU Density (Per ha)	24	30	36	42	48
Gross Dev Area Population Density (Per					
ha)	96	120	144	168	192
Gross Total Area Density (Per ha)	58	72	86	101	115

Table 12-10: FAR Calculation for various cases

Keeping these derivations in consideration, Developed area population density and total area population density was calculated with respect to various proposed FAR values. If we refer to URDPFI guidelines, it suggests that in a large city in hills the population density should not exceed 100 persons per ha. Therefore, as in the table shown below, if we keep the base FAR till 1.75, the population density will not exceed the carrying capacity of Shimla.

Table 12-11: Developed Area Densities

	Total Gross	0	Persons per Hectare(pph) in		As per URDPFI
Base FAR	R Density	Settlement Type	Plain Areas	Hill Areas	Guidelines
0.75	43	Small Towns	75-125	45-75	Population
1	58	Medium Town	100-150	60-90	density
1.25	72	Large Cities	125-175	60-90	Shouldn't/t
1.5	86	Metropolitan Cities	125-175	100-150	exceed 100
1.75	101	Megapolis	More than 200		
1.5 1.75 2	86 101 115	Metropolitan Cities Megapolis Source: Revised based on UDPFI Gu	125-175 More than 200 idelines.		exceed PPH

12.12.3 Ground Coverage

In Shimla, Ground Coverage is not specified in the current development control regulations. Permissible ground coverage plays a major role in environmental sustainability. Buildings with higher footprint require more cutting of slopes and trees, which disturb the natural drainage pattern



subsequently. Due to less percolation of rainwater into ground, higher runoff in Shimla may lead to soil erosion and destabilize the slopes. Therefore, in proposed building by-laws it is important to introduce the provision of Ground Coverage.

12.12.4 Building Height

- Maximum permissible height of residential buildings is 18 m in core area and 21 m in non-core area of Shimla Planning Area. Height of a floor has been fixed at 2.7 m and permissible height of the parking floor has been now raised to 4m which is not counted in F.A.R. Hence, in non-core area height of some of the buildings reach upto 7-8 storey. It leads to more construction activity in outer areas, which are deficient in basic infrastructure. Therefore, before allowing construction with relaxed by-laws in outer areas, it is essential to provide the planned development with provision of basic infrastructure.
- Moreover, same height restrictions are in force throughout the town irrespective of slope gradient, direction, location and size of plot which lead to same population densities in all localities without consideration of infrastructure, facilities and characteristics of areas. Hence, in newer areas around Shimla, where development is inevitable in future, new pockets need to be identified for planned development based on land suitability (slope, soil, sun light, accessibility to roads).
- Another drawback of permissible building height is the non-consideration of road width which results into very limited solar light to lower storeys and lack of open spaces. High-rise buildings along narrow roads also restrict the effectiveness of fire services.

12.12.5 Set Backs

Front, rear and side set back regulations applicable for residential buildings are 2.0m, 1.5m and 1.5m respectively. As also mentioned in the carrying capacity report, prescribed setbacks are insufficient for buildings with permissible height of 18 m & 21 m, to have adequate space for emergency response in case of a major disaster. Therefore, building heights should be reduced for the plots for smaller size, where, side margins are as low as 2 m and 1.5 m. In other words, building height and FAR should be proposed with respect to the size of the plot. Moreover, proposed building height should be lesser in the core area, as the capacity to accommodate more population in that area is already not much.

12.12.6 Common Open Space

There is no provision of common open space in the current building byelaws, which leads to construction of large buildings with insufficient light and ventilation. Thus in proposed guidelines, for the plots having area more than 1000 sq m, it would be mandatory to leave some space as "Common Ground" or "Common space", which can be used for gardening or parking as per individual requirement.

12.12.7 Parking

Parking provisions in existing building byelaws have not been adequate. Ban by NGT of 2 floors plus attic on building construction doesn't encourages citizens to make separate floor for parking either. In proposed bye-laws, sufficient mandatory provision parking should be introduced with respect to the size of the plot and to the land-use.



12.12.8 Role of Planned development & Existing Development Patterns in Shimla

However, it is also important for us to understand here that building bye-laws are not the only determining factor for a planned and liveable built environment in a city. These building bylaws and guidelines have to be interlinked with physical planned development, where housing units in a settlements have an easy access to all kind of infrastructure and facilities. The purpose of successful byelaws are mentioned in the diagram, shown below.

Chart 12-2: Objective of successful building byelaws



If any guidelines are not able to create a living environment mentioned as above, it defeats the whole purpose of implementing building byelaws. As we can see, in case of Shimla, while looking at the buildings one cannot make much of a difference, which buildings have followed building guidelines and which buildings have violated the same. This is because,

building permissions are being given in inaccessible places, where development has been happening organically and in a haphazard manner.



Figure 12-9: Haphazard Development

These houses are no less than expensive slum dwellings, where accessibility is an issue. In other words, giving building permissions (whether 1 FAR or 4 FAR & 2 floors or 5 floors) at inaccessible places leads to the emergence of unsafe settlements with haphazard growth where providing access to basic infrastructure becomes a tedious task. In a similar hypothetical scenario, where 500 citizens (125 households) construct buildings, even by following the NGT rule, with 2 and a half floors on their original plots; the development will be unplanned where houses will have again have narrow access. At the time of emergencies no fire-brigade, no ambulance can access these places.

Moreover, the carrying capacity becomes a relative concept, even when we compare two areas of the same city- New Shimla (one which is planned) and Sanjauli (one which is not planned). The carrying capacity of per unit of area in these two places will definitely be not the same. Providing



more number of floors in a building in New Shimla, would be more reasonable where each house has an access to road and basic facilities.

In addition, providing infrastructure and basic facilities such as- water supply. sewerage. solid waste management to unplanned inaccessible settlement, become a very expensive and inefficient task for other lined departments such as IPH, PWD etc. Image shown below depicts the similar situation, where so many individual water pipelines (running parallel to each other along the road

Figure 12-10: Basic Infrastructure Facilities



coming from individual households) are connected to the main water supply trunk. This peculiar situation is quite a common site to see in Shimla because settlements have either been developed in an area which are not accessible and it is not possible for the department to install a main pipeline in that region or settlements have developed so fast in an area that before department plans to install the main water supply line, individual house owners connect their own individual pipeline to the main trunk which is at a distant location. Similar inferences of inefficiencies in the network, can be seen in case of other services such as- collection of solid waste, connection to sewerage network, electricity etc as well. Therefore, the most essential part, while improving the level of carrying capacity of Shimla is to look at the holistic scenario with an introduction of physical planning with proper positioning and orientation of plots with basic infrastructure.

12.13 Imperatives

- 1) The issues raised in Carrying Capacity Report are focused mainly on Shimla Municipal Corporation Area. But, the ban on construction has been imposed in the whole Shimla Planning Area. Settlements in peri-urban areas of Special Area Shoghi, Kufri and Ghanahatti & Additional Planning Area are very thinly populated and hence these areas have potential to accommodate more population supported with adequate provision of support infrastructure. Thus, the restriction on construction in areas of relatively suitable slopes especially the Shoghi and Ghanahatti Area and the Additional Planning Area can be withdrawn, as these areas will serve as the most suitable for redirecting the further urban growth. The relatively low density, suitable slopes less than 30 degree, less forest cover and easy accessibility from city make these areas potential candidate for planned development. Moreover, for making a planned initiative in terms of Counter Magnet or Satellite Townships, economically and socially viable and successful, such restrictions needs to be lifted at once.
- 2) The issues raised by NGT in the Carrying Capacity Report of Shimla have mostly been addressed in this Draft Development Plan, 2041. In addition, some of the aspects should also be considered while analysing the Carrying Capacity of Shimla Planning Area, such as population density, Open spaces, Health Facilities, Educational Facilities etc. Another essential parameter is to see, how much of vacant land available in Shimla Planning Area, which is suitable for new development.
- The Action Plans and Memorandum of Practice prepared as per Hon'ble NGT direction have duly been considered while preparing the proposal for respective sectors, like mobility, disaster Management, water supply, SWM and Forests etc.



- 4) Conservation of forests/green areas in such ecologically sensitive area is very important. 17 Green Belts were identified in SMC Area, which covers an area of 414.46 ha. The forest boundary of these existing 17 green belts, when delineated at initial levels was not so accurate. Moreover, in existing Green Belts area, 24.17% (100.14) area is under the Private ownership of which only 6.28% (26 ha) is open and developable land. The owners of these parcels have been facing issues as no development can be done on these land chunks, and they cannot sell their land to anyone. Some provisions should be provided such as TDR or some relaxations should be given for carrying out very limited development activity in vacant and sandwiched plots for residential purposes at least. Furthermore, around 10662 Ha. area is under the forest cover with in the Shimla Planning Area. These areas should also be notified and demarcated in advance to protect, as the development in these areas is inevitable in future.
- 5) When Carrying Capacity Report was prepared, there was a water scarcity in Shimla region. But after May 2018 water crises, there has been a considerable improvement and augmentation in the Water Supply System. The Current Water Supply fulfils the existing water demand with daily basis water supply. Augmentation of new schemes such as one at Ghuma has added the daily water supply in Shimla by 10 MLD. Moreover, the project of lifting water from Satluj River has already been initiated, which will meet all the water demand of projected population by 2040.
- 6) As per the NGT orders, only 2+Attic floors are allowed to be constructed in Shimla Planning Area. These restrictions are unlikely to hamper the prevailing growth and urbanization trend. Any ban or development through implementation of restricted building height will not stop the population growth, both residents as well as floating population. One can only redirect the growth to more suitable areas through relaxation of FAR, number of floors and building height in some areas and with more restrictions in the other areas. In fact, with the restriction of 2 floor + attic building height in the whole Shimla Planning Area, more land area will be required in order to accommodate the future population which will result in more horizontal development creating more building footprint along with carbon footprint in the region.
- 7) However, keeping the ecological sensitivity of the whole region and increased population densities and the limited carrying capacity in some parts of the Shimla Core area, building regulations needs reconsideration. Moreover, provision of ground coverage and common plot (with respect to the size of plot) and abutting road width should be introduced in building by-laws, which will ensure lesser ecological footprint, especially in case of bigger size of plots. Observing the existing parking and road encroachment issue in entire Shimla, provision of parking space should be mandatory in bye-laws in residential, commercial and public/semi-public land-uses.
- 8) In the Non-Core area, which comprises 98.5% of total area under SPA, there are large stretches of privately owned land having high potential and scope for planned development. Therefore, in order to shift the urbanisation pressure from the Core Area, i.e. congested MC Area, planned development with higher building height and FAR can be considered in outer areas.
- 9) Further, the focus on decongesting the Core Area as emphasised by the Hon'ble NGT and various reports, especially the previous Draft Development Plan exercises undertaken by the Department has been achieved to an extent over last decade and is being continued through the proposals of this Draft Development Plan.

Map 12-5: Real Estate Projects in Shimla Planning Area





Map 12-6: Tourism Projects in Shimla Planning Area







Map 12-7: Government Institutions in Shimla Planning Area





- 10) Based on the spatial analysis of location and scale of various large-scale projects, especially Govt. projects, Institutional, Tourism and Real Estate projects, which have come up in last 5-7 years and are under implementation stage, it is evident that the objective of decongestion of the Core Area is being implemented vigorously and has been achieved to a great extent. The maps prepared w.r.t location of these large-scale projects clearly shows that the new investment in Tourism sector is moving to the fringes and peri-urban areas i.e. SADA and Additional Planning Area and even outside the planning area in some cases. Same trend is also evident in case of Planned Real Estate projects as well, which are contributing substantially to meet the growing housing demand in a planned manner. Thus, being planned projects taking due care of all support services and environmental imperatives, the restriction needs reconsideration especially in Non-Core Area.
- 11) Land being a valuable yet scarce resource, its optimum and effective utilisation to accommodate the future urbanisation pressure needs to be done, especially in outer fringe areas, which are more suitable for development.
- 12) Further, the Core Area i.e. the MC Shimla has greatly benefited from the flagship programmes like AMRUT Scheme and Smart City Mission wherein focus has been on improvement of basic city infrastructure and services as well as redevelopment of dilapidated market areas, which gives the city its image and values.

12.14 Recommendations and strategies adopted for conservation of Environment and ecology:

- 1. Forests Preservation Strategies:
 - To increase the forest cover it is proposed that the forest Department shall plant pine trees in the vacant govt. land patches and steep slopes under ambitious tree planting programs combined with natural expansion of forests. The Massive plantation and landscaping is required to be ensured in the entire Shimla Planning Area. Species of trees, plants needs to be identified for specific areas so that the plants survive in these conditions.
 - In 17 green belt areas and remaining forests, no cutting trees is strictly banned.
 - Development in green belt areas on private land has been allowed only at 1 FAR, 2 floors of restriction and 50% of ground coverage.
 - Moreover, in a phased manner, more forest land are required to be added in green areas, based on revenue and ownership details, as Shimla planning area has 43% of land area which falls under, forests, tree clad area and plantation areas.
- 2. Promoting eco- tourism and forest based adventure tourism: The eco-tourism development approach, based on natural preservation imperatives has been promoted in Shimla Development Plan 2041 proposals. Through the recognition of interface between tourism, heritage and environment, various forest and adventure based activities such as natural walks, zip linings, camping, night trails, nature games and trekking should be envisaged for the Shimla.
- 3. Storm water Drains Conservation: As already mentioned, Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too. In order to preserve the hydrology around these water streams, no construction would be permitted within the periphery of 5 m buffer along Nallah and 10 m of buffer along Khads
- 4. Introduction of Ground Coverage in Building bye-laws: Permissible ground coverage plays a major role in environmental sustainability. Buildings with higher footprint require more cutting of slopes and trees, which disturb the natural drainage pattern subsequently. Due to less percolation of rainwater into ground, higher runoff in Shimla may lead to soil erosion and destabilize slopes. Hence,



for bigger size of plots, other than side margins, components of ground coverage has also been provided in building bye-laws

- 5. Consideration of Slope and land suitability for new areas for development: While introducing new parcels of land for development, land suitability analysis has been done with the help of GIS basemap. Hence, identification of new land has been proposed on ground of suitable land, which has not been proposed over the forests areas and areas having slope more than 45 degree.
- **6. Measurements for earthquake disaster vulnerability:** For construction of stable buildings, the submission of Structural stability certificate is mandatory.
- **7.** Rain water harvesting: Rain water harvesting system is mandatory per TCP law. However, in coming future, duel plumbing system can be introduced.

Chapter 13

EXISTING LANDUSE & LAND SUITABILITY ANALYSIS


CHAPTER- 13 EXISTING LAND-USE & LAND SUITABILITY ANALYSIS

13.1 Introduction

The rational application of the planning process in the preparation of the future Land Use Plan is possible only when there is a clear understanding of existing conditions and relationships between land uses. Knowledge of existing land development furnishes the basic information by which decisions can be made concerning proposals for future residential, commercial, industrial, and public land use activities. The Existing Land Use Map and table, which are included in this section of the report, will serve as a ready reference for the town in its consideration for land use management and infrastructure improvement proposals.

13.2 Methodology for the preparation of Base-map

The preparation of base map has been done in accordance with the guidelines of NRSC & training conducted by TCPO. The different stages involved in the preparation of the Base Map have been described below:

STEP 1: Boundary Identification with census maps

The updated census maps were collected for the year 2011 for all the town and villages covered under project area and their village boundary was generated from these census maps. The overall project boundary was also identified using census maps.

STEP 2: Procurement of landuse data from NRSC Hyderabad

The satellite map/ landuse sheets of the project area was collected from NRSC Hyderabad and the same was processed according to the requirement.

STEP 3: Existing land-use survey

Spatial attribute collection and vetting of Base Map was done in form of field surveys and data entry in Excel Proforma. In Shimla Planning Area, we there were A0 size 1136 sheets/grids with approximately 40,000 building units.

STEP 4: Primary Ground Verification / Truthing by the TCP Dept

First level ground verification/truthing was done by the TCP Department to verify the land-use map prepared from the existing land use survey above.

STEP 5: Preparation of preliminary base-map

After ground truthing and vetting the data sheets were sent back to NRSC for preparation of final base map containing all layers as per AMRUT Scheme Design and Guidelines.

STEP 6: Creation of updated base-map

The preliminary base map was updated by NRSC following the ground truthing process and existing land-use maps and proposed land-use maps were generated from these updated base-map.

13.3 Existing Land Use of Shimla Planning Area

The study of the existing land use pattern reveals that over the years the city has spread more in south east and east direction along the major highways those are connecting Shimla Municipal Corporation to Kufri Special Area.



Maximum residential concentration is found within Shimla Municipal Corporation and nearby adjoining area and villages of Non-Core Area. While maximum commercial activities have mushroomed in the Core area of Shimla Municipal Corporation and Kufri Special Area. Some of the industrial activities are found in the south direction majorly along the NH – 5. Culture of Mixed Use Development is majorly observed on the NH 205 (Shimla Mandi Road) which connects Shimla Municipal Corporation with Ghanahatti special Area. Residential area constitutes of 13.58% of total Shimla Planning Area and 56% of developed area.

Sr. No	Land-use	Area (sq. km.)	% of Total Area	% of Developed area	As per URDPFI Guidelines
	A. Developed Area				
1	Residential	13.58	5.51%	56.44%	45 – 48
2	Commercial	1	0.41%	4.16%	4 – 5
3	Mix Landuse	0.96	0.39%	3.99%	
4	Industrial	0.15	0.06%	0.62%	4 – 6
5	Pub. & semi Public	2.83	1.15%	11.76%	12 – 14
6	Recreational	0.05	0.02%	0.21%	16 - 18
7	Traffic & Transportation	4.81	1.95%	19.99%	6 – 8
8	Restricted Area	0.68	0.28%	2.83%	
	Sub Total (A)	24.06	9.76%	100.00%	
	B. Un-developed Area				
9	Agriculture	54.43	22.09%		
10	Forests	106.62	43.27%		
11	Scrub Land	60.49	24.55%		
12	Water Bodies	0.83	0.34%		
	Sub Total (B)	222.37	90.24%		
	Total (A+B)	246.43	100.00%		

Table 13-1: Existing Land Use Statement in the Shimla Planning Area

Note – Notified planning area as per cadastral maps is 224.50 sq. km. However, as per GIS mapping area is 246.42 sq. km. and same is considered for planning purpose.

In Shimla Planning Area, maximum land is under the forest cover excluding the west part of the study region which has more waste land and agriculture land. Vast availability of the waste land might be helpful for the future development if it satisfies the criteria specified in the general development control regulations. Area under Public and Semi Public, Recreational, Religious, Traffic and Transportation is quiet less as per the URDPFI Standards.

Map 13-1: Existing Land Use of the Shimla Planning Area



The study of existing land use pattern reveals that the city has spread in all directions with major developments taking place along the main arterial roads passing through the city and along the south facing ridges in vicinity of the Core Area, where land availability is higher and land values are relatively lower. Major commercial activities and public-semi-public activities, especially Govt. institutions and offices have also been concentrated in Core Area of the Shimla town. The land under primary activity is concentrated along the residential areas in the non-core areas. Many vacant land parcels are available within the Shimla Planning Area which can be utilized for the development purpose. The major share of the land is under Forest, Scrub land and Agriculture, i.e. around 43.27%, 24.5% and 22% respectively, of the total Shimla Planning Area. The description of various land use areas has been given in detail as below:

13.3.1 Residential Use:

The residential activities are concentrated in the existing town area. Majority of the development is along the major corridors and along the main commercial areas. At present the existing residential area is 13.58 sq km of area, which includes approximately 43,000 of building units, throughout whole Shimla Planning Area. These existing prominent residential areas are Sanjauli, Cemetery, Dhalli, Bhattakufar, Mehli, Kangnadhar, Khalini, Bharari, New Shimla, Vikasnagar, Pathaghati, Tutu, etc.

13.3.2 Commercial Use:

The commercial activities are concentrated along the main road i.e. NH-5 & NH-205, passing through the Shimla Planning Area. The commercial activities are concentrated in the core area of the city. These include Hotels, Restaurants, trade, Commerce, wholesale, vegetable, grain and timber markets. Existing main shopping centres and complexes are concentrated in and around the Mall in localities namely, Middle Bazaar, Lower bazaar, Lakkar Bazaar and Chhota Shimla. Other newly developed commercial areas are in Kasumpti, New Shimla, Dhalli and Boileauganj. At present, the commercial area in SPA is 1 sq km, which is 0.41% of developed area.

13.3.3 Mix Land-use:

In Shimla Planning Area, the city exhibits mix land-use around the main market areas and along the main roads, where in a building ground floor is being used for commercial purpose, and floors above are being used for residential and office purpose. At present, the existing mix- use area comprises of 0.96 sq km of area, which is 0.39% of total developed area.

13.3.4 Industrial use:

Industrial activities are available in Shoghi Special Area and in very small pockets in areas covering Sanjauli, Lalpani, Shoghi and Totu localities. At present, area under industrial use is around 0.15 sq.km, which is 0.62% of developed area. The area under proposed land use has increased to 0.24 sq km. which is 0.51% to the total developed area in Proposed land use.

13.3.5 Public Semi Public:

Being a State Capital and Educational Hub of Himachal Pradesh, around 2.83 sq.km. area is available under the public – semi-public use which is around 11.76% of the developed area. Having status of capital city, Shimla is equipped with multifarious facilities and services, Govt. & Semi Govt. offices and specialized institutions. This area of PSP includes the education and health facilities, utilities such as water supply, sewerage, drainage, electricity, telephone establishments, garbage disposal sites, services including Police, Banking, Fire Fighting and postal services, other facilities like cremation ground, graveyard, cinema halls, theatres, sports complex and museum etc.



13.3.6 Recreational use:

At present, area under recreational activities is around 0.05 sq.km. which is only 0.21% of the Developed Area. It has been proposed up to 1.13 sq.km. which is around 2.39% of the developed area.

13.3.7 Traffic & Transportation

The major city traffic and transportation system takes place on seven major roads, which interconnect with the well-known seven hills of the city. At present, area under traffic and transportation is around 4.81 sq.km. which is around 19.99% of the developed area. The existing roads are well inter-connected with the different localities of the core city. However, roads in the outskirts are not so well developed and sparsely distributed. In core Shimla also, frequent traffic snarls, congestion, bottlenecks and blind curves are the major problems, which need to be tackled.

13.3.8 Agriculture & Scrub land

At present, agriculture land is around 54.43 sq.km. which is around 22.09% of the total area and scrub land is 60.49, which is 24.55% of total Shimla Planning Area. As already mentioned, there are 375 villages in Shimla Planning Area. In many of the villages, majority of rural people are engaged in agricultural activities

13.3.9 Forests

Geographically, Shimla city comes under lesser Himalayas. It has sub-tropical and temperate forests and it includes the tree species of deodar, pine, Oak, Kail, Rai and rhododendron. Shimla has ecosensitive environs. At present, forest area is around 106.62 sq.km. which is around 43.27% of the total area. Forest area here include forests, tree clad area and plantation areas, which may be Government and private land as well.

13.3.10 Waterbodies

Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too, this area under water bodies comprises of 0.83 sq.km. which is 0.34% of total Shimla Planning Area.

13.4 Future Land Requirement

Existing Resident Population as per Census of India, 2011 in Shimla Planning Area is around 2,41,429 and existing floating population per day is around 70,000. Presently, total developed area is 24.2 sq. km. with a developed area density of 100 pph. It is estimated that on an optimistic scenario the Shimla Planning area will have population of 6,25,127 by the year 2041. As per URDPFI guidelines, the desired density for a Large size town /medium hilly city should be in between 60 and 90. The existing developed area in Shimla MC has already crossed that density. However, the densities in remaining Shimla Planning area are comparatively very lesser.

Table 13-2: Existing Scenario					
Existing Scenario (2011)					
Existing Resident Population (2011)	2,41,429				
Existing Floating Population	70,000				
Total population	3,11,429				
Total Developed area in Shimla Planning Area (sq.km.)	24.2				
Developed Area Density	100 Persons per Ha				
Total Density (Residential + Floating)	129 Persons per Ha				



As per the URDPFI Standards, Developed area density of the Metropolitan Cities would be around 100 to 150 person per Hecate in the hilly Region.

Settlement Type	Persons Per Hectare (PPH)				
	Plain Areas	Hill Areas			
Small Towns	75-125	45-75			
Medium Towns	100-150	60-90			
Large Cities	125-175	60-90			
Metropolitan Cities	125-175	100-150			

Source: URDPFI, 2014

It has been observed that, around 50% of the total buildings in Shimla Planning area has either 2 floor or 3 floors. Keeping in mind factors like- shortages of land, building construction costs and increase in the household size etc. it is assumed that in the next 20 years, some of the buildings with only 2 floor or 3 floors will increase vertically and will become G+3 and around 20% of the existing population of SMC area will be accommodated in the existing developed area i.e. around 1,25,025 persons.

Table 13-4: Projected Area Requirement for Total Population (2041)

Projected Population (2041)	Total Planning Area (in sq.km.)	Developed Area Density (PPH)	Total Developable Area (in sq.km)	Already Developed Area (in sq.km)	Required Additional Net Area (in sq.km)
		100	62.51	24.2	38.31
6,25,127	246.09	120	52.09	24.2	27.89

Source: Projections for 2041

Thus, for the remaining population i.e. 5,00,101, the land required for catering the future population is around 38.31 sq km with a population density of 100 pph and 27.89 sqkm with a population density of 120 pph as shown in the table above. Therefore, the required land has to be identified based on the suitability analysis of the available vacant land within the planning boundary. Hence, a detailed analysis of land suitability analysis has been carried out in the next section.

13.5 Land Suitability Analysis

Land suitability is determined by a different set of factors such as slope, drainage, vegetation and water bodies. Variations can be observed in the characteristics of these factors based on the specific study areas. These environmental determinants were studied for the entire Shimla Planning Area for the purpose of identifying highly / moderately environmentally sensitive portions of land and thus ascertain the suitability / non suitability of these areas for development. Land suitability/potential analysis for the Shimla Planning Area has been carried out on the basis of the following parameters.

- 1. No Development Zones (NDZ) Identifying the areas strictly not to be disturbed and no other uses to be allowed in these zones except those permitted under the relevant legislation
- 2. **Slope of Land** Areas with very steep slopes are not suitable for development, while areas with low slopes are highly suitable for development. As per NGT directives, land with a slope greater than 45 degrees cannot be considered suitable for development.





- 3. Forests & vegetation 44% of the total planning area is covered by forests and 22% is used for Agriculture. Thus, in order to maintain the ecological balance, the land area under forests shall be reserved and protected.
- 4. Sunlight Southern facing aspects are the most desirable aspect for development in Shimla.
- 5. Water Bodies & Streams Identifying the waters bodies & limiting development in the immediate vicinity in the areas surrounding these water bodies since the conservation of water bodies is very much important to maintain the environmental stability within the Shimla Planning Area. The topography of Shimla being a hilly city, is rugged and undulating. There are a number of nallahs in its vicinity and keeping the natural drain of the area, there natural hydrology needs to be preserved.



Map 13-2: Land Suitability Analysis based on Contours





Map 13-3: Land Suitability Analysis based on Slopes

The land potential analysis map has been generated for the following individual land uses:

- Residential Use & Commercial Use (existing settlements)
- Roads & Transportation Use (existing national and state highways)



Figure 13-1 Shimla city

As shown in the maps above, Slope analysis for the entire area was done using satellite imagery. Construction of buildings on terrain more than 60 degree slope is enormous and is indicative of violations of regulations, encroachments on green areas and absence of service infrastructure are common problems. Such houses are structurally weak and impose a major threat during natural calamities. An utmost discipline is

required for constructions on slopes.

As per Geological Survey of India's guidelines suitable slope for urban development is less than 30 degrees. National Building Code (URDPFI) and URDPFI guidelines have also suggested 30 degree slope as suitable slope for construction activities. Considering the sensitive and fragile eco system of Shimla region vis-à-vis the Hon'ble NGT directives, the slope considered for development and construction is less than 45 degrees. While carrying out the slope analysis, it is observed that southern and western parts of the Shimla Planning Area have relatively flat land with slopes upto 30



degrees, which should be preferable for further development. The area around municipal corporation area and eastern part of the study region has slopes above 30 degree.





Furthermore, sunlight aspect is one important parameter which shall be considered while planning for development in hilly area. Southern facing aspects are the most desirable aspect for development in Shimla. So the most desirable areas for development are the ones which are less than 30 degree slopes and southern facing. Aspect is the orientation of slope, measured clockwise in degrees from 0 to 360, where 0 is north-facing, 90 is east-facing, 180 is south-facing, and 270 is west-facing. Most buildings in the existing condition are southward facing. South, South-East and South-West facing slopes shall be preferred while planning for the development activities as people can enjoy sunlight throughout the day.





Moreover, forest area has also been taken into account. Geographically, Shimla city comes under subtropical and temperate forests of Himalayas. Spread over seven hills/ spurs, it is covered with various tree species of deodar, pine, Oak, Kail, Rai and rhododendron. Areas suitable for development have been considered other than forest cover.

13.6 Identification of Developable Areas

Based on the different criteria of environmental land suitability, a composite land suitability map has been prepared to identify land most suitable for development, by giving weightage and rating to each of the parameters outlined above and then overlapping all the individual suitability maps. Adequate land for providing key public infrastructure facilities like roads, public transportation system, transport terminals, water supply system, SWM system, waste water treatment, power supply system, etc. and various other social and recreation facilities have also been identified keeping in the mind the above analysis. The composite GIS base-map enabled the identification of the land, which is most suitable for development and have potential for future growth, to be developed as new growth centers. Slope Analysis for 45, 35, 30 and 20 degrees has been shown in the table and map below.

S. no	Slope	Land Available
1	0 – 20 degrees	40.42 sq. km.
2	0 – 30 degrees	79.46 sq. km.
3	0 – 35 degrees	91.03 sq. km.
4	0 – 45 degrees	121.60 sq. km.

Table 13-5: Availability of suitable Land based on Slopes

Source: GIS based slope analysis.





If we consider 0 - 45 degrees as the desired slope, then area available for the future development is around 121.60 sq. km. Same way, if we consider 0 - 35, 0 - 30 degree and 0 - 20 degrees as the desired slope, then area will available around 91.03 sqkm, 79.46 sqkm and 40.42 sqkm respectively. However, as seen from the maps, the land with slope upto 30 degree is available in relatively far off areas rural in character. As per existing urbanisations trends these areas have not seen any substantial growth over last four decades. Further, the focus of development cannot be leapfrog to these hinterlands given thie distance from the existing city centre. Whereas, the land availability upto 45-degree slope will ensure seamless growth and urban-rural continuum in the most efficient and effective way and will take care of objective of decongesting the Core Area.

In terms of the potential areas for future development all the areas with 35 degrees slope with southern aspect are the most suitable areas excluding forest areas and other areas of natural importance such as natural drainage, lakes etc. So, the suitable area after considering slope as well as aspect is coming around 91.03 sq.km.

Chapter 14 PROPOSED LANDUSE



CHAPTER- 14 PROPOSED LAND-USE

14.1 Proposed Land-use Plan 2041

In the previous studies, the existing growth pattern of the city is towards east and southeast directions majorly along the highways and the east and south-west facing ridges abutting the Core Area. Maximum residential concentration is found within Shimla Municipal Corporation and nearby adjoining villages. While maximum commercial activities are found only in the core area of Shimla Municipal Corporation and Kufri Special Area. The proposed land use distribution has been prepared based on the existing situation analysis of the region, the current growth patterns, prevailing gaps in various land use activities and facilities, the availability of developable land, demand for infrastructure in the future to support the projected population, and so on. The planning has been done such that all the parts of the Shimla Planning Area get better road connectivity, which is essential for the development of any region. As can be seen from the proposed Development Plan, the residential land use has been provided along the existing growth corridors i.e. the NH and other major roads within the Shimla Planning Area.

Sr. No	Land-use	Area (sq. km.)	% of Total Area	% of Developed area	As per URDPFI Guidelines
		A. Develop	ed Area		
1	Residential	29.93	12.15%	63.25%	45 – 48
2	Commercial	1.3	0.53%	2.75%	4 – 5
3	Mix Landuse	4.43	1.80%	9.36%	5 – 5
4	Industrial	0.24	0.10%	0.51%	4 – 6
5	Pub. & semi Public	3.43	1.39%	7.25%	12 – 14
6	Recreational	1.13	0.46%	2.39%	16 - 18
7	Traffic & Transportation	6.27	2.54%	13.25%	6 – 8
8	Restricted Area	0.59	0.24%	1.25%	
	Sub Total (A)	47.32	19.20%	100.00%	
	E	8. Un-develo	oped Area		
9	Agriculture	40.23	16.33%		
10	Forests	106.62	43.27%		
11	Scrub Land	51.43	20.87%		
12	Water Bodies	0.83	0.34%		
	Sub Total (B)	199.11	80.80%		
	Total (A+B)	246.43	100.00%		

Table 14-1: Proposed Land-use of Shimla 2041

Note – Notified planning area as per cadastral maps is 224.50 sq. km. However, as per GIS mapping area is 246.42 sq. km. and same is considered for planning purpose.

Map 14-1: Proposed Land-use of Shimla Planning Area





The major city level public space has been provided where the government land is located. The highlighted land area in the green shade in the eastern and western periphery of the project area has been kept under the protective and undevelopable use zone considering the topography & eco-sensitivity of these areas.

According to the proposed land use, residential activities will constitute around 63.25% of the total developed area, while commercial use and mix land-use will occupy approximately 3% and 9% of the total developed area. The share of land use under public and semi-public category shall be around 7.25%, & under transportation shall be around 13% of the proposed developed land use. Similarly, the land under open space shall be around 2.39% of the total developed area. The share of land use under Agriculture, forest (forest, plantation) and water bodies shall be 16%, 0.34% & 43% respectively.

14.2 Comparison of Land-use plan.

The comparison of existing and proposed land use acts as a guiding tool to analyze the adopted rationale approach for spatial standards & provides vision for the overall balanced development of the entire region – both at macro and micro level.

		Existin	Propose	Existin	Propos	Existing	Proposed	As per
Sr.		g	d	g	ed	LAISting	Froposed	
Ν	Land-use	Area	Area (sq.	% of	% of	% of	% of	Guideline
ο		(sq.	km.)	Total	Total	Develope	Develope	Guidenne
		km.)		Area	Area	d area	d area	5
				1	A. Develop	ed Area		
1	Residential	13.58	29.93	5.51%	12.15%	56.44%	63.25%	45 – 48
2	Commercial	1	1.3	0.41%	0.53%	4.16%	2.75%	4 – 5
3	Mix Landuse	0.96	4.43	0.39%	1.80%	3.99%	9.36%	5 – 5
4	Industrial	0.15	0.24	0.06%	0.10%	0.62%	0.51%	4 – 6
F	Pub. & Semi	2 02	2.42	1 1 5 9/	1 209/	11 760/		12 14
Э	Public	2.85	5.45	1.15%	1.39%	11.70%	7.25%	12 - 14
6	Recreational	0.05	1.13	0.02%	0.46%	0.21%	2.39%	16 - 18
	Traffic &							
7	Transportatio	4.81	6.27	1.95%	2.54%	19.99%		6 – 8
	n						13.25%	
0	Restricted	0.69	0.50	0.200/	0.249/	2 9 2 9/		
0	Area	0.00	0.59	0.20%	0.24%	2.05%	1.25%	
	Sub Total (A)	24.06	47.32	9.76%	19.20%	100.00%	100.00%	
				В.	Un-develo	oped Area		
10	Agriculture	54.43	40.23	22.09%	16.33%			
11	Forests	106.62	106.62	43.27%	43.27%			
12	Scrub Land	60.49	51.43	24.55%	20.87%			
13	Water Bodies	0.83	0.83	0.34%	0.34%			
	Sub Total (B)	222.37	199.11	90.24%	80.80%			
		246.42	246.42	100.00	100.00			
	iotal (A+B)	246.43	246.43	%	%			

Table 14-2: Com	parison of Existin	ig & proposed la	nd-use



Important features adopted in Proposed Development Plan in comparison with the existing developments:

- i. Residential land use has been changed from 5.51% out of total planning area to 12.15% in order to accommodate the future population increase. Out of developed area, the residential area has been increased from 56.44% to 63.25%
- ii. The commercial development is prime factor to cater the robust urban development and hence the area under commercial use has been increased from 0.41% as can be seen in ELU to 0.53% in PLU. Out of developed area, the commercial use has been increased from 4.16% to 2.75%. In addition, commercial land-use has been provided in form of mix land use, along with the main roads, which has been increased from 3.99% to 9.36%.
- iii. The area under industrial use has been increased from 0.15 sq. km to 0.24 sq. km of area, which is 0.51% of total proposed developed area.
- iv. The area under public & semi-public use has been increased from 1.15% to 1.39% based upon the identification of government land available.
- v. The area proposed under transportation and communication which is 4.81% as per ELU has been increased to 6.27% in PLU through creation of extensive interwoven road network.

In coming section, we would elaborate each specific land-use, proposed in PLU, with the basic idea of increasing the area, and their respective strategic location in Shimla Planning Area

14.2.1 Residential Use:

As we have already mentioned, the present the existing residential area is 13.58 sq km of area. Keeping the residential demand in future based on population projection, the residential area has been increased to 29.93 sq. km of area (Shown in Residential use map ahead). Most of these proposed residential areas are cropland or scrub land and have close proximity of road network. In addition, as the DP Shimla 2041, envisages the development of Counter-Magnet town near Jathita Devi Area, new land under Residential use has been incorporated in proposed land-use. The detailing of this pocket, with neighbourhood level provision of Open space, Public/ semi-public infrastructure can be done, at the time of meticulous planning through various tools such as LAP or TP scheme. Moreover, the number of floors considered for residential areas areas are 2+parking floor + attic for core area and 3+ parking floor + attic for non-core area. The further details for residential area has been provided in 17 chapter.

14.2.2 Commercial Use:

The commercial activities are concentrated along the main road i.e. NH-5 & NH-205, is mostly in Shimla has developed in form of mix land-use, small-scale retail and service use based shops in nature around the residential area and in the city centre. Majority of the shops are single unit and the commercial area lacks the complexes and malls. As mentioned before, Existing main shopping centres and complexes are concentrated in and around the Mall in localities namely, Middle Bazaar, Lower bazaar, Lakkar Bazaar and Chhota Shimla. Other newly developed commercial areas are in Kusumpti, New Shimla, Dhalli and Boileauganj. At present the existing Commercial area comprises of 1 sq km of area, which has been proposed 1.3 sq km of area in proposed landuse. However, provisions for more commercial area has been provided in the form of Mix land-use, in order to provide the more flexibility to the residents to build.



14.2.3 Mix Land-use:

As the city exhibits mix land-use around the main market areas and along the main roads, most of the commercial areas have been proposed as Mix land use for proposed landuse, 2041. For promoting Mix Use Development along the road, 50 meter buffer to the NH and 30 meter buffer to SH and other major roads have been proposed for Mixed Use Development. At present, the existing mix- use area comprises of 0.96 sq km of area, which has been proposed 4.43 sq km of area in proposed landuse, which is around 9.36% of total developed area.

14.2.4 Industrial use:

At present, area under industrial use is around 0.15 sq.km, which is 0.62% of developed area. As already mentioned, most of the industrial activities are available in Shoghi Special Area. The area under proposed land use has increased to 0.24 sq km. which is 0.51% to the total developed area in Proposed land use. However, percentage of land dedicated for industries, is less as compared to the URDPFI Norms because of being an Eco – Sensitive Area. However, in order to create employment opportunities related with non – polluting small scale industries, various provisions have been given in building guidelines under Residential and Commercial Uses, where smaller units of household industry will be allowed.

14.2.5 Public Semi Public:

Being a State Capital and Educational Hub of Himachal Pradesh, around 2.83 sq.km. area is available under the public – semi-public use which is around 11.76% of the developed area. It has been proposed up to 3.43 sq.km. which is around 7.25% of the developed area. As compared to URDPFI Norms, area proposed under Public Semi Public uses are comparatively less. In addition, at later stages, at neighbourhood level, suitable area will be identified for public – semi public use based on the availability of the government land.

14.2.6 Recreational use:

At present, area under recreational activities is around 0.05 sq.km. which is only 0.21% of the Developed Area. It has been proposed up to 1.13 sq.km. which is around 2.39% of the developed area. It is important to mention here, dedicated open spaces are less in the Shimla Planning Area, as compared to URDPFI Norms. This is partially due to, incorporation of many recreational spaces as forests areas. In Shimla Planning area, Nature Parks and Wildlife Century are available for running & joggings Trails and cycle tracks, & is being used for recreational purposes, but still is a part of forest use/ land. In addition, the availability of Open grounds is less hilly areas of shimla, due to the steep slopes. However, area under 0 - 10 degree slope has been identified and shown in map in Social infrastructure chapter, for open spaces and recreational activities. Later, based on the ownership, these pockets can be identified for the Recreational purpose.

14.2.7 Traffic & Transportation

At present, area under traffic and transportation is around 4.81 sq.km. which is around 19.99% of the developed area. Additional roads are proposed, to connect counter magnet town with Shimla and rest of the planning areas. In proposed land-use, some by-pass roads have been added for better connectivity and subsequently, under traffic and transportation, areas has been increased to 6.27 sq.km. which is around 13.25% of the developed area. In comparison to



the URDPFI Norms, area proposed under traffic and transportation is more than sufficient in Shimla Planning Area.

14.2.8 Agriculture, Scrub land

At present, agriculture land is around 54.43 sq.km. which is around 22.09% of the total area. Based on land suitability analysis, suitable pockets are identified to cater the land requirement of the proposed population and has been allowed for residential use, as shown in the proposed land-use map. The area under agriculture under proposed land-use is reduced to 40.23 sq.km. which is around 16.33% of the total planning area.

14.2.9 Forests

At present, forest area is around 106.62 sq.km. which is around 43.27% of the total area. Forest area here include forests, tree clad area and plantation areas, which may be Government and private land as well. In order to preserve the ecology, no development has been proposed in this area. However, as mentioned earlier, there may be private land parcels in forest area demarcated on PLU map. Therefore, based on the revenue details and ownership status, permission for construction would be allowed in this area.

14.2.10 Waterbodies

As we have mentioned earlier, Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too, this area uner water bodies comprises of 0.83 sq.km. which is 0.34% of total Shimla Planning Area. Moreover, in order to preserve the natural hydrology and not to disturb the natural storm water flow, 10 m of buffer along the Khads and 5 m of buffer along the nallas on both sides has been proposed, where no construction would be allowed.

14.3 Development of Counter Magnet Town

Shimla being the state capital and the multi-functional hub for commercial, educational, and administrative activity in the state is going to experience more migration in the horizon year. If the same situation prevails, the ever-increasing pressure of population rise on land coupled with high growth of vehicles will lead to collapse of fragile eco-diversity of Shimla and the traffic situation in Shimla will become unmanageable. Hence, in order to have a sustainable solution and keeping in view long run potentials, the vision of the DP Shimla envisages the development of a new counter magnet Town in peripheral area near Airport (Jubarhatti) and Jathiya devi.

This counter Magnet will serve the purpose of commercial as well as residential needs of the increasing population. Various development pockets have been identified as shown in the figure Below and these areas can be developed with various thematic factors. These pockets are identified as per the suitability into various concepts such as:

- Educational Hub
- o Commercial & Residential hub
- o Logistics & transportation hub
- o Industrial & mixed-use hub
- Eco-tourism and recreational hub

The Figure depicted below, show the location of all the above stated hubs to be as counter magnet in order to accommodate the future population of Shimla.





The proposed Counter Magnet town can be developed as IT-cyber city including residential and commercial areas. Developing this counter Magnet town to existing Shimla, will reduce the work trips to Shimla from the surrounding areas. Moreover, new development needs to be envisaged with transit-oriented development (TOD), where it is strategically provisioned within walking distance of public transport. It should promote a symbiotic relationship between dense, compact urban form and public transport use



Figure 14-2: Integrating transport with counter magnet towns

The counter Magnet town should be developed for an area of 833 Ha with density of 120 persons per Ha to accommodate 1,00,000 population.

Area	833 Ha
Population	1,00,000
Density	120 PPH
Population Density	1,00,000 120 PPH



The board land-use zone and suggested building regulation of proposed counter Magnet town is shown in table below.

Zone	Base FAR	Chargeable/ Premium FAR	Total FAR	Max Height of Building (in Mtr)	Max No. of Floors/ Storeys	Min Road Width
Residential*	1.75	Ranging From 0.25 to 0.75 based on Road Width	2.00	21 m	5 Floors	7 m and above
Commercial	1.75	0.75	2.50	21-25 m	6-7 Floors	9 m and
Institutional	1.75	0.50	2.25	21-25 m	6-7 Floors	Above

Table 14-3: Broad Landuse and building regulations

Moreover, DP Shimla 2041, envisages to develop integrated and effective transport network to connect this counter Magnet town with Shimla city. In order to develop effective and efficient transport network, two-way approach, mentioned below is needed to be adopted:

1. Development of bypass roads for network connectivity (Detailed proposal for bypasses is given in transportation proposals)

2. Development of integrated & reliable public transport system (Detailed proposal for proposed ropeway is given in Public Transport Plan section).

14.4 Approach for Planned development in Counter Magnet Town:

In the following section, an exercise was done for a 600 ha of land for executing a planned development, near Jubbarhatti airport, where the development of Counter Magnet Town has been envisaged and land is more suitable with gentle slopes.



Figure 14-3: Approach for Planned Development through town planning scheme

As can be seen, in figure shown above, early 35-40% of land is hilly terrain, Khads/ nallas, where construction will not be possible. For the remaining 60% of land, the distribution of various land-uses would be as per URDPFI guidelines.

The tool of land-use mentioned above, are planned predominantly with the concept of form that follows function, i.e. residential use, commercial use, industrial use etc. Whereas, Form



based codes concentrate on the visual aspects of development i.e. building height and bulk, façade treatments, the location of parking, and the relationship of the buildings to the street and to one another. Simply put, form-based codes emphasize the appearance and qualities of the public realm, the places created by buildings.

Figure 14-4: Form Based Code for Development



Not to be confused with design guidelines or general statements of policy, form-based codes are regulatory, not advisory. Therefore, this type of development Should be introduced, while implementing a planned development in Shimla, through providing base FAR on narrower roads and more FAR on the wider roads, which is purchasable. This would also provide some financial support to department/urban body in Shimla, which in result would unable the department to develop infrastructure in planned manner in outside MC Shimla.

Therefore, how planned development can take shape, some glimpse of the exercise of done, has been shown below:



Figure 14-5: Example of Planned Development







Developing area near Jubbarhatti and Ghandal as activity-based Counter-Magnet town, with provision of all and adequate urban amenities, will reduce the dependency of the residents from Bilaspur, Kandaghat side on Shimla for basic urban amenities such as education, health, trade & commerce etc.

Figure 14-6: 3D View of the city



14.5 Development of Satellite Towns

Apart from one major Counter Magnet, satellite townships at Ghandal, Fagu, Naldehra and Chamiyana Area near 4 Lane by-pass road can be envisioned in line with the development trends as well as to decongest the Core Area. These areas have enormous potential to develop as activity-based satellite town with provision of all and adequate urban amenities. Developing activity-based satellite towns will reduce the dependency of the residents of these areas and adjoining areas on Shimla for basic urban amenities such as education, health, trade & commerce etc.



Map 14-2: Proposed Satellite Townships in Shimla Planning Area



These Satellite towns would be developed to accommodate 10, 000 population each, mean 40,000 population in total, for an area of 333 Ha with density of 120 persons per Ha.

Area	333 Ha
Population	40,000 (10,000 each)
Density	120 PPH

14.6 Inclusion of additional land in Shimla Planning Area

This Development Plan takes into account 246.09 Sqkm area of Shimla Planning Area. However, based on the existing urbanisation tends, certain areas with very high potential for future development, especially catchment areas of Special Kufri and Shoghi and its adjoining Additional Planning Area, needs to added in existing planning area. Inclusion of these areas is essential to create more serviceable land buffer for 2041 and beyond even. These pockets have high potential for development because of their vicinity the upcoming 4-lane passing through Shoghi and Kufri Special Areas as well as their vicinity and accessibility to the city area. Certain pockets in vicinity of Tourist hubs like Kufri – Faagu and Mashobra-Naldehra belts are left out of Planning Area, but considering the development trends and investments being attracted in these areas, it becomes imperative to include these left out areas in Shimla Planning Area. If these high potential pockets are left unattended on the mercy of land sharks, unplanned and unregulated growth is likely to mushroom and will defeat the very purpose of planned development envisaged in this Development Plan. Following priority areas have been identified for immediate inclusion into the Shimla Planning Area.





i. Areas along 4-lane project and IGMC super speciality extension block

Certain pockets, 'no man's island', or 'island of vacuum' between upcoming 4-lane passing through Shoghi and Kufri Special Areas and the Planning Area boundary, as depicted in the map below needs to included and made integral part of SPA, as due to increased accessibility and locational advantage, development is likely to happen in these area. For inclusion, such complete island along with a belt of 100 mts or the nearest natural feature like nullahs or khads can be considered. Moreover, the IGMC super speciality extension



block has been constructed on the ridge near Jwala Mata Mandir and Chamayana village. At present, the area falls beyond the Planning Area boundary, however give the pull factor of a public institution especially a medical facility, more development is likely to be attracted in vicinity of this block. Thus, to an area of about 200 hectares creating a suitable buffer around IGMC extension block is proposed for inclusion in Shimla Planning Area. The total area of these potential pockets along 4-Lane project and the IGMC super speciality extension block is about 4.83 Sqkms.

ii. Area in vicinity of Mashobra-Naldehra Tourist belt.

As depicted in the map below, the narrow valley belt between Bharari-Aukland and Mashobra-Naldehra ridges is also experiencing a lot of development in real estate as well tourism sector. Thus, same belt with an area of 15.17 Sq. kms is also proposed for inclusion

iii. Area along Kufri-Fagu Tourist belt.

Other area with very high tourism potential is the area between the NH-5 and the Dhali-Mashobra-Bekhalti Road i.e. the old Tibet Road. As depicted in the map below, these belt is also experiencing realatively high growth for tourism projects. Thus, with a view of planned development, the left out area beyond the Planning Area boundary and between the Mashobra-Bekhalti Raod as depicted in the map is proposed, with an area of 0.23 Sq. kms for inclusion in Shimla Planning Area. This area will also add considerable amount of forest cover to the Planning Area.

The Summary of Proposed areas for inclusion in SPA

Table 14-4: Summ	ary of Proposed Area
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Sr. No.	Area proposed for Inclusion	Area in SqKms
1	Areas along 4-lane project and IGMC super speciality extension block	4.83
2	Area in vicinity of Mashobra-Naldehra Tourist belt.	15.17
3	Area along Kufri-Fagu Tourist belt	0.23
	Total	20.23

14.7 Constitution of Shimla Capital Region

Looking at Shimla in regional perspective, it is observed that Shimla is a primate city interlinked to its hinterlands and other neighbouring towns. Various important towns like Waknaghat and Kandaghat located on NH-05, towards Solan; Theog Town located towards Rampur on NH-05, Sunni and Tatapani located on Shimla-Karsog Highway all such smaller town as dependent on Shimla for distribution of goods and services to these surrounding areas. These towns act as activity nodes and markets spaces, which are financially interlinked with Shimla. Therefore, these towns have to be viewed in regional perspective along with Shimla, while planning for these towns. Hence, there is a requirement for constitution of **"Shimla Capital Region"** on the line of National Capital Region, which encompasses Shimla Planning Area and all the above listed towns keeping in view the development scenario and the objective of redistribution and decongestion of main Shimla Planning Area. The constitution of Shimla Capital Region becomes important for integrated development of Shimla at regional level.

Chapter 15 DEVELOPMENT PLAN IMPLEMENTATION



CHAPTER- 15 DEVELOPMENT PLAN IMPLEMENTATION

15.1 Introduction

This chapter summarizes implementation mechanism for Shimla Development Plan. It emphasizes on providing a better quality of life together with high standards of living for the local population. The development plan proposes to lay out a physical pattern of land use and transportation linkages for the planning Area as a whole and also serve as a guideline for public and Government agencies to conform and integrate their sectoral projects into programs. Hence it is important that suitable strategies needs to be evolved for implementation of the plan proposals.

15.2 Shimla Development Authority for Implementation of Projects

As the Development Plan is a document of people, community, Government and all democratic institutions including local bodies, the same are therefore required to come forward for its implementation. Execution of the Development Plan has to be ensured by Land Pooling and Reconstitution Mechanism by coordinated efforts of the landowners, Development Authority, Revenue Department, Municipal Corporation, SADAs, Panchayats and Infrastructural Departments. Besides landowners, Municipal Corporation, Gram Panchayats and Special Area Development Authorities shall be responsible for creation of serviced land. Whereas, Private land involve for the purpose of road facility center /state Govt. acquired the same and provide the compensation as per market rate.

New Development Authority under the Town and Country Planning Act is inevitably required to be revived for implementation of this Development Plan. It may be provided with a revolving fund by the Government, which shall have to be returned by such Authority within a stipulated period of time. However, overall control and monitoring of implementation of proposals of development in terms of land use zoning and regulatory control shall be vested with the Town and Country Planning Department. The Development Authority is required to act at three levels namely: -

- a) To rehabilitate incompatible uses like truck and idle bus parking, timber market, grain market, vegetable market, workshops and miscellaneous non- conforming uses in cooperation with local bodies and public participation and the same are to be shifted from the Core Area to South-Western periphery of the city in a time bound manner
- b) To develop counter Magnet town on the periphery in the west and in satellite towns to cater for the demand of additional population. As long as Development Authority is not in a position to cater for demand of serviced land, it shall not take up any other activity.
- c) In order to implement the major proposals of Tunnels and elevators multinational companies may be invited on prescribed terms and conditions including BOT mechanism.

In order to ensure co-coordination, monitoring and effective implementation of Development Plan the Director may constitute a committee.

Ironically, benefits of infrastructure and new proposals including roads, as shall be implemented by the various Departments are to be harnessed by the Development Authority.



The developable Government land is required to be vested with the Development Authority and the same shall be used as Land Bank. The ownership of Government land as occupied and used by the private owners has to be specifically looked into and same used for community purposes, accommodating the legitimate occupants on specified terms and conditions.

15.3 Urban Land Management Models & Techniques

The urban landscape is transforming extensively each day as many new projects are developed over the agriculturally productive hinterland of the cities. In urban areas land and economic opportunities are the base for all the development activities which can be broadly classified as urban and rural areas.

The value of urban land India is largely influenced by the prevalent market forces, which directly or indirectly determines the supply and demand for land. The value of land increases as demand exceeds supply. As the urban economy grows, its economic structure changes due to which improvements in economic conditions can be observed. The increase in household income creates a desire for better housing and living conditions and a better quality of life. As a result, demand for urban land increases.

In the majority of cities and towns of the country, suitable land exists but the same is available in limited quantity for development. The main tool available to Government in order to regulate the supply of land is the conversion of rural land into urban land through land-use conversion controls and by providing the basic infrastructure in the area. The challenge in this process is to supply land, at the right time, in desired locations, and with timely provision of infrastructure. Historically, land acquisition in the urban centers has been the prerogative of the Development Authority concerned. It has been felt that government interventions in the urban land market are mainly to:

- To eliminate market imperfections and failures to increase operating efficiencies
- To remove externalities so that the social costs for land market outcomes correspond more closely to private costs
- To redistribute city's scarce resources so that disadvantaged groups get equal share in society's output

Land assembly and development mechanism are undertaken for achieving optimum social use of urban land and to ensure adequate availability of land to public authority and individuals. Public Private Participation is achieved in land development through various techniques. Mainly, land assembly techniques prevent concentration of land in few hands and promote its efficient social and economic allocation. Some of the land assembly techniques also promote flexibility in land utilization in response to changes resulting from growing city.

The various mechanisms to assemble and/or develop land are enlisted below:

- i. Land Acquisition: Bulk land acquisition by State and by private initiatives.
- ii. Land Pooling: Land pooling approach and redistribution scheme, popularly known as Town Planning schemes.
- iii. **Land Reservations:** The concept of Accommodation Reservation which allows the land owner to develop the sites reserved for an amenity.
- iv. **Transferable Development Rights:** A technique of land development which separates the development potential of a land parcel for use elsewhere.



v. **Guided Land Development:** This model uses the provision of infrastructure as an instrument to guide urban development in partnership with land-owners without pooling any land.

15.3.1 Land Acquisition

"Land Acquisition" popularly means the acquisition of land for defined public purpose by a government agency from individual land-owners, as authorized by the law, after paying a government-fixed compensation to cover losses incurred by land-owners from surrendering their land. The land acquisition process can be undertaken by the State or through private initiatives.

Land acquisition is a key tool for statutory planning, freeing up land from all encumbrances. The land acquisition is to be processed as per the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act (RFCTLARR) 2013. Some models of land acquisition are as follows:

A. Bulk land acquisition method as a State Initiative: In this method, Master Plan is prepared for the entire area encompassing different land uses and involving various activities. Land is developed in accordance to the planning norms for various uses/activities. Bulk land is acquired from farmers by the development agency and compensation is paid to farmers/owners based on the provision of prevailing act.

B. Bulk land acquisition method with Private Initiative: To defray the cost of land acquisition some state governments and ULBs have developed models in which private sector acquire land by directly paying compensation to the affected families. A variety of models are in existence per which land is acquired for planned development with private partnership.

C. Haryana Guided Land Development Model: In this model, the private developer can acquire land directly from farmers at market price and at the same time, it permits a land owner to assume the role of a colonizer. This model provides fixed time period of 5 years to utilize that land acquired (initially 2 years, then extension of 3 years, if required) and the developer is expected to complete the projects within this period. Major highlights of this model are that the difficulties and delays inland acquisition are avoided and pressure on government to pay compensation is reduced, overall enhancing investments.

D. Ghaziabad Joint Venture Model: As per approach followed by Ghaziabad Development Authority (GDA), a joint venture (JV) is formed between the GDA and the builders/developers/co-operative societies through open bid (based on technical and financial capabilities). Twenty per cent of the plots developed are to be reserved for EWS/LIG and the costing and allotting of social facility by developer has to be done as per the government regulations. The balance of the land is to be sold by the developer at profit. For the entire process, the development authority acts only as a facilitator. Project duration is specified in the JV agreement and penalty is imposed if developer requires time extension, thus making sure that land is utilized within the stipulated time period.



E. Hyderabad Differential Compensation Models: In Hyderabad, the land acquisition technique has been modified into two different models, in which while acquiring land for public and private projects, different level of compensations are arrived at, these are:

Model-I: When land is acquired for projects mainly for public purpose such as roads, power generation and distribution, irrigation, schools, welfare housing, environmental projects etc., appropriate compensation is paid to land-owners by consulting them.

Model-II: When land is acquired for projects such as SEZ, Industrial Estates, Satellite townships and others where value addition enhances the land prices substantially, mainly for third party use, compensation is normally worked out on profit sharing basis, which is in two parts, namely-

Basic Value (Government Rate) of Land % Equity Sharing in SPV / % of Net Developed Area / Built Space

F. CIDCO Model: CIDCO model of Land Development in Navi Mumbai follows the technique of land banking for land assembly. The compensation to land owners is done by the way of monetary and land compensation. But in Vasai Virar sub-region, CIDCO undertook the land assembly by obtaining power of attorney from land-owners or outright purchase of freehold lands located close to each other by private developers or builder. The promoter is solely responsible for providing and maintaining infrastructure for consolidated land parcel.

15.3.2 Land Pooling

In Town Planning or Plot Reconstitution Scheme, the land is pooled and its development is financed with the involvement of land-owners without compulsorily acquiring land. This land assembly technique helps to provide plots for basic services in a planned layout from the original haphazard arrangement. Costs incurred by the developmental authority for development and for infrastructure are recovered from the sale of few of the final land plots reserved by the authority and betterment charges levied on land-owners. The reconstituted plots are allotted to the landowners in proportion to their original land holdings.

The scheme was first introduced in the Maharashtra Regional and Town Planning Act, 1966 and later in Gujarat Town Planning & Urban Development Act, 1976 and is now widely appreciated model of land assembly. Another deviation of the land pooling mechanism has been recently introduced by the Delhi Development Authority (DDA), wherein DDA facilitated developers and land-owners to pool land for development. The town planning scheme is referred as 'land acquisition without tears' and has the following key advantages:

- i. Infrastructure is provided in coordinated way.
- ii. Partial cost is recovered through betterment charges.
- iii. Land for public and community purposes including green & open spaces is acquired without direct expanses.
- iv. Community benefits through unified planning.
- v. Land-owner shares the project cost and benefits by increased property prices.

Town Planning Scheme has emerged as a successful model of land development. The Maharashtra Regional and Town Planning (MRTP) Act, 1966. The Gujarat Town Planning and Urban Development Act (GTPUDA), 1976 and now Kerala Town and Country Planning Ordinance, 2013, have included provisions for Town Planning Scheme.



The T.P. Scheme is prepared by the authorities generally for an unplanned area of about 100 Ha. Planning this area in detail it may require about 40% of land for road network, public purpose like school, hospital, market, park, playground etc. and for plots for sale and the remaining 60% area can be utilized to formulate final Plots for the allotment to land owners as plots. As a result of this planning exercise, 40% of land is deducted from the ownership of all the land owners proportionately and allotted to the authority to undertake the respective development works for public as per the T.P.S. proposals. The remaining 60% land in form of plots is given back to the land owners on proportionate basis. The land owner will lose 40% of land and will get back 60% land in form of Final Plot. All the land owners will have this kind of adjustment.

The entire area through this mechanism becomes well planned. Everybody contributes part of their land for public purpose proportionately. Every land owner is paid compensation for the land he is contributing (about 40% land area) and in turn he pays the incremental contribution authority for the betterment of his land by virtue of this planning. There is no land acquisition and nobody is deprived of his land. On the sanction of the preliminary scheme under Section 67 of the Act, the land readjustment will come into force as per the scheme documents. Accordingly all the original boundaries of the Original Plot will be changed automatically to the new boundaries of the Final Plot. The roads, public purpose plots and the plots for sale will vest in the authority.

Through TP scheme land for public facilities and services are made available at right location and at right time. All such public purpose lands are equitably apportioned from the landowners. Planning efforts can keep pace with the growth and rapid urbanization thereby reducing scope for haphazard urban sprawl. TP Schemes facilitates decentralization of planned development activities in core as well as outlying areas of the city. Town planning scheme encourages optimum use of scarce developed urban land through efficient layouts and using of urban land as resource to check land speculation. By implementing TP Scheme the build ability of the reconstituted plot increases with regular shape, improvement in accessibility, increased potential of development, availability of social and physical infrastructure in the neighborhood, better linkage with other part of the city and improvement in living environment.

15.3.3 Land Reservation / Accommodation Reservation

The concept of Accommodation Reservation allows the land-owners to develop the sites reserved for an amenity in the development plan using full permissible Floor Space Index (FSI)/Floor Area Ratio (FAR) on the plot, subject to agreeing to entrust and hand over the built-up area of such amenity to the local authority free of all encumbrances and accept full FAR/FSI as compensation in lieu thereof. The area utilized for the amenity would not form part of FAR/FSI calculation. Reservations such as retail markets, dispensaries, etc. can be implemented in this way wherein local authority is not required to acquire the land by incurring expenditure on payment of compensation. In case of reservations like shopping centres etc., the owner can be allowed to develop these on agreeing to give at least up to 25% of the shops to the local authority for the purpose of rehabilitation of the displaced persons on payment of cost of construction.

In case of road widening/ new construction, the local authority can grant additional FSI on 100% of the area required for the purpose, provided the owner surrenders the land for widening or



construction of new roads to the local authority free of all encumbrances and accept the additional FAR/FSI as the compensation in lieu thereof. This mechanism has considerably relieved local authorities from incurring huge expenses for the purpose of acquisition of such lands. The model can be explored for other non-economic activities such as open spaces, public utilities among others. The concept of accommodation reservation has been incorporated in the Development Control Rules of the Mumbai Municipal Corporation.

15.3.4 Transfer of Development Rights (TDR)

TDR is a technique of land development, which separates the development potential of a particular parcel of land from it and allows its use elsewhere within the defined zones of the city. It allows the owner to sell the development rights of a particular parcel of land to another. This entitlement is over and above the usual FSI available for receiving plot in accordance with the prevailing laws and regulations, which entitles a land-owner to construct additional built-up area on his existing building or vacant land.

TDR is taken away from the zone and it is tradable which makes it different from Accommodation Reservation. This is also generally used for redevelopment of inner city zones and for reconstruction/ re-development and has been tried out in numerous cities/ States including Bengaluru, Chennai, Mumbai and Rajasthan. However it has its prospects and consequences as experienced from the implementation in various cities. For instance, unbridled pooling of TDRs could damage the urban form, TOD strategies, quality of public spaces, etc. Hence it should be used carefully within a predefined spatial framework. States like Karnataka and Rajasthan have made provisions to mitigate such effects.

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

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

Public purposes on open land or exclusive plots: Lands required for parks and playgrounds or exclusive uses like secondary school, fire station etc. can be obtained by providing TDRs in lieu of compensation. However, price differentials in originating and receiving zones could be considered as an incentive in such cases.

Public purposes that require built-up space but not necessarily exclusive plot: Examples of this could be municipal vegetable market, library etc. In such cases, landowner may be permitted to use the full potential of development in terms of FAR over the plot provided he offers the built up space required for the public purpose to the local body.

15.3.5 Guided Land Development

Guided Land Development model uses the provision of infrastructure as instrument to guide urban development. This is done in partnership with land-owners who pay for the cost of providing services to their land and in return donate land for public infrastructure and a payment as betterment levy. This model, also proposed by the United Nations Economic & Social Commission for Asia & Pacific (UNESCAP), has been for guiding the conversion of



privately owned land in the urban periphery. It uses a combination of traditional government role of providing infrastructure and the enforcement of land subdivision regulations. The key advantage of the approach is that it is less costly than outright land acquisition and more equitable than land banking.

The principle behind guided land sub-division is that the government agency proactively selects the direction where it feels urban development should take place and provides infrastructure in those areas. This acts as an incentive to encourage developer to invest in the planned area selected by the government agency. The cost effectiveness of guided land development approach results from the fact that land development is planned, designed and implemented with the land-owners of the designated area, who donate land for roads and right of way for infrastructure and public spaces, as well as pay a betterment levy to meet the costs of the project. To finance the scheme, a loan is initially taken to build the infrastructure, which is paid from betterment levies provided by land-owners either on annual installments or in lump sum upon sale of land. The infrastructure is provided by the government agency up to the site. Individual land-owners are supposed to subdivide their land for various developments and lay the on-site services. But guided land is often fraught with difficulties on the ground. First, as the model depends on the consent of the land-owners it cannot be applied in areas with fragmented land-ownership, lack of owners' will and consensus. Second, collection of betterment levies may not be feasible by small landholders and lead to default of payment.

15.3.6 Optimum Utilization of Vacant Government Land Scheme

The Optimum Utilization of Vacant Government Land (OUVGL) is a scheme for identifying vacant government land (including municipal land) and using it as source for providing land for public purposes. However given the need for using government land for generating financial resources, entire stock of government land need not be assigned to non-remunerative public purposes. In fact government land would offer many opportunities for PPP where part of the land could be used for public purpose. For example a plot of government land could be allocated for an intercity bus terminal with a budget hotel or commercial shops. Rationalizing obsolete uses of public lands could be another way of putting public land to more relevant public purpose.

The land under the ownership of various government departments and the respective authorities (Municipal Corporations / Nagar Parishads / Nagar Panchayats) falling in local planning area, can be used mainly for creating public utilities, services, physical and social infrastructure including parks, open spaces, community facilities etc.

15.3.7 Private Sector Involvement (Haryana Model)

The private colonizers have been involved in land development in Haryana on a large scale and these colonizers have operated in close collaboration with the State Urban Development Agency – Haryana Urban Development Authority (HUDA). The private developers have been granted permission to develop residential layouts in the state under the Haryana Development and Regulation of Urban Area Act, 1975, promulgated by the State Government to regulate the use of land in order to prevent ill-planned and haphazard urbanization in and around the towns in the state.



License to develop land is given to the colonizers by the Town Planning Department of the State Government. This is subject to the evaluation of the title of the land, extent and situation of the land, capacity of the applicant to develop a colony, the layout of the colony, and conformity of the development schemes of the colony land with those of the neighboring areas.

The private developers have to furnish a bank guarantee equivalent to 25% of the estimated cost of land development along with an undertaking to carry out and complete the development works. In addition, the colonizers have to pay proportionate development charges if the main lines of roads, drainage, sewerage, water supply and electricity are to be laid out and constructed by the Government or any other Authority.

The responsibility for the maintenance and upkeep of all roads, open spaces, public parks and public health services are with the developer for a period of five years after the date of issue of completion certificate. Thereafter, all such roads, open spaces, public parks and public health services would be transferred free of cost to the State Government or the local Authority as the case may be.

The Act also stipulates that, in addition to physical infrastructure, the colonizer would provide social amenities in the layout developed by them. The developer has to construct, at his own cost, schools, hospitals, community centers and other community buildings on the lands set apart for the purpose. Alternatively, the developer can transfer these lands free of cost to the State government which can be allotted to any person or institution for the purpose.

The limitations of the private sector involvement in land development are highlighted in Haryana. The colonizers are active in the area adjoining NCT Delhi and this is due to captive demand. Also, they have catered to the higher and middle income groups ignoring the demand of the lower income groups and the economically weaker sections. The housing supply to the later categories has been limited to the proportions stipulated by the Town Planning Department. It can, thus, be concluded that the private sector is guided by profit maximization motives and cannot be expected to cover the entire population both across geographical areas and income groups. This brings out the role to be played by the state agencies in land development – facilitating the private sector involvement and directly catering to the needs of those sections of the population ignored by the private sector.

15.4 Implementation Mechanism

The proposed development Plan Area of the project will cater the estimated population by the year 2041. For the increasing population as well as the floating population this development plan focuses on the creation of high level of capital infrastructure that is required for regular financial investments.

Implementation strategies of the development Plan involves two distinct level approaches i.e., Regional and local level. Regional or macro level is concerned with the major trunk infrastructure including major roads, regional level open spaces, public amenities and other special reservations. These requirements could be developed in phases through different mechanisms such as PPP mode, various levels of land acquisition, etc. Local or micro level involves further neighborhood level planning and allocation of land for local roads, open spaces, public amenities, etc. nonetheless local economic planning.



15.4.1 Regional Level

In the development Plan, broadly nine land use categories have been earmarked for the development. At the regional level, the main considerations are to provide the city level facilities, which directly falls under the purview of the development authority / local body. To develop and manage these facilities at the city scale, various innovative measures needs to be taken up whereby local body / development authority's role is more of governing and overlooking the appropriate development rather than getting into the construction / development of each of these facilities of public use.

Amenities / Public & Semi-Public Use Zone at macro level - which are earmarked in the proposed land use, should be acquired by local bodies partly or fully.

Green Space / Open Space / Recreation Use Zone should be marked on ground for all the open space reservations and acquisition of land wherever required, needs to be completed. Scheme for private sector participation in the park development should be formulated both on the Government lands and on private lands wherever needed. Development of parks and open spaces by local bodies.

Transportation includes roads, logistic and railway terminals. Roads above 30 m width to be marked on ground so that people do not encroach upon the alignment knowingly or unknowingly. Widening the existing roads and connecting the missing links needs to be undertaken.

Specific reservation use zone can be implemented by part acquisition or full acquisition of land.

15.4.2 Local Level

At local level the remaining land uses are dealt. For implementation of plan at local level one of the mechanisms used in India (Punjab, Haryana, and Gujarat & Maharashtra) is land pooling Scheme. Under this scheme, certain area of land is pooled out and developed with the provision of public amenities, open spaces and roads at local level that benefit the local people. This land Pooling Scheme may be replicated for implementation of the Development Planat the micro level.

The need for Land Pooling Scheme can be justified for the overall development of the city in the long run and can prove to be a win-win situation for development authority / local body as well as the citizens as mentioned below:

Infrastructure Development: Construction of infrastructure like roads, public utilities, parks, schools, hospitals, etc. is prerequisite for a systematic and wholesome development of the city. Through land pooling schemes, infrastructure development becomes possible by incurring minimal capital costs in the land. It also saves time for the execution of the projects and in addition it leads to the resultant increase in value of the land / area under development and also helps in creating planned developments and regulating the growth pattern of the city.

Landowner's Benefit: Owners surrendering land for development does not suffer major losses. People giving away the entire underdeveloped plot in exchange of land nearby or only parts of it, benefit hugely. Due to the development, surrounding land prices increase which compensates the part land that is used for the development of public amenities or infrastructure facilities. Without the infrastructure progress, the owner would have to wait years before any development takes place whereby the value of his land increases. In the case of Land Pooling Schemes, the owner of the plots would be interested to surrender their part



land, since they would get the benefits of upgraded infrastructure facilities at their plot in most cases and at the same time increase in value of their land / plots.

15.5 Revenue Generation

There are two main sources of revenue for local bodies viz. Own revenues, and Government grants. Own revenue resources of development authority comprises tax and non-tax revenues realized by them. Government grants comprises funds released by the State Government and Government of India (GoI) on the recommendation of State Finance Commission (SFC), Central Finance Commission (CFC); and State Government and Government of India (GoI) share for implementation of various schemes. The development authority also obtain loans for implementation of various schemes related to the urban development.

Development authority in most of the states have been empowered to drive their income from several sources such as taxes, fees, fines and penalties and remunerative enterprises. Apart from these, development authority also depend upon grants and contributions, loans and some miscellaneous sources. There is tradition to classify the sources of finance into four categories viz.

- Tax Revenue
- Non-Tax Revenue
- Grants and Contributions
- Loans

15.5.1 Tax Revenue of Urban local Government

As per the Government of India act variety of taxes are levied by the development authority in different states. The most common taxes are property tax/house tax, profession tax, vehicle tax, tolls, technical tax, and tax on animals, entertainment tax, tax on transfer of property and tax on advertisements. All the possible taxes could be levied by the development authority to generate the direct income of taxes.

15.5.2 Non-Tax Revenues of Urban Local Governments

The other source of income of development authority is through the non-tax revenues. These are mainly derived from fees levied in markets, bus stands, cart stands, slaughter houses, and rents from Municipal property such as land and buildings (especially shopping centers) income from public utilities and interest on investments. Apart from taxes and rates there are some sources of revenue such as fines, fees, penalties, rents and income from other minor sources. This source further possibly includes income from water supply/sewage fees, interest on investments, fees, fines and charges in relation to performance of statutory and regulatory functions.

15.5.3 Grant-in-aid and Contributions

Grant-in-aid form an important constituent of development authority finance. A payment made from the treasury of the State Government to a local authority for the purpose of assisting that authority in carrying out a part or all of its activities is known as Grant-in-aid. Grant-in-aid can be defined as "Money payments furnished by a higher to a lower level of government to be used for specific purposes and subject to conditions spelled out in law or administrative regulations." Grants are the most important sources of revenue in most of the developing


countries like India because national governments collects the prime sources of public revenue and are therefore obliged to assist local units.

15.5.4 Loans from Central Government

With the increase in urbanization and industrialization, urban local governments require more and more funds to equip the cities with up-to-date facilities. A number of capital projects such as installation of water works, auditoriums, a town hall, etc., development of adequate sewerage and drainage system, and like are generally undertaken by the development authority for the benefit of the local people. Normally, the authorities are unable to meet the huge expenditure required to undertake these projects out of their routine income and hence loans are required to meet the development needs of the area.

15.6 Suggestions for Improvement

The finances of urban local bodies needs to be improved substantially. In order to improve the revenue of development authority the main suggestions area as below:

15.6.1 Development of Indigenous Resources & Collection of Existing Dues

For effective improvement in the financial sphere, it is imperative that development authority should first develop their own resources and generate revenue income. A renewed move should be started to recover the past dues. Urban local bodies must take sincere efforts to recover legally valid imposed taxes from the persons or enterprises or whosoever concerned as the case may be. This can be in the form of tax as well as non-tax revenue. Special units may be created for this purpose keeping in view the overall economy. Incentives may be offered for timely and regular payment of taxes.

15.6.2 Emphasis on Non-Tax Revenue

Apart from taxes, it is also important that development authority should expand sources of nontax revenues. In this connection local licensing, local enterprises, local trading and housing may be specially targeted not only because of revenue but also because of their social advantage.

15.6.3 Capacity Building & Induction of Qualified Staff

The administrative machinery involved in revenue generation can be strengthened by adding more qualified staff, imparting proper training, providing attractive incentives to the employees, and so on. The capacity building exercise of the existing staff too needs to be carried out on regular basis so as to increase their work efficiency while at the same time utilizing their experience of being in the system that can help in creating cohesive environment in the system.

15.6.4 Revenue Mobilization at Local level

Revenue mobilization needs not only strengthening the existing revenue sources but also using other sources of revenue. Therefore, both conventional and non-conventional sources need to be tapped to the extent possible. The development authority may benchmark their levy and utilization with reference to the better performing peers within the State as well as outside the State. The development authority may use the general principles of 'users pay, beneficiaries pay and polluters pay' to the justification such that the citizens are well aware of the need for



their contribution towards larger societal cause. The table below shows conventional and nonconventional resources that can be tapped by the development authority.

S.No.	Service	Conventional Source	Non-Conventional Source	
1	Broporty	Composito Broporty Tay	Vacant Land Tax, Service Taxes,	
_ _	Flopenty		Surcharge on Land Registration Duty	
			Water Supply Connection Charges,	
2	Water Supply	Water Charges	Water Benefit Tax, Water Betterment	
			Charges	
			Sewerage Connection Charges,	
3	Sewerage	Sewerage Charges	Sewerage Benefit Tax, Sewerage	
			Betterment Charges	
4	Solid Waste Management	Conservancy Charges	Bulk Garbage Collection Charges	
			Betterment Charges; External	
	Town Planning		Betterment Charges; Open Space	
		Building Permit Fee	Contribution; Impact fee; Transferable	
5		Development Charges	Development Right; Premium FSI/FAR,	
			Subdivision	
			Charges; Planning Permission	
			Betterment	
			Road Cutting Charges, Street Tax,	
			Frontage Tax, Cess on Infrastructure,	
6	Engineering	No Sources	Motor Vehicle Tax/Surcharge on Tax	
			on	
			Petrol and Diesel	
7	Trade Licensing	Trade Licensing Fee	Business License Fee	
			Hoarding Charges, Advertisement	
8	Advertisement	Advertisement Tax	Placement Fees, Cable TV Fee, TV	
			Advertisement Charges	
9	Shops &	Shop Room Rent	Rovalty on Auctions	
-	Establishment		Regardy of Auctions	

Table 15-1: Conventional and Non-Conventional Sources of Revenue	е
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The development authority needs to exploit various land based revenues, which have greater implications on urban growth and development. The funds realized from land based revenue sources can be effectively deployed for the provision of better infrastructure facilities within the city. Several of these sources may be already available with the development authority but the potential of the same may not have been exploited to fullest extent.

Also, there are several other forms of revenues (or, variants of revenues) that need to be tapped and exploited. The table below lists out the various property related revenue sources that can be exploited by the development authority for mobilizing resources.



able 15-2: Property related revenue source	S			
Revenue Source / Variants	Description			
Site Value Tax	Current land rental or capital value of land			
Land Gains Tax	Land capital gains – increment in land values			
Betterments or Special	Increment in land values due to specific public expenditures			
Assessments	including infrastructure			
Development Gains Tax /	Change of 'Lower' to 'Higher' order of land use (one time levy)			
Conversion Tax	Change of Lower to Figher of der of land use (one time levy)			
Purchasable Development Rights	Purchase of development rights			
Development in Kind / Incentive	Obligation on developers to install infrastructure or make			
Zoning	certain land / facility available for community purpose			
	Stamp duty connected with change of 'ownership' rather than			
Land Transfer Tax	change of 'use'			
	Capital value of land not used for any purpose (it also helps in			
Vacant Land Tax	discouraging unnecessary speculation)			
Property Tax	Rental value or capital value of property – self assessment			
Stamp Duty	Tax levied on transactions for selling or buying property (though this falls under State tax, part of the revenues could be shared with urban local bodies)			

Chapter 16

DEVELOPMENT PLAN PHASING AND FINANCING



CHAPTER- 16 DEVELOPMENT PLAN PHASING

16.1 Development Plan– Cost & Revenue Estimates

16.1.1 Project Costs

There are two types of costs estimated viz. A) Land Acquisition Costs and B) Development Costs. These have been estimated for major trunk infrastructure, necessary for the development of plan proposals. Several of these projects will require detailed feasibility estimates and preparation of detailed project reports prior to implementation.

A. Land Acquisition Costs

The Land Acquisition for public purpose is the sole responsibility of the Competent Authority for the planning horizon from the sanction of the plan. It is desirable to acquire all land by authority for proper implementation of the plan. The acquisition costs are estimated based on the average prevailing Jantri rates (Government Rate Card) in the Shimla Planning Area or HPWD rates. However, there are possible tools like Accommodation Reservation and TDR. It is assumed that these tools will be instrumental in acquiring land of roads, public amenities & open spaces.

B. Development Costs - Amenities & Recreational Open Spaces

It is suggested that the Competent Authority shall plan to develop the amenities and open spaces through private sector participation to reduce the financial burden on the authority and to ensure higher degree of plan implementation. Development cost shall be calculated for all the infrastructure facilities that will be required by the year 2041.

i. Road Cost

The development/ construction of some of the national highways (4 lane) along Mehli and other areas of Shimla Planning area is taking place. Moreover, the road widening projects at many places are also taking place under SMART city mission. However, for the remaining Road & transportation proposals the major assumptions taken while calculating the road development cost have been mentioned below:

Regional Roads/ National Highway/ State Highway roads – the percentage of new roads shall be about 20% of the total proposed road length while the remaining 80% shall be existing roads requiring road widening

Major city roads/ PWD roads – the percentage of new roads shall be about 25% of the total proposed road length while the remaining 90% shall be existing roads requiring road widening Rest of the roads - the percentage of new roads shall be about 40% of the total proposed road length while the remaining 60% shall be existing roads requiring road widening.

ii. Water Supply Cost

Along with the proposed road length, water supply are to be calculated and their cost estimation will be carried out.

iii. Sewerage & Drainage Network Cost

Similarly cost estimation has to be calculated for Sewerage and drainage network along the major and minor roads.

iv. Public & Semi-Public Amenities and Open & Recreation Space Development Cost

It is assumed that Development Authority shall venture for developing maximum up to 25% of all the reservations proposed for educational facilities, health facilities, socio-cultural facilities, markets, and 60% of the reserved recreational open spaces. The rest of the area under both these categories is considered to be taken care by other entities including other department or private partner. Project cost is worked out into the sector of Proposed Roads, Public and Semi Public Use, Rope Way and Countermagnet Town. Their details are described in table given below:

For proposed roads, total cost is coming around 62.70 Cr. While Cost for developing the Counter Magnet town, Satellite Town and Public and Semi Public Use is coming around 28322 Cr., 11322 Cr. and 43.7 Cr. respectively.

Proposed Roads				
Category	Unit	Length	Price (Cr.)/ Unit	Total Cost (Cr.)
Proposed Roads (*ROW – 24 meter)	km	21	4.75	99.75
Proposed Roads (*ROW – 18 meter)	km	20.9	3	62.70
			Total	162.45

Table 16-1: Public & Semi-Public Amenities and Open & Recreation Space Development Cost

Ropeway – Phase 1						
Network Length	Unit	No.of lines	No. of Station	Capital Cost (INR)		
30.8	km	8	31	1232 Crore		

Ropeway – Phase 2						
Network Length	Unit	No.of lines	No. of Station	Capital Cost (INR)		
19.14	km	5	13	766 Crore		

Ropeway – Phase 3						
Network Length	Unit	No.of lines	No. of Station	Capital Cost (INR)		
33.16	km	5	6	1326 Crore		

Counter Magnet Town – 833 Ha.					
Area for amenities –					
Developed by	Unit	Price/ Unit	Total Cost (INR)	Total Cost (Cr.)	
Government (20%)		,			
3332000	sq.m	20000	33,32,00,00,000.00	3332	
Area for Land					
Development (100%)	Unit	Price/ Unit	Total Cost (INR)	Total Cost (Cr.)	
83300000	sq.m	3000	2,49,90,00,00,000.00	24990	
			Total	28322	

Satellite Town – 333 Ha.						
Area for amenities -	Unit	Price/ Unit	Total Cost (INR)	Total Cost (Cr.)		



Developed by				
Government (20%)				
666000	sq.m	20000	13,32,00,00,000.00	1332
Area for Land	Unit	Drico / Unit	Total Cost (INIR)	Total Cost (Cr.)
Development (100%)	Unit	Price/ Unit	TOTAL COST (INK)	
33300000	sq.m	3000	99,90,00,00,000.00	9990
			Total	11322

Public/ Semi Public Use						
Category	Unit	Capacity	Price (Cr.)/ Unit	Total Cost (Cr.)		
Water Supply	Projects are already in pipeline under SJVNL					
Sewerage Treatment Plant	KLD	21.88	2.00	43.76		

16.1.2 Project Revenues

Generally, development-planning projects are not leveraged as revenue components due to its social perspective. Simultaneously, an authority has to generate the capital needed to thrust the implementation process. There are several tools like Development Charges; Premium from Granting of Additional FSI, Additional Development rights, Saleable Components of Public Amenities and public lands. The revenues are estimated in accordance with the provisions of Development Plan and DCR, and are presented below.

A. Development Charges

The new developments in the proposed land use shall attract the development charges. This is charge may be levied one time or in phases which will help in generating revenues for the authority that shall ultimately help in the creation of infrastructure facilities.

The revenues estimated from the levy of development charges are presented in the table below.

B. Premium Charges on FAR (FAR permissible in addition to the Base FAR)

The proposed FAR system as prescribed in the DCR regulates the permissible FSI in two segments viz. Base FAR and FAR to be permitted by payment of Premium Charges to the development authority. The details of the same as prescribed in DCR is presented in following table:

Table 16-2: Base FAR & FAR to be purchased through Premium Charges					
Total Maximum Permissible FAR	Base FAR	FAR by Payment of Premium Charges			
1.75	1.5	0.25			

Table 16-2: Base FAR & FAR to be purchased through Premium Charge

C. Revenue from Sale of Public Amenities & Commercial Land Sale

It is assumed that Development Authority shall venture for developing maximum up to 30% of all the reservations proposed for educational facilities, health facilities, socio-cultural facilities, markets, and other public amenities. The rest 70% of the area shall be sold to the private partner in the form of developed plots.



The infrastructure needed to serve the projected population at build-out is substantially more than will be needed to serve the development expected in the early phases of the project. As a result, the provision of infrastructure and facilities will occur as the development they serve takes place. Since development of Shimla will occur incrementally, this phasing provides a framework and threshold for providing the infrastructure necessary to serve development as it occurs. Implementation of Development Plan is divided into two phases coinciding with five year plans namely:

- 1. Phase-1 2022-2030
- 2. Phase-2 2031-2035
- 3. Phase-3 2036-2041

These phased development will provide an analysis of the estimated annual development and its impacts on the City included projected city revenues from the development. In view of implementation of proposal in each phase priorities of subsequent phases shall be worked out and accordingly implementation has to be ensured.

1. First Phase – 2022-2030

The following proposals are proposed to be implemented in first phase:

- 1) Identification of new areas for planned development as Counter Magnet town/ Satellite towns at Ghanahatti, Banuti on Jablog road, Sayri on Kunihar road, Batlana near Shoghi and Khalag near Jubbarhatti.
- 2) Land Development Mechanism for these planned development are to be devised and implemented.
- 3) Development of Ropeway Phase 1 and Phase 2 lanes.
- 4) To create land bank and to make headway for acquisition of land for community purposes including transportation.
- 5) To create parking lots at proposed strategic locations like Kufri, IGMC, New Shimla, SDA Complex , Vidhan Sabha, Chakkar and Boileauganj, Dhalli,
- 6) Shifting and development of Wholesale Grain, vegetable and timber market, Ware housing at Shoghi
- 7) Construction of Bye Pass Roads:
 - i. Bypass Road connecting Taradevi to Jathiya Devi temple to Ghanahati
 - ii. Road from New Shimla Sector 4 (Ranjhana) to Shoghi-Mehli by-pass.
 - iii. Construction of Four Lanning from Shoghi to Dhalli.
- 8) Widening of major arterial and link roads.
 - a. Mashobra to Bekhalti Road.
 - b. Taradevi Airport Road.
 - c. Ghanahatti Airport Road.
 - d. Mehli- Junga Road.
 - e. Mehli-Gusan Road
 - f. Beolia- Sai Temple upto Junga Road.
 - g. Bhattkufar-Chakriyal Road.
 - h. Aukland Bharari Dudhli Road.
 - i. Shanan- Chamiyana Road.

2. <u>Second Phase – 2031-2035</u>

The following proposals are proposed to be implemented in second phase:

1) Land Development Schemes / Local Area Plans for Counter Magnet town/ satellite towns at Ghanahatti, Khalag near Jubbarhatti and Chamyana near proposed 4 lane road are to be devised and implemented.



- 2) Development of open space and recreational spaces as demarcated in PLU
- 3) To create parking lots at proposed strategic locations like Ghanahatti Market, HPU, Taradevi, Panthghati, Mehli, Mashobra.
- 4) Development of roads, water supply network and sewage network in New settlements in Non-Core area
- 5) Development of Ropeway Phase 3 lane
- 6) Development of tourism projects in Kufri and Mashobara Area

3. <u>Third Phase – 2036-2041</u>

The following proposals are proposed to be implemented in third phase:

- 1) Land Development Schemes / Local Area Plans and Town Development Scheme/Town Planning Schemes to be implemented in other parts of Shimla Planning Area.
- 2) All other remaining projects.

Actual phasing of development, including the configuration of development phases, may vary from the foregoing anticipated phasing, and will depend upon such factors as market conditions, economic considerations, and completion of infrastructure construction. Moreover, the progress of the aforesaid projects in different phases will also depend on the detailed feasibility study and implementation, after the consultation with the lined department.

Chapter 17

AND DEVELOPMENT CONTROL REGULATIONS

LAND USE ZONING

CHAPTER- 17 LAND USE ZONING AND DEVELOPMENT CONTROL REGULATIONS

17.1 DEFINITIONS

 "agriculture" includes horticulture, farming, raising of annual or periodical crops, fruits, vegetables, flowers, grass, fodder, trees or any kind of cultivation of soil, the reserving of land for fodder, grazing or thatching areas, breeding and keeping of livestock including cattle, horses, donkeys, mules, pigs, breeding of fish and keeping of bees, and the use of land ancillary to the farming of land, but does not include-

(i) keeping of cattle purely for the purpose of milking and selling the milk and milk products,

(ii) a garden which is an appendage of buildings, and the expression "agricultural" shall be construed accordingly;

- 2) "amenity" includes roads and streets water and electric supply open spaces, parks, recreational area, natural feature, play grounds, street lighting, drainage sewerage and other utilities, services and conveniences;
- 3) **"allottee"** in relation to apartment or plot, means the person to whom such apartment or plot has been allotted, sold or otherwise transferred by the promoter;
- 4) **"association"** means an association consisting of the majority of the apartment owners in a building acting as a group in accordance with the bye-laws made by the association under the Himachal Pradesh Apartment Ownership Act, 1978;

Explanation.- A member of a Co-operative Housing Society of the tenant co-partnership type, or an allottee under a hire-purchase agreement shall be deemed to be an owner, entitled to membership of the association.

- 5) **"Builder":** Will refer to the one who is involved in constructing flats or houses or other establishments for commercial purposes and by way of sale thereof he will be involved in acquiring profits.
- 6) "building" includes any structure or erection, or part of a structure or erection, which is intended to be used for residential, industrial, commercial or other purposes, whether in actual use or not. However, for the purpose of apartment, building shall mean a building constructed on any land, containing more than eight apartments, or two or more buildings with a total of more than eight apartments or any existing building converted into more than eight apartments";

7) "building operation" includes-

- (i) erection or re-erection of a building or any part thereof;
- (ii) roofing or re-roofing of any part of building or an open space;
- (iii) any material alteration or enlargement of a building;

(iv) any such alteration of a building as is likely to alter its drainage or sanitary arrangements, or materially affect its security;



(v) the construction of door opening on any street or land not belonging to the owner;

8) "building regulations" means the rules or regulations or bye-laws made under any law for the time being in force for the erection or re-erection of buildings or parts thereof and for the purpose of this Act includes Zoning Regulations framed under any law for the time being in force;

9) "built-up area"

Means the areas covered by a building on all floors including the cantilevered portions, if any, including walls and columns, but except the areas specifically excluded under these Regulations.





10) "carpet area"

Carpet area is the 'net usable floor area of an apartment, excluding the area covered by the external walls, areas under services shafts, exclusive balcony or verandah area and exclusive open terrace area.'



11) "chimney"

Means a construction by means of which a flue is formed for the purpose of carrying products of combustion to the open air and includes a chimney stack and the flue pipe.

12) "colony" means an area of land not less than 2500 square metres contiguous divided or proposed to be divided into plots or apartments or buildings for residential, commercial or industrial purposes including cyber city, cyber park, construction of flats in form of group housing or for construction of integrated commercial complexes, but does not include any area of Abadi-deh of a village falling inside its Lal Lakir or land divided or proposed to be divided- (i) for the purpose of agriculture: Provided that such land shall not be used for the development of colony; (ii) as a result of partition by way of inheritance or succession without a motive of developing a colony; and (iii) by a company, institution or factory for providing residential accommodation for its employees:

Provided that there is neither profit motive nor ownership of such houses shall be transferred to the employees and their rights to accommodation shall be restricted to the period of their employment with such company, institution or factory;

- 13) **"colonizer"**: Will refer to the one who is involved in development of plots for various purposes including residential and will be transacting the developed land for earning profits thereof.
- 14) "competent authority" means the authority competent to grant the planning permission under the provisions of HPTCP ACT, 1977 and Rules framed there under.



- 15) "commercial use" means the use of any land or building or part thereof for the purpose of carrying on any trade, business or profession or sale or exchange of goods of any type whatsoever and includes running of with a view to make profit hospitals, nursing homes, infirmaries, educational institutions, hostels, restaurants and boarding houses not being attached to any educational institution, sarais and also includes the use of any land or building for storage of goods or as buildings for storage of goods or as an office whether attached to any industry or otherwise;
- 16) "common areas and facilities" in relation to a building, means all parts of the building or the land on which it is located and all easements, rights and appurtenances belonging to the land or the building, which are neither in the exclusive possession of an apartment owner in terms of his conveyance deed of apartment, nor are handed over or intended to be handed over to the local authority or other public service agency and shall include the limited common areas and facilities;
- 17) "common expenses" means,-

(i) all sums lawfully assessed against the apartment owners by the association for meeting the expenses of administration, maintenance, repair or replacement of the common areas and facilities;

(ii) expenses, declared by the provisions of this Act or by the bye-laws made by the association under the Himachal Pradesh Apartment Ownership Act, 1978 (41 of 1978) or agreed upon by the association, as common expenses; and

(iii) the Government or municipal taxes including ground rent and property tax, which is not assessed separately for each apartment;

18) "common plot"

Common Plot shall mean a common open space exclusive of approaches, at a height not more than ground level of the Building-unit. The owner shall have to give an undertaking that the common plot shall be for the common use of all the resident or occupants of the Building-unit. On sanction of the development permission, the common plot shall deem to have vested in the society/association of the residents/occupants. The common plot shall not be sold to any other person and it shall not be put to any other use except for the common use of the residents/occupants.

19) "corridor:

Means a common passage or circulation space including a common entrance hall.



- 20) **"development"** with its grammatical variations means the carrying out of a building, engineering, mining or other operations in, on, over or under land, or the making of any material change in any building or land or in the use of either, and includes sub-division of any land;
- 21) "development charges" means the cost of external and internal development works;
- 22) **"development plan"** means interim development plan or development plan prepared under HPTCP Act, 1977;



- 23) "development works" means external and internal development works;
- 24) "director" means the Director of Town and Country Planning appointed under HPTCP Act, 1977;

25) "dwelling unit"

Means a shelter consisting of residential accommodation for one family. provided that the minimum accommodation in a dwelling unit shall be one room of minimum carpet area of 9.50 sq.mts with a minimum width of 2.4 Mts. and a w.c.

26) "existing development/ building/ use"

Means a development, building, structure or its use as sanctioned, approved, regularized, authorized by the Competent Authority, existing prior to these Regulations.

- 27) **"existing land use map"** means a map indicating the use to which lands in any specified area are put at the time of preparing the map, and includes the register prepared, with the map giving details of land-use.
- 28) **"external development works"** includes roads and road systems, water supply, sewerage and drainage systems, electric supply or any other work which may have to be executed in the periphery of, or outside, a colony for its benefit;
- 29) "floor" :Means the lower surface in a storey on which one normally walks in a building, and does not include a mezzanine floor. Ground Floor is the floor at ground level with a plinth- hollow or solid, and direct access to a street or open space. The floor above it with minimum permissible height shall be termed as floor 1, with the next higher floor being termed as floor 2, and so on upwards.
- 30) **"floor area":** Means the net enclosed area of a floor in the building including circulation spaces like lobby or corridors, service areas and semi-open spaces such as verandah or balcony.

31) "floor area ratio"

Means the ratio between the total built up area of all the floors of the building to the area of plot

Total Built up area of all floors

FAR =

- Plot Area
- i. Base/Permissible FAR : Means the base FAR permitted in a Base Zone by the Competent Authority as a matter of right.
- ii. Premium FAR: Means the additional FAR available by payment
- iii. Maximum Permissible FAR: Means the maximum permissible FAR which includes Base FAR and Chargeable FAR.

32) "foundation"

Means the part of the structure which is in direct contact with and transmitting loads to the ground.



33) "godown/warehouse"

Means a premises for exclusive use of goods and commodities in a manner as per the requirements of the respective commodities. The premises may be open space or covered space and includes related loading and unloading facilities by road transport or rail transport, as the case may be.

34) "height of building"

Means the vertical distance measured from the average ground level/ high flood level/plot level and up to the top of the finished level of the top most floor slab or in case of flat roofs up to the midpoint of the height of the sloping roof excluding the genuine stair cabin, water tank, and lift room. The height of the sloping roof shall be taken as an average height of the relevant floor.

35) "height of a room"

Height of a Room means the vertical distance measured from the finish floor level to lowermost level of ceiling.



36) "hilly area"

Hilly area is any area above 600 m in height from mean sea level, or any area with average slope of 30°.

37) "housing types";

- (a) Row housing means where two side walls are common and plots created specifically for houses in the row.
- (b) Semi-detached housing means where one side wall is common and plots created as such for this purpose.
- (c) Detached houses mean where there are no common walls and plots created as such for independent houses.
- 38) **"internal development works"** means roads, footpaths, water supply, sewers, drains, rain water harvesting system, tree planting, street lighting, provisions for community buildings and for treatment and disposal of sewerage and sullage water, or any other work within in a colony necessary for its proper development;
- 39) **"joint family"** means a undivided family and in the case of other persons, a group the members of which are by custom joint in possession of property or residence;
- 40) **"land"** includes benefits to arise out of land and things attached to the earth or permanently fastened to anything attached to the earth;

41) "lift / elevators"

Means a mechanically-guided car, platform or transport for persons and materials between two or more levels in a vertical or substantially vertical direction.

42) "light industries"

Means a non-hazardous industrial establishment that produces products which create less environmental impact than those associated with heavy industry.



- 43) "light weight material":- Shall refer to stone or brick walls in foundations, brick dhajji walls/Aerobrick walls in Superstructure ,Siporex light weight concrete block for partions, Aerotile for flooring ,Fiber/PVC sheets for roofing, wooden joinery with proper seismic bonds and pitched roof with wooden truss at the top.
- 44) "limited common areas and facilities" means those common areas and facilities which are designated in writing by the promoter before the allotment, sale or transfer of any apartment, as reserved for use by the resident of certain apartments to the exclusion of other apartments;
- 45) "lobby": Means a hall at the entrance of a building or corridor/hall connected with a larger room or series of rooms and used as a passageway or waiting room.
- 46) "local authority" means a Municipal Corporation constituted under section 3 of the Himachal Pradesh Municipal Corporation Act, 1994 or a Municipal Council or a Nagar Panchayat constituted under section 3 of the Himachal Pradesh Municipal Act, 1994 or Panchayati Raj Institutions constituted under the Himachal Pradesh Panchayati Raj Act, 1994 or Cantonment Board or any other authority notified by the State Government for the purposes of this Act;
- 47) "margin/ set-backs": Means the space adjacent to boundary of Building-unit, buildings, or common plot that should be kept fully open-to-sky. No built-up area shall be permitted in marginal space except specifically permitted under these Regulations.
 - ١. Road Side/ Front Margin: Means the space provided from the road-side edge of the Building-unit.
 - Π. Side Margin: Means the space provided from the sides of the Building-unit.
 - III. **Rear Margin**: Means the space provided from the rear edge of the Building-unit.



Two - Side Road

- 48) "member" means a member of a Town and Country Planning Department or a Special Area Development Authority, as the case may be, and includes a Chairman thereof;
- 49) "mixed-use building" means a building with more than one use in different portions of the building



50) **"multi- storey/level parking"** means a multistorey vehicular parking structure (also called a parking garage, parking structure, parking ramp, or parking deck) designed specifically to for automobile parking and where there are a number of floors or levels on which



parking takes place. It is essentially a stacked vehicular park.

- 51) **"multiplex"** means a complex with an integrated entertainment and shopping centre/complex having at least three cinema halls with total minimum seating capacity of 450 seats, set up in a plot having an area of 3500 sq.mts or above. The multiplex may include retail outlets, showrooms, restaurant, fast food outlet, video games paroles, bowling alleys, health spa / centres and other recreational activities.
- 52) "natural disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property or damage to, or degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area;
- 53) **"natural hazards"** means probability of occurrence, within a specified period of time in a given area, of a potentially damaging natural phenomenon;
- 54) "natural hazard prone areas" means areas likely to have,-
 - (i) moderate to very high damage risk zone of earthquakes or
 - (ii) significant flow or inundation or
 - (iii) landslide potential or proneness or
 - (iv) one or more of these hazards;

55) "occupier" includes-

- (i) a tenant,
- (ii) an owner in occupation of or otherwise using his land,
- (iii) rent free tenant,
- (iv) a licensee, and
- (v) any person liable to pay to the owner, damages for the use and occupation of the land;
- 56) **"owner"** includes a mortgagee in possession, a person who for the time being is receiving or is entitled to receive, or has received, the rent or premium for any land whether on his own account or on behalf of or for the further benefit of any other person or as an agent, trustee, guardian or receiver for any other person or for religious or charitable institutions or who would receive the rent or be entitled to receive the rent or premium if the land were to be let and includes a head of a Government department, General Manager of a Railway and the *****"Chief Administrator by whatever name designated, or a local authority, statutory authority, company, corporation or undertaking in respect of properties under their control;



- 57) "park/ garden": Means a piece of ground in or near a city or town kept for recreation for the general public.
- 58) **"parking space"**: Means an enclosed, semi-covered or open area including driveway and access aisles required to park vehicles, as per regulations related to parking. Parking spaces shall be served by a driveway connecting them with a street or alley and permitting ingress or egress of vehicles.
- 59) **"person"** includes company, firm, co-operative society, joint family and incorporated body of persons;
- 60) **"petrol/diesel pump"**: Means a premises for sale of petroleum products like petrol and diesel to consumers.
- 61) "planning area" means any area declared to be planning area under HPTCP Act, 1977;
- 62) "prescribed" means prescribed by the rules made under HPTCP Act, 1977;
- 63) "promoter" means a person who,-

(i) constructs or causes to be constructed a building consisting of apartments or converts an existing building or a part thereof into apartments for the purpose of selling all or some of the apartments to other persons and includes his assigns; or

(ii) develops land into a colony, whether or not, he also constructs structures on any of the plots "for the purpose of" selling to other persons, all or some of the plots whether open or with structures thereon; and

(iii) "constructs more than eight apartments or converts an existing building into more than eight apartments or develops a colony and the person who sells apartments or plots are different persons in any planning area, or any special area or any deemed planning area as specified in sub-section (3a) of section 1, the terms includes both of them;"

Explanation.- A person who acts as described in sub-clause (iii) of this clause shall be deemed to be a promoter, even if-

(i) he styles himself as a builder, colonizer, contractor, developer, estate promoter or by any other name; or

(ii) he claims to be acting as the holder of a power of attorney from the owner of the land on which the building is constructed or colony is developed; and

- 64) **"property"** means the land, the building, all improvements and structures thereon and all easements, rights and appurtenances belonging thereto and includes every type of right and interest in land which a person can have to the exclusion of other persons, such as possession, use and enjoyment free from interference, right of disposition, franchises and hereditament.".
- 65) **"region"** means any area established to be a region under HPTCP Act, 1977;
- 66) **"regional plan"** means a plan for the region prepared under HPTCP Act, 1977 and approved by the State **Government**;



- 67) **"road width or width of road / street":** Means the whole extent of space within the boundaries of a road when applied to a new road/street, as laid down in the city survey, development plan, Town Planning Scheme or prescribed road lines by any act or law. The clear average width of the existing carriage way and footpaths only on which the building or plot line abuts. The average width shall be computed by taking length of street between two extreme points on Building-unit abutting the street at right angles to the direction of such streets excluding the steps projections, forecourts, open areas of other spaces in front of the building erected or intended to be erected. However in case where a regular line of street is prescribed by the Competent Authority, such width shall be considered for the purpose of computing building height.
- 68) **"real estate project"** means the development of a building or a building consisting of apartments, or converting an existing building or a part thereof into apartments, or the development of land into plots or apartment, as the case may be, for the purpose of selling all or some of the said apartments or plots or building, as the case may be, and includes the common areas, the development works, all improvements and structures thereon, and all easement, rights and appurtenances belonging thereto;
- 69) **"sector"** means any sector of a planning area for which, under the development plan, a detailed sectoral plan is prepared;
- 70) "shop/retail activity": Means a building or part of a building where goods or services are sold
- 71) **"shopping center or commercial center"**: Means a mercantile establishment consisting of multiple number of shops with adjacent parking.
- 72) **"shopping mall"**: Means a mercantile establishment consisting of complex of shops representing leading merchandisers; usually includes restaurants and a convenient parking area; a modern version of the traditional marketplace.
- 73) **"slum area"** means any predominantly residential area, where the dwellings which by reason of dilapidation, overcrowding, faulty arrangement of design, lack of ventilation, light or sanitary facilities or any combination of these factors are detrimental to safety, health or moral and which is defined by a development plan as a slum area;
- 74) **"stair cabin or stair cover"**: Means a structure with a covering roof over a staircase and its landing built to enclose only the stairs for the purpose of providing protection from the weather, and not to be used for human habitation.



- 75) **"staircase":** Means a flight or series of flights of steps with the supporting framework, casing, and balusters, constructed to connect different floors or levels in a building.
- 76) **"stairwell"** means a vertical shaft around which a staircase has been built.



- 77) **Storey** means the portion of a building included between the surface of any floor and the surface of the floor next above it, or if there be no floor above it, then the space between any floor and the ceiling next above it.
- 78) **Temporary Structure** means structures erected for temporary purpose or ceremonial occasions such as tents, hutments, shaminana, etc.
- 79) **"Town Development Scheme"** means a scheme prepared for the implementation of the provisions of a development plan by the Town and Country Development Authority; and
- 80) **"Town and Country Development Authority"** means an authority established under section 40.
- 81) *"Advertisement" means visible representation made to the general public either through announcement or display or in any other manner whatsoever, offering for sale or lease of a plot or apartment or inviting persons to purchase such plot or apartment to make advances or deposits for such purposes;

82) Travel Distance

Means the distance to be travelled by a user from any point in a building to a protected escape route, external escape route or final exit.

83) Use means the principal occupancy in an approved building for which a building or a part of it is used or intended to be used, including contingent subsidiary occupancies.



- 84) **Ventilation** means the supply of outside air into, or the removal of inside air from an enclosed space.
- 85) **Warehouse** means a building or place or part thereof that is used or intended to be used for the storage of goods for stocking, sale or similar purpose. It usually has <u>loading docks</u> to load and unload goods from trucks and often have <u>cranes</u> and <u>forklifts</u> for moving goods in and around the structure.
- 86) **Wholesale** means an establishment wholly or partly engaged in wholesale trade and manufactures wholesale outlets, including related storage facilities, warehouses and establishments engaged in truck transport, including truck transport booking warehouses.
- 87) Window means an opening other than a door, to the outside of a building, which provides all or part of the required light and ventilation.
- 88) Natural Profile Hill/ Natural Slope Level: A natural ground level is what "mother earth" has provided us and is in raw form.
- 89) Ground level: After earth filling & cutting of natural slope level in order to flatten the ground for construction, this surface area called the existing ground level (E.G.L.)





- 90) **Plinth Level:** The plinth is the part of the superstructure on the finished ground level (the top level of the soil surrounding the structure that has been prepared and levelled before construction).
- 91) **Plinth Height:** The plinth height is the height between plinth level and ground level.
- 92) **Filling:** refers to the process of slope appropriation in which natural slope line is filled and levelled up to develop horizontal ground level before construction.
- 93) **Cutting:** refers to the process of slope appropriation in which natural slope line is cut and levelled up to develop horizontal ground level before construction.
- 94) **Retaining wall:** Retaining walls are relatively rigid walls used for supporting soil laterally so that it can be retained at different levels on the two sides. Retaining walls are structures designed to restrain soil to a slope that it would not naturally keep to (typically a steep, near-vertical or vertical slope).

17.2 PLANNING REGULATIONS

1) DEVELOPMENT AREAS & ZONES

In order to regulate the construction activities in view of carrying capacity, physical thresholds, environmental, ecological and heritage imperatives, the Shimla Planning Area has been divided into following two board Areas:-

- 1. Core Area
- 2. Non-core Area

Further, apart from two major Areas i.e. Core and Non-Core Area, Sub-Areas/Zones have been notified within the Core as well as Non-Core area based on the ecological/heritage or other reasons, and special guidelines and regulations have been prescribed for these areas.

- 3. Green Area
- 4. Heritage Area
- 5. Sinking/Sliding Area

1. Core Area

1.1. The Core Area shall comprise of the following areas, namely

- i. Central Shimla bounded by the circular Cart Road starting from Victory Tunnel and ending at Victory Tunnel via Chhota Shimla and Sanjauli and the area bounded by Mall Road starting from railway Board Building to Ambedkar Chowk, covering Museum Hill by road starting from Ambedkar Chowk, on the north side, joining the Chowk of Indian Institute of Advanced Studies and following the road joining Summer Hill, Post Office and via upper road to Boileauganj Chowk and then joining the Cart Road, along Cart Road to Victory Tunnel.
- **ii.** From junction of Tribunal road and Cart Road near Secretariat then along the Tribunal road / path joining boundary/ Dhobi Ghat path and then following Dhobi Ghat boundary path upto the Shimla Junga road near Boundary. Then following Chhota Shimla Himalvi Bhawan path upto house of Sh. Amin Chauhan, then along with house of Sh. Amin Chauhan, Sh. Mansa Ram, Block No. 4,6,8,9,7,5,2 (all the blocks of H.P. Housing Board) and house of Sh. Ramesh Negi, Sh. Diwan Chand Gupta, Sh. N.S. Pal, Sh. Indervir Singh Pal, Sh. Ashwani Kumar, Sh. Y.K. Gautam and then along the path joining to the Chhota Shimla-Kasumpti path near AIRA HOLME'S Public School. Following Chhota Shimla Kasumpti path towards Kasumpti upto junction of Shimla- Junga road and SDA Complex road. Then following Shimla Junga road towards Chhota Shimla upto Cart Road near Ashiana Restaurant. Then following Cart Road upto junction of Tribunal road and Cart Road near Himachal Pradesh Secretariat building.



2. Non-Core Area

The Non-Core Area shall comprise of the area falling outside the Core Area and upto the boundaries of Shimla Planning Area.

3. Green Areas

The Green Area falling in Core Area and Non-Core Area shall comprise of the following areas, namely:-

- i. The Forest Area bounded by bye-pass and Cart Road starting from junction of barrier following the Cart Road to Parivahan Bhawan Nullah near Government Press, then alongwith houses of Shri Yog Raj Sharma, J.N. Kaushal, Government Press, Welfare Department to Tutikandi, following the path meeting at bye-pass road near Government High School, then following the bye-pass and back to the junction of Barrier;
- ii. Nabha Forest bounded by bye-pass and Cart Road from Tutikandi near Government High School following the path to Cart Road to Nabha Road and following down along with HPPWD Godown Block No. 28, Hostel I.T.I. Block No. 25-A, Block No. 23, Block-D, Block No. 21, Block L-II'84 and Block-II'83 along Nullah meeting at bye- pass road and back to Tutikandi near Government High School;
- iii. Phagli and Lal Pani Forest bounded by Cart Road and bye-pass starting from Phagli path from the bye-pass to Railway parking to Cart Road and then alongwith Railway quarter Block No.62, house of Sh. Gopal Singh, Sh. Shiv Ranjan, Directorate of Education Department to Municipal Corporation quarter to Sr. Sec. School Lalpani, then alongwith, Ladakhi Mohalla path upto house of Smt. Janki Devi, Sh. Sunder Singh and Sh. Naresh, then following the Nullah meeting at byepass road and back to the Phagli path;
- iv. Bemloe Forest bounded by Cart Road and bye-pass starting from lift Nullah moving along Cart Road then following down the path near Government quarters meeting at junction on Cart Road to Bemloe road alongwith Post Office building, C.P.R.I. Complex, house of Sh. Sumer Chand, Sh. I.D. Garg, Smt. Tripta Devi, Smt. Uma Vati, Smt. Sawarn Lata, Block D & C to Bemloe road & byepass and following back to the bye-pass upto the lift Nullah;
- v. Himland Forest starting from CPRI Complex on Bemloe Road to house of Sh. Ram Dhan Lal, Sh. Darshal Lal, Sh. Joginder Pal, Sh. D.P. Sharma to Cart Road, then following the Cart Road to Himland Nullah meeting at bye-pass to Bemloe Road and back to CPRI Complex;
- vi. Khalini and Chhota Shimla Forest area bounded by Cart Road starting from the Nullah near Palika Bhawan, then following the Nullah to bye-pass road, then to B.C.S. Road via Khalini Chowk to the house of Sh. Prithvi Sen, Telecom Office, house of Sh. B.S.Chauhan, Hukmi Devi, H.T. Upadhya, Savitri Niwas & Suman Niwas meeting bye-pass and following bye-pass to B.C.S. Dhobighat, Servant quarters, Hospital, School Gate, Linlithgo Cottage, Gate Cottage, Pine Cottage, Jr. School of B.C.S. meeting bye-pass then alongwith bye-pass upto the junction of S.D.A. Road to Kasumpati-Junga Road alongwith SDA Blocks to Tibetian School to house of Shri. Vinod Sood, O.C. Bali, Parshotam Dass, M.M. Gulati, Brij Lal Gupta, K.S. Dhaluata, M.R. Sood, Balbir Singh, Joginder Lal, Varsha Vohra, Sarita Jaidk, Sant Kumar, R.R. Jain, B.L. Pandit, P.S. Negi, Bhupinder Obraia, T.L. Sharma, I.D. Gupta, Sudershan Mahajan, Penajit Singh, Army Servant quarter then alongwith Cart Road upto Palika Bhawan Nullah;



- vii. Chhota Shimla Forest area above Cart Road starting from eastern path near Military quarter to Mall Road to western path meeting at Cart Road;
- viii. Kasumpati Forest area starting from the junction of Kasumpati-Mehli path and Police Colony Road near H. P.PWD Enquiry Office, then following Mehli- Kasumpati path upto Geeta Mandir along Jammu Castle Road upto junction;
- ix. Charlie Villa Forest areas starting from Himachal Pradesh Public Service Commission building alongwith Himachal Pradesh Housing Board Building, houses of Shri Joginder Singh Kanwar, Manta Niwas, Sanjeev Sharma, Urvashi Sharma, Dr. Amba Charan, B.R. Malhotra, Mahinder Singh, O.P. Gupta, Army building, Fakir Chand Tada to Mall Road to Chief Minister residence then following the Nullah near the house of Shri Satish Kumar Goel meeting at Cart Road;
- x. Forest area starting from the Nullah near Himfed Petrol Pump, following the Nullah upto the junction of path and Nullah, then following the path to the Himachal Pradesh Secretariat building and following the Cart Road upto Himfed Petrol Pump;
- xi. Jakhoo Forest starting from the junction of Raj Bhawan Road and Cart Road to Radha Swami Bhawan along U.S. Club Road to lift Nullah to Titla Hotel following the road to Oak Wood through northern road, then following the Nullah down ward to Snowdon Pump House via Snowdon Road to house of Sh. T.D. Gupta, Sh. Sukhvinder Singh, M.C. Commissioner residence, Corner House (M.C.quarter), Nehar Singh Thakur and Govt. Sr. Sec. School Sanjuali to Cart Road, then following Cart Road, upto the junction of Raj Bhawan Road and Cart Road;
- xii. Starting from Ram Chandra Chowk to Chief Minister residence via Raj Bhawan Road and Mall Road to Challet Day School, then along U.S. Club Road to RamChandra Chowk;
- xiii. Forest area bounded by Cart Road and Snowdon Road starting from Sanjuali Chowk to Snowdon Hospital;
- xiv. Bharari, Shankli and Ruldhu Bhatta Forest area starting from RKMV College along Keleston Road to Harvingtion to Lower Bharari road to sewerage line path alongwith house to Sh. M.L. Sharma (Geeta Bhawan), Prem Bhawan, house of Sh. Desh Raj to Cart Road along Nullah, then following Cart Road upto RKMV College.
- xv. Summer Hill Forest area starting from the Boileauganj Chowk to Summer Hill Post Office alongwith Summer Hill Road, then following ITI Road upto the gate of Advance Studies via Chaura Maidan Road upto Police Station Boileauganj encircling the hillock;
- xvi. Starting from the junction of Boileauganj and NH-5 near C.M.P. post to Boileauganj ground, Wakaf Board building shop No. 32 and Wakaf Board building, shop No.34 alongwith Chaura Maidan road upto Nullah near Press building and down the Nullah meeting at Cart Road; and
- xvii. Starting from the gate of Advance Studies along Elysium Hill Road to Ambedkar Chowk encircling Elysium Hill via Chaura Maidan Road upto gate of Advance Studies.

4. Heritage Area

(1) Heritage Area, Heritage Buildings and Cemeteries.—

The following Areas and Buildings whether falling inside or outside the Heritage Area or in Core Area or in Non-Core Area shall be Heritage Area and heritage Buildings:—

- (a) Heritage Areas:—
- (i) Vice Regal Lodge Complex complete;
- (ii) one building depth on either side of Road surrounding Vice Regal Lodge Complex;



(iii) one building depth on either side of Mall Road from gate of HAS upto Chhota Shimla Chowk via SBI, Scandal Point, Shimla Club and Oak Over;

(iv) one building depth on either side of the path/road from Prakash Niwas (housing Shimla Type Writer) near SBI via Kalibari to Scandal Point;

(v) the area bounded by Scandal Point, Ridge, Regal, Takka Bench, Church, Ritz, U.S. Club gate, PWD Office, Chalet Day School and The Mall Road;

(vi) one building depth on either side of the Road from Oak Over to Barnes Court (Governor's Residence) via Woodvilla;

(vii) Green patches within heritage area;

(b) Heritage Buildings:—

1. Post Office Summer Hill, 2. Indian Institute of Advanced Study, 3. Post Office Chaura Maidan, 4. The Cecil, 5. Carton House, 6. Clemont, 7. Race View, 8. Vidhan Sabha Himachal Pradesh, 9. Gorton Castle, 10. Railway Board Building, 11. Prakash Niwas, 12. State Bank of India, 13. St. Mark's, 14. Kali Bari Temple, 15. Grand Hotel, 16. Bantony, 17. Telegraph Office, 18. St. Andrew's Church, 19. General Post Office, 20. Building of the ICICI Bank, 21. The whole range of buildings starting from Northern Railway booking Agency opposite to Telegraph Office building and upto Ramji Dass Dina Nath Building on the Mall Road, 22. Town Hall, 23. Gaiety Theatre, 24. Band Stand, 25. M.C. Library, Ridge, 26. Christ Church, 27. Ladies Park. 28. United Services Club, 29. The Clarks, 30. The Chalet, 31. The Cedars, 32. Oak Over, 33. Cemetery near Oak Over, 34. Woodvilla, 35. Ernest, 36. Yates Place, 37. Raj Bhawan (Barnes Court) 38. Police Station Sadar at Boileauganj; 39. Y.M. C.A., 40. St. Michael's Cathedral, 41. Deen Dayal Upadhayaya Hospital (Formerly Ripon Hospital), 42 Green Gate, 43. Rothney Castle, 44. Tara Hall, 45. Auckland House, 46. Chapslee, 47. Convent of Jesus and Mary, 48. Aira Holme, 49. Sterling Castle, 50. Hainault, 51. Jakhoo Temple, 52. Corner House, 55. Torrentium, 54. Pari-Mahal (Old building), 55. Holly Lodge main building, 56. Walsingham (D.C. Residence), 57. Kamla Nehru Hospital (Old), 58. Manorville, 59. Bishop Cotton School, 60. Govt. Boys Degree College Sanjauli, 61. Sodhowal Lodge, 62. The Kalka Shimla Railway Line, 63. Crow- Borough, 64. Inverarm (State Museum), 65. Strawberry Hill, 66. The Bemole Cottages, 67. Spring Field, 68. South Gate, 69 Foswell, 70. Emm Villa, 71 Craig Gardens, 72. Dimple Lodge, 73. Delphine Lodge, 74. Eddleston, 75. Eaglemount, 76. Railway Station Summer Hill, 77. Winter Field, 78. St. Thomas Church, 79 Shimleshwar (Shiv Mandir), 80. St. Edward School, 81. Wood Bank Offices Rest House, 82. Thistle Bank, 83. Y.M.C. A., 84. Office of the Deputy Commissioner, 85. Ellerslie Building, 86. Police Station Chhota Shimla, 87. The Burj, 88. Armsdell, 89. Benmore Estate, 90. Toryne House, 91. Morvyn, (I.T.I. Shimla), 92. Police Station Sadar Sabji Mandi, Shimla.

(C) Cemeteries

Cemetery below the Barrier, Boileauganj, 2. Cemetery at Kanlog 3. Cemetery below St. Bede's 4. Cemetery at Sanjuali.

(2) The Heritage Area shall be divided into two categories namely:—

(I) Built Heritage:

It shall comprise of all the buildings both private and Government falling within or outside the Heritage Area as declared by the State Government.

(II) Natural Heritage:

- (i) Area on hill side of the Mall starting from Khadi Gramodyog to Kali Studio,
- (ii) Daulat Singh Park.
- (iii) Café Park,
- (iv) Ridge, and



(v) The open green patches, slopes, woodlands in Heritage Area and not covered under (i) to (iv) above.

5. Sinking and Sliding Area

The Sinking and Sliding Areas shall comprise of the following areas, namely:-

(i) High Sinking Prone Area.-This area shall include the northern slopes of the Ridge extending upto Grand Hotel in the west and covering Lakkar Bazar including Central School extending Auckland Nursery School and extending down below upto Dhobighat below the Idgah Electric Sub-station.

(ii) Sliding Areas.-This area shall include Ladakhi Mohalla (Krishna Nagar), the spurs below the office of the Director of Education and the surrounding areas of Clarks's Hotel.

2) LAND-USES AND BUILDING REGULATIONS

1. Residential Use (R1 & R2)

1 - Residential Use in Core Area										
	Plot Size	Minim (ir	um Set n Metre	Backs)	Max FAR	Max H of Bui (in N	leight Iding /Itr)	Max No. of Min Floors/ Abutting Storeys Road/		Ground coverage (%)
		Front	Sides	Rear		*WoP	WP		path Width	
	(i) 150 M ² to 250 M ²	2	1.5	1.5	1.5				3	-
Detached Houses	(ii) From 251 M ² to 500 M ²	3	2	2	1.5	10	42.50	2 Floors + Parking +	3	-
	(iii) From 501 M ² to 1000 M ²	4	3	2	1.5		13.50	(Habitable)	5	60%
	(iv) Above 1001 M ²	5	4	3	1.5				5	50%
*WoP-With	out Parking; W	P- With I	Parking			-				
Semi- detached	Upto 120 M ²	2	1.5	1.5	1.5	10	0	2 Floors +	3	-
Houses with common wall on one side	From 121 M ² to 250 M ²	2	1.75	1.75	1.5	10	13.50	Parking + Attic (Habitable)	3	-
Row	(ir	Row Ho	ousing r	naximu	m 5 plot	s in a ro	w in co	ntinuity will b	e allowed)	
Houses with common wall on two sides	90 M ² to 120 M ²	2	Nil	1.5	1.5	10	0	2 Floors + Parking + Attic (Habitable)	3	-



R2 - Residen	R2 - Residential Use in Non-Core Area									
	Plot Size	Minimum Set Backs (in Metre)		Max Max Height FAR Building (in Mtr)		leight of ilding Mtr)	Max No. of Floors/ Storeys	Min Abutting Road/	Ground coverage (%)	
		Fron t	Sides	Rear		WoP	WP		path Width	
	(i) 150 M ² to 250 M ²	2	1.5	1.5	1.75				3	-
Detached	(ii) From 251 M ² to 500 M ²	3	2	2	1.75			3 Floors + Parking +	3	-
Houses	(iii) From 501 M ² to 1000 M ²	4	3	2	1.75	13.50	16.50	Attic (habitable)	5	60%
	(iv) Above 1001 M ²	5	4	3	1.75				5	50%
Semi- detached	Upto 120 M ²	2	1.5	5 1.	5 1.75			2 Eleone I	3	-
Houses with common wall on one side	From 121 M ² to 250 M ²	2	1.7	5 1.7	75 1.75	13.50	16.50	Parking + Attic (habitable)	3	-
							-			
Row		(in Ro	w Hous	sing ma	ximum 5 p	lots in a	row in co	ontinuity will b	e allowed)	
Houses with common wall on two sides	90 M ² to 120 M ²	2.00	Nil	1.5	50 1.50	13	3.50	2 Floors + Parking + Attic (habitable)	3	-

Table 17-2: Building Regulations for Residential Use – Non Core Area

Further the height of a building, in Residential Use-R2 (in Non-Core Area) shall further be governed by the width of abutting road:

Table 17-3:Building Height based on Road width in R2

Abutting Road width	Max Building height Allowed	No of floor
For Road up to 5.0 m	13.5 Metres	2 floor+ parking + attic (habitable)
For Road above 5.0 m	16.5 Metres	3 floor+ parking + attic (habitable)

The various uses permitted and prohibited in Residential Zone (R1 & R2) are as mentioned in the following table.

Table 17-4: Activities Permitted, Restricted and Prohibited in Residential Use

S. No.	Activities Permitted	Activities Restricted*	Activities Prohibited
	-	I	ш
1	Residential and related Activities/Uses - All types of residential buildings; - Residence plotted (detached, semi-		



S. No.	Activities Permitted	Activities Restricted*	Activities Prohibited
	1	11	
	 detached and row housing); Group housing / apartment complexes; Guest houses / home stays; Workspace; Ancillary uses clearly incidental to residential uses except service uses which will create pollution, nuisance and hazard 		
2	 Commercial and related Activities/Uses Convenience shopping; Commercial activities such as local retail shops and offices; Services for households (salon, parlors, bakeries, sweet shops, dry cleaning, stationary, tailoring, internet café, etc.) Professional offices/consultancy offices; Banks, financial services; Professional establishments satisfying the requirements of customary occupation; Professional business including education, coaching; 	 Commercial centre, shopping Mall/ complex, offices (on roads having width of 7 m or more); restaurants (on roads having width of 5 m or more); Hotels Tourism related services; 	 Cinema halls, Commercial use in any floor other than ground and first floor of a residential dwelling; Wholesale mandis;
3	 Industrial and related Activities/Uses Customary home occupation / household units Household industries with not more than 6 employees; Motor vehicle repairing workshops/garages (only on roads having width of 7 m or more); 	 Computer hardware/software units, IT and ITES units (on roads having width of 7 m or more); Electronic printing press employing not more than 10 persons; Go-downs of non- perishables 	 Heavy, large and extensive industries; Noxious, obnoxious and hazardous industries; Junk yards; Storage go-downs of perishables, Hazardous and inflammable goods; Warehousing of obnoxious uses.
4	 Public & Semi-Public and related Activities/Uses Community centres / banquet halls / marriage halls / function halls (abutting road of minimum 5 m width); Neighborhood level social, cultural and recreational facilities with adequate parking Cultural and philanthropic institutes of non-commercial nature; Dharamshalas, night shelters; Education institutions - Nurseries, Primary Schools, higher education institutes, colleges, incl. institutes other than 	 Auditoriums; Animal clinics; Hospitals except those treating contagious diseases or mental patients; ITIs, Junior and higher technical schools; Petrol pumps; Public assembly halls; Places of worship / religious premises; Foreign missions / 	 Courts; Hospitals treating contagious and infectious diseases; Reformatory; Slaughter houses;



S. No.	Activities Permitted	Activities Restricted*	Activities Prohibited
		II	
	 professional colleges; Social & welfare institutes; Health facilities - Clinics, dispensaries, heath centres, PHCs, nursing home (up to 50 beds); Pathological medicare/health care facilities Yoga centres/ayurveda centres; Hostels, boarding and lodging houses; Exhibition and art gallery, museum, library; Offices of Municipal, State and Central Government; Offices of para-statal agencies/ semi- government authorities, NGOs; 	Consulates; - Burial grounds / Cremation ground; - Cemeteries;	
5	 Open & Recreation and related Activities/Uses Clubs; Games facilities of local nature both indoor and outdoor; Gymnasium; Plant nursery, green houses; Parks / tot-lots / open spaces / playgrounds; 	 Botanical garden; Exhibition / event grounds (on roads having width of 9 m or more); Golf courses; Indoor games stadium (on roads having width of 7 m or more) 	 Outdoor games stadium / sports stadia; Shooting range; Zoological garden, bird sanctuary;
6	 Utilities and related Activities/Uses Electrical distribution station; Fire stations; Garbage collection points; Police check posts; Police stations; Post offices; Public utilities building and installations; Telephone exchange; Water pumping station, water distribution stations (incl. OHTs) 	- Showroom for sale & distribution of LPG;	 Sewage farms; Sewage treatment plant / disposal work or sites; Solid waste dumping yards; Storage of gas cylinders; Water treatment plants;
7	Transportation & Communication and related Activities/Uses - Bus stands; - Parking sites/ lots; - Taxi stand	 Bus depots & Bus terminals 	 Workshops for buses;
8	Other related Activities/Uses - Integrated township on abutting road of minimum 7 m width		 Irrigated area; Quarrying of gravel, stone, clay, sand, etc. except for the purpose of development of the



S. No.	Activities Permitted	Activities Restricted*	Activities Prohibited
	1	=	Ξ
			area;

2. Commercial Use (C1 & C2)

Table 17-5: Building Regulations in Commercial Use – Core Area

C1 – Commercial Use in Core Area										
	Plot Size		Minimum Set Backs (in Metre)			Max Height of Building (in Mtr)		Max No. of Floors/ Storeys	Min Abutti ng	Ground coverag e (%)
		Front	Sides	Rear		WoP	WP		Road/ path Width	
Booths	upto 10M ²	1.00	Nil	Nil	-		4	1 Floor only	3	-
Commercial/S hops/Retail	(i) Independ ent Shop/ Showrooms (standalone) above 10 M ² to 30M ²	2	Nil	1	-		8	2 Floor (including roof)	3	-
	(ii) Row Shops with common wall on two sides above 31 M ² to 100 M ²	2	Nil	1	1.5	10	13.5	2 Floors + Parking + Attic (habitable)	3	-
	(iii) Above 101 M ² to 250 M ²	2	1.5	1.5	1.5				3	-
	(iv) From 251 M^2 to 500 M^2	3	2	2	1.5				3	-
	2					1			[· · · · · · · · · · · · · · · · · · ·
	(i) 501 M ² to 1500 M ²	5	3	3	1.75				5	60
Shopping Complex	(ii) Above 1501 M^{2} to 4000 M^{2}	8	5	5	2			2 Floors +	5	50
	(iii) Above 4001 M ²	10	7.5	6	2.25	10	13.5	Parking + Attic	6	50
	(i)500 M ² to 1500 M ²	5	3	3	1.5			(habitable)	5	
Mini-Cineplex	(ii) Above 1501 M ² to 4000 M ²	8	5	5	1.5				6	
Cinema/Cinep lex/Multiplex/	4001 M ² and above	10	7.5	6	1.5				7	



C1 – Commercial Use in Core Area										
	Plot Size	Minimi (in Met Front	um Set tre) Sides	Backs	Max FAR	Max of Bui (in Mt WoP	Height ilding tr) WP	Max No. of Floors/ Storeys	Min Abutti ng Road/ path Width	Ground coverag e (%)
Marriage Palace (Hall)										

T1 – Tourisr	T1 – Tourism Use in Core Area									
	Plot Size	Minim (in Met	um Set Backs Max re) FAR		Max Height of Building (in Mtr)		Max No. of Floors/ Storeys	Min Abutti ng Road/	Ground coverage (%)	
		Front	Sides	Rear		WoP	WP		Road/ path Width	
		-		-	-	-			-	
Tourism Unit	(i) 250 M ² to 500 M ²	3	2	2	1.5			2 Floors +	3	60
	(ii) 501 M ² to 1000 M ²	5	3	2	1.5	10 13.5	Parking + Attic (babitable)	3	50	
	(ii) Above 1001 M ²	7.5	4	4	1.5			(Habitable)	5	50
		-	-	-	-				-	
Temporar y	750 sq.m (minimum)	5	4	4	-	-		-	-	50%
structures / houses	 Temporary structures/houses are those made of mud, tents, timber, wood, which can be removed Permisson to be reviewed/renewed after every 3 years. 									
	iv. Provision	al, perm n for par	ission fro	om Tou uld be n	rism Dep nandato	ot and Port	CB shall De provi	also be requir ded at alterna	ed. te locatio	n)

Table 17-6: Commercial Use in Non-Core Area

C2 – Commercial Use in Non-Core Area										
	Plot Size	Minimum Set Backs			Max	Max Height	Max No.	Min	Ground	
		(in Met	re)		FAR	of Building	of Floors/	Abutti	coverage	
		Front	Sides	Rear		(in Mtr)	Storeys	ng Road/ path Width	(%)	
Booths	upto 10M²	1.00	Nil	Nil	-	4	1 Floor only	3	-	
Commercial /Shops/Ret ail	(i) Independe nt Shop/ Showrooms (standalone) above 10 M ² to 30M ²	2	Nil	1	-	8	2 Floor (including roof)	3	-	



C2 – Commercial Use in Non-Core Area										
	Plot Size	Minimu (in Met Front	um Set rre) Sides	Backs Rear	Max FAR	Max Height of Building (in Mtr)	Max No. of Floors/ Storeys	Min Abutti ng Road/ path Width	Ground coverage (%)	
	(ii) Row Shops with common wall on two sides above 31 M ² to 100 M ²	2	Nil	1	1.5	9	2 Floors+ Attic (including roof)	3	-	
	(iii) Above 101 M^2 to 250 M^2	2	1.5	1.5	1.5	16.5	3 Floors + Parking + Attic	3	-	
	(iv) From 251 M^2 to 500 M^2	3	2	2	1.5	21	4 Floors + Parking + Attic	3	-	
	-	-	-	-	-					
	(i) 501 M^2 to 1500 M^2	5	3	3	1.75			5	60	
Shopping Complex	(ii) Above 1501 M ² to 4000 M ²	8	5	5	2			5	50	
	(iii) Above 4001 M ²	10	7.5	6	2.25		4 Floors +	7	50	
Mini-	(i)500 M ² to 1500 M ²	5	3	3	1.5	21	Parking + Attic	5	50	
Cineplex	(ii) Above 1500 M ² to 4000 M ²	10	5	5	1.5			7	50	
Cinema/ Cineplex/ Multiplex/ Marriage Palace (Hall)	4000 M ² and above	15	7.5	6	1.5			7	50	

T2 – Tourism Use in Non-Core Area										
	Plot Size	Minimum Set Backs (in Metre) Front Sides Rear		Max FAR	Max Height of Building (in Mtr)	Max No. of Floors/ Storeys	Min Abutti ng Road/ path Width	Ground coverag e (%)		
Tourism Unit	(i) 250 M ² to 500 M ²	3	2	2	1.75	21	4 Floors + Parking +	3	-	
	(ii) From 501	5	3	3	1.75		Attic	5	60	



	M^2 to 1500 M^2							(habitable)		
	(iii) 1501 M	Above	7.5	5	5	1.75			7	60
	750 (minim	sq.m um)	5	4	4	-	-	-	-	50%
Temporar y	i.	 Temporary structures/houses are those made of mud, tents, timber, wood, which can be removed 								
structures	ii.	Permisso	on to be r	reviewed	l/renew	ed after	every 3 years			
/houses	iii.	iii. Undertaking regarding the disposal of Garbage, Solid waste and sewerage would be essential, permission from Tourism Dept and PCB shall also be required.								
	iv.	Provision	for park	king wou	ld be m	andatory	/ (can be prov	vided at alterna	te locatior	ı)

Further the height of a building, in Commercial Use-C2/ Tourism Use- T2 (in Non-core) shall further be related to the width of abutting road:

Table 17-7: Building heights based on Road Width in C2

Abutting Road width	Max Building height Allowed	No of floor								
For Road up to 5.0 m	16.5 Metres	3 floor+ parking + attic (habitable)								
For Road above 5.0 m	21 Metres	4 floor+ parking + attic (habitable)								

Further, in Non-Core Area for C2 and T2 Uses, on roads having width more than 9.00 mts, the Premium FAR of 0.25 to 0.50 over and above the permissible FAR shall be granted subject to the payment of charges/ premium fee prescribed by the State Govt.

The various uses permitted and prohibited in Commercial Use-C1 & C2/ Tourism Use- T1 & T2 are as mentioned in the following table.

S .	Activities Permitted	Activities	Activities
No.		Restricted	Prohibited
		I	III
1	 Residential and related Activities/Uses All uses permitted in Residential Use Zone as per (Column-I: S.No. 1) of these regulations 	 All uses permitted in Residential Use Zone as per (Column-II: S.No. 1) of these regulations 	
2	 Commercial and related Activities/Uses All uses permitted in Residential Use as per (Column-I: S.No. 2) of these regulations Commercial activities such as retail shops, mercantile, service shops, offices, restaurants; Commercial centre, shopping complex, offices; Cinema halls, cineplexes, and multiplexes; Commercial entertainment of transient nature and dwellings of employees working in the complex incidental to main use; 	 All uses permitted in Residential Use Zone as per (Column-II: S.No. 2) of these regulations 	

Table 17-8: Uses Permitted and Uses Prohibited Commercial Use-C1 & C2/ Tourism Use-T1 & T2



S.	Activities Permitted	Activities Restricted	Activities Prohibited
140.		II	III
	 Computer software units; Hotels Tourism related services; Shopping malls; Wholesale mandis / markets 		
3	 Industrial and related Activities/Uses All uses permitted in Residential Use Zone as per (Column-I: S.No. 3) of these regulations Computer hardware/software units, IT and ITES units; Go-downs and warehousing; Junk yards; Motor vehicle repairing workshops/garages; Non-polluting non-obnoxious light industries; Service centres/workshops; Service industries 	 All uses permitted in Residential Use Zone as per (Column-II: S.No. 3) of these regulations Weigh bridges 	 Heavy, large and extensive industries; Polluting industries Obnoxious and hazardous industries; Storage go-downs of perishables, hazardous and inflammable goods except for areas specifically earmarked for the purpose;
4	Public& Semi-PublicandrelatedActivities/Uses <td< td=""><td> All uses permitted in Residential Use Zone as per (Column-II: S.No. 4) of these regulations Hospitals except those treating contagious diseases or mental patients (up to 20 beds); </td><td> Animal clinics; Burial grounds / cremation ground; Cemeteries; Hospitals treating contagious and infectious diseases; International conference centre; Reformatory; District battalion offices; Forensic science laboratory; Slaughter house </td></td<>	 All uses permitted in Residential Use Zone as per (Column-II: S.No. 4) of these regulations Hospitals except those treating contagious diseases or mental patients (up to 20 beds); 	 Animal clinics; Burial grounds / cremation ground; Cemeteries; Hospitals treating contagious and infectious diseases; International conference centre; Reformatory; District battalion offices; Forensic science laboratory; Slaughter house
5	Open & Recreation and relatedActivities/Uses- All uses permitted in Residential Use Zone as per (Column-I: S.No. 5) of these regulations- Exhibition / event grounds;- Indoor games stadium;- Outdoor games stadium;- Sports stadium and related facilities	 All uses permitted in Residential Use Zone as per (Column-II: S.No. of these regulations 	 Botanical garden; Golf courses; Shooting range; Zoological garden
6	 All uses permitted in Residential Use Zone as per (Column-I: S.No. 6) of these regulations Gas installation and gas works; Public utilities, telephone exchanges; 	 All uses permitted in Residential Use Zone as per (Column-II: S.No. 6) of these regulations 	 Sewage farms; Sewage treatment plant/disposal work; Solid waste dumping yards; Storage of gas cylinders;



-			
S .	Activities Permitted	Activities	Activities
No.		Restricted	Prohibited
	I	II	III
			- Water treatment
			plants
7	Transportation & Communication and related	- All uses permitted	
	Activities/Uses	in Residential Use	
	- All uses permitted in Residential Use Zone as	Zone as per	
	per (Column-I: S.No. 7) of these regulations	(Column-II: S.No.	
	- Bus stands, bus terminals/depots and parking;	7) of these	
	 Freight terminal; 	regulations	
	 Road freight stations; 		
	 Multi-storeyed parking complexes; 		
	 Railway yards / stations; 		
	 Truck terminals / depots 		
8	Other related Activities/Uses		 Irrigated area;
	- All uses permitted in Residential Use Zone as		- Quarrying of gravel,
	per (Column-I: S.No. 8) of these regulations		stone, clay, sand, etc.
			except for the
			purpose of
			development of the
			area;

3. Multilevel parking Use

Table 17-9: Building Regulations in Multilevel Parking Use – Core Area

MP 1 – Multilevel parking Use in Core Area											
	Plot Size	Minim (ii	um Set I n Metre	Backs)	MaxMax HeightMin AbuttingFARof BuildingRoad/ path Width		Ground coverage				
		Front	Sides	Rear		(in Mtr)		(%)			
	(i) 150 M ² to 1500 M ²	5	3	3	2		3				
Multilevel parking Use	(ii) from 1501 M ² to 4000 M ²	7.5	5	5	2.5	18	5	-			
	(iii) Above 4001 M ²	10	7.5	6	2.5		7				

i. Maximum height of parking floor shall be 3.0 m (in residential area) and 4.0 m in commercial area.

ii. In order to encourage the construction of parking spaces, as an incentive, 20% of utilized FAR of these multilevel parking can be used for retail activities.

iii. More Relaxations shall be given to Government/ PPP parking projects.

Table 17-10: Building Regulations in Multilevel Parking Use - Non Core Area

MP 2 – Multilevel parking Use in Non-Core Area										
	Plot Size	Minimum Set Backs (in Metre)		Max FAR	Max Height of Building	Min Abutting Road/ path Width	Ground coverage			
		Front	Sides	Rear		(in Mtr)		(%)		
Multileve I parking	(i) 150 M ² to 1500 M ²	5	3	3	2	21	3	-		



	Use	(ii) Above 1501 M ² to 4000 M ² (iii) Above 4001 M ²	7.5	5	5	2.5		5	60 60
i.	i. Maximum height of parking floor shall be 3.0 m (in residential area) and 4.0 m in commercial area.								
ii.	In orde	er to encourage the	e constr	uction c	of parki	ng space	s. as an incent	ive. 20% of utilized FA	AR of these

ii. In order to encourage the construction of parking spaces, as an incentive, 20% of utilized FAR of these multilevel parking can be used for retail activities.

iii. More Relaxations shall be given to Government/ PPP parking projects.

4. Green Belts

In 17 Green Belt Area, the following Regulations shall be applicable:-

- Plots owned prior to the notification of Green Belts vide Notification No HIM-TP-RW-AZR-2000- III dated 07.12.2000, shall be considered for planning permission for residential use only
- ii. Limited construction with one floor + habitable Attic (inclusive of parking) shall be permitted for residential use only.
- iii. The maximum permissible FAR shall be 1.0.
- iv. Setbacks norms prescribed for R1 Use in Core Area shall be applicable.
- v. Re-constructions on old lines shall be permissible with same plinth area and no. of storeys.
- vi. Cutting and felling of tress shall be prohibited.
- vii. Change of Land Use (CLU) and building use shall be prohibited.

5. Mix Land-use

- i. The Residential use (R1 & R2), Commercial (C1 & C2), Tourism (T1 & T2) & Common Regulations as prescribed shall be permissible for any development in Mix Land-use Zone.
- ii. For any other use/activities, approval may be given by the competent authority. The officer in whose favour power under the HPTCP act 1977 and rules framed there under shall be, empowered to grant the permission in the said use.
- iii. The restricted activities shall be permitted by the Director, on special grounds.

6. Industrial Use (IN1)

Industrial use shall be permissible in non – core area only.

1. Minimum area of plot:-

- a) For small scale industry shall be 150 M2 to 500 M2 .
- b) For services/light scale industry shall be above 500 M2 to 1000 M2 .
- c) For medium scale industry shall be above 1000 M2 to 5000 M2 .
- d) For large and heavy scale industry shall be above 5000 M2 to 10000 M2 and above 10000 M2.
- e) The plot area as mentioned in clauses (a) to (d) above would not be applicable in the cases where the sub-division of land has taken effect before the commencement of the Himachal Pradesh Town and Country Planning Rules, 2014.



- f) The plot area as mentioned under clauses (a) to (d) above would not be applicable for the individual plots, if any, created/allotted by the Himachal Pradesh Industries Department or the Himachal Pradesh State Industrial Development Corporation (HPSIDC) or the Himachal Pradesh Housing and Urban Development Authority (HIMUDA) or any Local Authority or any Authority constituted under the Himachal Pradesh Town and Country Planning Act,1977 (Act No. 12 of 1977) or any other Authority prior to coming into force of the Himachal Pradesh Town and Country Planning Rules, 2014.
- g) The layout and design of industrial area, if any, shall be as per requirement of the Industry and shall be got approved from the Director.

2. Height of floor/storey:-

The minimum floor/ storey height of industrial building shall be 3.00 M and sloping roof height shall be in accordance with volume of the structure. In case of roof trusses, height of building should be adjusted /relaxed accordingly.

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

The minimum plot area, minimum set backs, maximum Floor Area Ratio (FAR) and maximum height of building for different type of Industry shall be governed by the following Table: —

Sr.	Type of	Plot area in	Minimum Set Back in Metres			res	Max.	Max. Height
No.	Industry	M ²	Front	Left	Right	Rear	FAR	
1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	Small Scale Industries	150 to500	3.00	2.00	2.00	2.00	2.00	There shall be no upper limit for height of super structure of
2.	Services/Light scale Industries	From 500 to1000	5.00	2.00	2.00	3.00	2.00	the industrial use, which shall be flexible as per the
3.	Medium Scale Industries	From 1000 to 5000	10.00	5.00	5.00	5.00	1.50	requirement of industrial enterprise. However, the total floor area should be within the prescribed FAR.
4.	Large and Heavy Scale Industries	From 5000 to 10000	15.00	7.50	7.50	7.50	1.25	
		Above 10000	15.00	7.50	7.50	7.50	1.00	

Table 17-11: Maximum height of building for different type of Industry

Note:-

- i. Right of Way should not be less than 5.0 Mts. for plot having area upto 1,000 Sq. Mts. and in case of plots having area more than 1000 Sq. Mts., the Right of Way should not be less than 10.0 Mts.
- ii. Service area required for pharmaceutical units or such type of Industries under requirement of Goods Manufacturing Practice (G.M.P) shall not be included for calculation of FAR, provided it is only used for utilities and services but not in any case for production.
- iii. The Security Room/Driver's Rest Room upto floor area of 25 M2 would not be counted in permissible FAR.
- iv. Parking Floor upto 15 feet height (4.50 Mts.) shall be allowed and such parking floor would not be counted in permissible FAR. However, the subsequent parking floors shall be counted within FAR.
- v. 10% of the area at parking floor shall be allowed for drivers' room and toilets etc. (vi) In case of plots having area of 5,001 Sq. Mts. and above regulations of minimum setbacks would be of mandatory. In other category of plots regulation of minimum front set back would be mandatory
and rest of the setbacks shall be relaxable as per functional requirements of the industrial enterprise(s). This relaxability in set back's is subject to condition that the overall area under setbacks should be minimal area which was to be kept under the setbacks in case relaxability was not provided.

vi. Micro, Small and Medium Enterprises after obtaining the title of land and applying for development permission may start physical implementation of project without waiting for statutory approvals under the Himachal Pradesh Town and Country Planning Act, 1977 in accordance with the provisions of self-certification as stated in para 7 (ii)(xii) of the "Himachal Pradesh Industrial Investment Policy—2019.".

Permissible Uses

The various uses permitted and prohibited in Industrial Use (IN1) are as mentioned in the following table.

S.	Activities Permitted	Activities	Activities Prohibited
No.		Restricted	
	l	II	III
1	 Residential and related Activities/Uses Residential buildings for essential staff and watch and ward staff 	-	 Residential dwellings other than those essential for operational and watch and ward staff
2	 Commercial and related Activities/Uses Convenience shopping incidental to Industries; Commercial activities such as retail shops, banks, financial institutes, service shops, offices, restaurants, shopping centres (on plots with area more than 2,500 sq.m area and abutting roads having width of 7 m or more); Wholesale business establishments Tourism (Hotel) 	Hoper	Major oil donot and
3	 All kinds of non-polluting industries/Uses All kinds of non-polluting industries; Cold storage and ice factory; Computer hardware/software units, IT and ITES units; Dairy and Poultry Farming; Go-downs and warehousing; Junk yards; Motor vehicle repairing workshops/garages; Non-polluting non-obnoxious light industries; Service centres/workshops; Service industries Storage and depot of non-perishable and non-inflammable commodities and incidental use SEZs notified by Government of India 	 Heavy, extensive and other obnoxious and hazardous industries except storage of perishable and inflammable goods subject to approval of Himachal Pollution Control Board; 	- Major oli depot and LPG refilling plants

Table 17-12: Uses Permitted and Uses Prohibited in Industrial Zone (IN1)



S.	Activities Permitted	Activities	Activities Prohibited
No.		Restricted	
-		11	III
4	 Activities/Uses Cemeteries; Community centres / banquet halls / function halls (on plots above 2,000 sq.m and abutting road of minimum 5 m width); Offices of Municipal, State and Central Government; Petrol pumps with garages and service stations; Research institutes, industrial research institute; Social & welfare institutes; Training institutes, technical educational institutions 	 Conference centers / halls; Exhibition centres, museums; Financial institutions; Hospitals, medical centres and other health facilities incidental to main use as industries; Offices of para- statal agencies / semi- government authorities, NGOC: 	 Animal clinics; Assembly halls, public assembly halls; Auditoriums; Burial grounds / cremation ground; Courts; International conference centre; Reformatory; Schools, higher education institutes, colleges; Religious premises; Slaughter house
5	Open & Recreation and relatedActivities/Uses- Games facilities of local nature both indoor and outdoor;- Gymnasium;- Parks / tot-lots / open spaces /	-	 Recreational sports or centres; Botanical garden; Golf courses; Shooting range;
	playgrounds		 Zoological garden
6	 Utilities and related Activities/Uses Electric power plant, electrical distribution station; Fire stations; Garbage collection points; Gas installation and gas works; Gas go-downs; Police check posts, police stations; Post offices; Public utilities building and installations; Water pumping station/distribution stations (incl. OHTs); Sewage farms, sewage treatment plant / disposal work 	-	 Solid waste dumping yards; Water treatment plant
7	 Transportation & Communication and related Activities/Uses Bus stands; Bus terminals / depots, and workshop for buses; Loading and unloading spaces; 	- Helipads;	-



S. No.	Activities Permitted	Activities Restricted	Activities Prohibited
	l	II	III
	- Parking lots;		
	- Taxi stand;		
	 Truck terminals / depots; 		

7. Public & Semi-Public Use (PSP1 & PSP2)

Table 17-13: Building Regulations for Public - Semi Public Use – Core A	Area
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PSP 1 – Public Semi-Public Use in Core Area										
	Plot Size	Minimum Set Backs (in Metre)		Max Ma FAR of I (i	Max H of Bui (in N	eight Iding 1tr)	Max No. of Floors/ Storeys	Min Abuttin g Road/	Ground coverage (%)	
		Front	Sides	Rear		WoP	WP		path Width	
Dublia	(i) 250 M ² to 500 M ²	3	2	2	1.5	10 13.5		3	-	
Public- Semi Public Use	(ii) Above 501 M ² to 1000 M ²	5	2	3	1.5		10 13.5	2 Floors + Parking + Attic (habitable)	5	60
	(iii) Above 1001 M^{2} to 5000 M^{2}	7	5	5	1.5				5	50
	(iv) Above 5000 M ²	10	7.5	7.5	1.5				7	40

Table 17-14: Building Regulations for Public - Semi Public Use - Non Core Area

	Plot Size	Minim (i	um Set n Metre	Backs)	Max FAR	Max H of Bui (in N	leight ilding ⁄Itr)	Max No. of Floors/ Storeys	Min Abutti ng	Ground coverage (%)
		Front	Sides	Rear		WoP	WP		Road/ path Width	
			-		-					
Public-	(i) 250 M ² to 500 M ²	3	2	2	1.75	13 50	16 50	3 Floors + Parking +	3	-
Semi Public Use	(ii) Above 501 M ² to 1000 M ²	5	2	3	2	13.50	10.50	Attic (habitable)	5	60
	(iii) Above 1001 M^2 to 5000 M^2	7	5	5	2	21	21	4 Floors + Parking +	5	50
	(iv) Above 5001 M ²	10	7.5	7.5	2		Attic (habitable)	7	50	

Further the height of a building, in Public-Semi Public Use (PSP2) in Non-core area shall further be related to the width of abutting path:



Table 17-15: Building Heights based on Road width in PSP2

Abutting Road width	Max Building height Allowed	Max. No of floors
For Road up to 5.0 m	16.5 Metres	3 floor+ parking + attic (habitable)
For Road above 5.0 m	21 Metres	4 floor+ parking + attic (habitable)

Note: Smart City proposals and other Government Projects may be given special consideration based on feasibility, requirement and project viability.

B. Permissible Uses

The various uses permitted and prohibited in Public & Semi-Public Use Zone are as mentioned in the following table.

S. No.	Activities Permitted	Activities	Activities
		Restricted	Prohibited
		II	III
2	 Residential and related Activities/Uses Residential housing for staff / employees as incidental to main use as institution and/or public & semi-public amenities and facilities Commercial and related Activities/Uses Convenience shopping incidental to institutes, and public/semi-public amenities and facilities; Commercial activities such as retail shops, banks, service shops, offices, canteen, (on abutting roads having width of 5 m or more): 	 Commercial use on floor abutting to road; 	 Farm houses Wholesale markets / mandies;
3	 Industrial and related Activities/Uses Computer hardware/software units, IT and ITES units (on abutting roads having width of 5 m or more); Motor vehicle repairing workshops/garages; Service centres / stations / workshops; 	 Service industry Go-downs and warehousing; 	 Heavy, large and extensive industries, obnoxious / hazardous industries; Junk yards; Processing and sale of farm products; Poultry farm and dairy; Obnoxious and hazardous industries; Storage go- downs of perishables, hazardous and inflammable goods
	Public & Semi-Public and related Activities/Uses	- Hospitals	- Reformatory:
	- Animal clinics;	treating	- Slaughter
	- Assembly halls, public assembly halls,	contagious	house;
	Auditoriums;	and infectious	

Table 17-16: Uses Permitted and Uses Prohibited in Public & Semi-Public use (PSP1 & PSP2)





S. No.	Activities Permitted	Activities Restricted	Activities Prohibited
	I I	II	III
	 Open & Recreation and related Activities/Uses Clubs; Exhibition / event grounds; Games facilities of local nature both indoor and outdoor; Gymnasium; Green houses; Indoor games stadium; Open air theatre; Outdoor games stadium; Parks / tot-lots / open spaces / playgrounds; Plant nursery; Swimming pools 	 Botanical garden; Golf courses; 	 Shooting range; Zoological garden
	 Utilities and related Activities/Uses Power plant, electric substation, electrical distribution station; Fire stations; Garbage collection points; Gas installation and gas works; LPG showroom for sale & distribution; LPG go-down; Police check posts, police stations, Jails; Post offices; Public utilities building and installations; Radio transmitter and wireless station; Telephone exchange; Telecommunication centre; Water supply installations, water pumping station, water distribution stations (incl. OHTs); Sewage farms, sewage treatment plant, sewage treatment/disposal work; Solid waste treatment plant, solid waste dumping yards; Water treatment plant 	-	
	 Transportation & Communication and related Activities/Uses Bus stands, bus terminals / depots and Workshop; Helipad; Parking lots, multistoried parking complexes; Railway passenger terminal / yards / stations; Taxi stand / 3-wheeler stands / auto stands / rickshaw stands; Truck terminals / depots 		

C. Special Buildings:



'Special Building' – Means those buildings which are visited / used by large number of general public at a time, such as **Indoor Sports Complexes**, **Cinema Halls**, **Auditoriums**, **Public Institutions**, **Hospitals**, **and other public utilities such as lifts**, **Public escalators**, **Heliport and Ropeway structures**.

Shimla town is located on steep slopes in most parts. Most of the buildings are not accessible by driving vehicles such as people have to walk up and down on steep staircases/ footpaths in order to reach the main road from their respective homes. Therefore, Installation of lifts/escalators is essential for the elderly, physically challenged and people having certain medical conditions. Hence, installation of lifts/escalators and other special buildings shall be permitted in whole of Shimla Planning Area, both in private as well as public domain, including all areas/ zones.

8. Heritage Land-use

The following Zoning Regulations shall be applicable in Heritage Area.-

- i. Pre-requisite for planning permission.- For construction of new buildings on vacant sites, detailed architectural drawings 'maps in the scale of 1:50 shall be prepared showing all architectural features with size and material proposed to be used alongwith two photographs of 15 cm x 25 cm size of adjoining heritage buildings. In case of re- construction on old lines, the detailed architectural drawings 'maps in the scale of 1:50 shall be prepared showing all the architectural features with size and material proposed to be used alongwith old architectural drawings and two photographs of 15 cm x 25 cm size of 15 cm x 25 cm size and material proposed to be used alongwith old architectural drawings and two photographs of 15 cm x 25 cm size of the old building.
- ii. The existing number of storeys and floor heights shall not be altered during course of reconstruction of old building. Internal changes shall be permissible without any changes to external façade.
- iii. The original façade shall be maintained. The façade shall have the admixture of wood, stone, glass, slate and tiles as in the original building. If natural materials are not available, the alternative ones shall be given the same touch.
- iv. The roof design shall be as under:-
 - the roof of the buildings to be constructed on vacant sites shall be sloping with a maximum height of 2.70 Metres at centre. The continues Dormer on any side of sloping roof shall not be allowed. Maximum 2 Dormers on either side of sloping roof at a reasonable distance between eves and ridge shall be allowed; and
 - 2. in sloping roof, slate or corrugated iron sheets, plain galvanized iron sheets, Hi polymer plastic tiles shall only be used. Primary colours shall be used for roofing in post office red or forest green colour.
- v. The aesthetics of Bay Windows in the existing buildings shall be enhanced by providing window boxes for flowers. In case of re-construction of buildings, bay windows shall essentially be provided to enhance aesthetics and functionality. Maximum 60 cm projection of Bay Window shall be permitted on the Set Backs.
- vi. For construction of new buildings on vacant sites, the Regulations as applicable for Core Area and Non- Core Area shall be applicable in addition to above Regulations.
- vii. A Heritage Advisory Committee shall be constituted by the State Government for giving recommendations for the developments proposed in the Heritage Area.
- viii. The Registered Private Professionals Class-A category as specified under rule 17 of the Himachal Pradesh Town and Country Planning Rules, 2014 shall submit the building map to the Commissioner, Municipal Corporation, Shimla or concerned Special Area Development Authorities (SADA's) or Town and Country Planner, Divisional Town Planning Office, Shimla. The Commissioner, Municipal Corporation, Shimla or concerned Special Area Development Authorities (SADA's) or Town and Country Planner, Divisional Town Planning Office, Shimla forward the same to the Heritage Advisory Committee. The development permission shall be granted by the Commissioner, Municipal Corporation, Shimla or concerned SADAs or Town and



Country Planner, Divisional Town Planning Office Shimla strictly on the recommendations of the Heritage Advisory Committee.

- ix. The applicant seeking planning permission for re-construction or construction of buildings in Heritage Area shall follow the following architectural elements for maintaining aesthetics of the existing surrounding buildings, namely:—
 - (a) Dormer.
 - (b) Windows.
 - (c) Doors.
 - (d) Bay Windows.
 - (e) Facade.
 - (D Chimney.
 - (g) Roofing ' pinnacles.
 - (h) Temporary Kiosks.
- x. In the Natural Heritage Area, temporary 'Kiosks' for special occasions may be installed by the Municipal Corporation Shimla with the approval of the Heritage Advisory Committee.
- xi. Street furniture in Natural Heritage Area shall be provided in the following manner, namely:-
 - (a) Cast iron benches.
 - (b) Decorative lighting.

(c) All the drainage system shall have half round stone ware pipes of various sizes according to the quantum of run off of water along with stone edging.

(d) The design of recreating water drinking spouts made of cast iron shall be got approved by the Municipal Corporation from the Heritage Advisory Committee.

- xii. All service line and pipes including electric and telephone wiring, sanitation, water supply etc. shall be concealed to improve the overall look of the Heritage Area.
- xiii. Brass plates of size of 0.60 M X 0.45M inscribing history of the building, shall be displayed at strategic points of historical buildings.

(b) The sign boards and hoardings to be provided at strategic locations shall be in accordance with the National Building Code of India, 2005. Thèse shall not occupy more than 10% of the façade in any case.

xiv. Minor additions, repair works or alterations in the existing historical building shall be in conformity with the existing building and shall be permitted by the Commissioner, Municipal Corporation, Concerned Town and Country Planner, Shimla or concerned member secretary SADAs.

9. Sinking and Sliding Area

- i. The development permission shall be granted by the Competent Authority in whose jurisdiction the Sinking and Sliding Area falls.
- ii. The Regulations as applicable for Core/Green Area and Non-Core Area shall be applicable in Sinking and Sliding Area.
- iii. The Soil Investigation Report shall be submitted by the applicant before construction/reconstruction of building(s) for the areas falling in sinking and sliding zones as defined in Shimla Planning Area, or for any reclaimed piece of land. The Soil Investigation Report shall be given by the Geologist in the prescribed form. In case of negative observations, the construction shall not be allowed/ shall be allowed as per conditions imposed by the consultant.



10. Agriculture Use and Scrub Land

- i. The Common Regulations & Residential use (R1 & R2) as prescribed shall be kept in view while permitting any development in this Zone.
- For any other use/activities, approval/ change of Land Use for residential use shall be given by the concerned Field Office. The officer in whose favour power under the HPTCP Act 1977 & Rules thereunder shall be empowered to grant the permission in the said use.

11. Real Estate Projects

For development of Real Estate Project i.e. apartments and colonies etc. having plot area more than 2500 sq. Mts the regulations as prescribed in Appendix-7 of the HPTCP Rules, 2014, as amended from time to time, shall be applicable. Further, such projects shall be required to get registered with H.P. Real Estate Regulatory Authority (RERA) constituted as per provisions of Real Estate (Regulation & Development) Act, 2016.

12. Abadi Deh

For village "Abadi Deh" as defined in the revenue record in Abadi Deh area, for local residents, construction as per provisions of Appendix-8 of the HPTCP Rules, 2014 (as amended from time to time) shall be allowed. However, for constructing more stories and built-up beyond the maximum permissible limits as prescribed in Appendix-8, development permission shall be required from the Competent Authority.

13. Exemption in Rural Area u/s 30-A of the HPTCP Act, 1977-

The benefit of exemptions u/s 30-A of the HPTCP Act, 1977 as provided in the Appendix 8 of the HPTCP Rules, 2014 (as amended from time to time), shall be applicable beyond the SADA limits i.e. the rural areas of Additional Shimla Planning Area only.

14. High Security Zone

No construction shall be allowed in High Security Zone, unless No Objection Certificate is submitted from the Competent Authorities/ Security Agencies.

15. Other Uses

Request for development and special provisions w.r.t following, a) INFORMATION TECHNOLOGY PARK; b) SOLAR PASSIVE BUILDING DESIGN; c) BARRIER FREE ENVIRONMENT FOR THE PERSONS WITH DISABILITIES IN PUBLIC AND SEMI-PUBLIC BUILDINGS AND RE-CREATIONAL AREAS, d) COLLECTION OF RAIN WATER; e) PRESCRIBED LIMITS FOR DEVELOPMENT ACTIVITIES EXEMPTED UNDER SECTION 30-A OF THE HIMACHAL PRADESH TOWN AND COUNTRY PLANNING ACT, 1977 (ACT NO. 12 OF 1977); and f) INSTALLATION OF COMMUNICATION TOWERS; shall be as per regulations prescribed under Appendix 2 to 9 of the HPTCP Rule, 2014 (as amended from time to time).

16. GENERAL REGULATIONS

The following provisions shall be applicable in all areas where no specific mention is made, namely:-



- 1) Maximum acceptable slope for development shall be 45 degree.
- 2) Height of plinth level shall be allowed from 0.45 to 0.60 Meters.
- 3) Maximum permissible height of retaining wall for development of plots cutting and filling of slope shall be 3.5 Meters.
- 4) Maximum hill cut of 3.50 Metre height shall be permissible. No building shall be built to abut against an earth cutting including a toe wall supporting an earth cutting and minimum 1.00 metre distance shall be maintained between building and toe wall.
- 5) The building height shall be the vertical distance measured:-
 - (i) In the case of flat roofs from the ground level to the highest point of the building.
 - (ii) In case of sloping/pitched roofs from the ground level to the highest point i.e. Ridge level of the roof.

6) Parking:

- i. One parking floor shall be mandatory for the plots which have an access to vehicular road, and wherever feasible. Maximum height of parking floor shall be 3.00 Metres for residential use and 4.00 Metres for other uses. Shear walls shall be constructed on all the three sides of parking floor, so that it does not behave as a soft storey.
- ii. For different uses, Equivalent Car Space (ECS) norms shall be prescribed as per table below:

Sr.	Permissible Use	E.C.S per 100 M ² of built up area
No.		
1	Residential Use	One parking floor, where feasible.
2	Group Housing	1.00 E.C.S per apartment or per 100 sq. m
		of built up area or One parking floor-
		whichever is more
3	Commercial use	
	Upto 50 M ² areas	
	51 M ² to 250 M ² area	One parking floor, where feasible.
	251 M ² to 500 M ² area	0.51 E.C.S per 100 M^2 of built up area/
		one parking floor
	501 M ² to 1500 M ² area	1.5 E.C.S per 100 M2 of built up area
	1501 M ² and above	2 E.C.S per 100 M2 of built up area
4	Freight Complex	2.50 E.C.S per 100 M2 of built up area
5	Mall, Complex, Multiplex, Commercial	2.50 E.C.S per 100 M2 of built up area
	mix use, Cinema Hall	
6	Hotel, Lodging, Tourist	
	Accommodation, Hospice, Guest	
	House	
	A. Upto 250-500 M2	One parking floor
	B. 500 M2 to 1500 M2	1.00 ECS per 100 M2 of built up area
	C. Above 1500 M2	2 ECS per 100 M2 of built up area
7	Community Hall, Assembly Hall and	1.50 E.C.S per 100 M2 of built up area
	Marriage Palaces/Halls	
8	Hermitage, Cultural or Social Institution	1.50 E.C.S per 100 M2 of built up area
9	Nursing Home, Primary Healthcare	1.50 E.C.S per 100 M2 of built up area
	Centre, Hospital	

Table 17-17: ECS norms for different Uses



10	Wedding Halls, Marriage Palaces	2.50 E.C.S per 100 M2 of built up area				
11	Office, Court and other offices	2.00 E.C.S per 100 M2 of built up area				
12	Primary, Middle, High School, Inter	1.00 E.C.S per 100 M2 of built up area				
	College					
13	University, Technical Education	1.25 E.C.S per 100 M2 of built up area				
	Colleges					
14	Information Technology Campus and	2.00 E.C.S per 100 M2 of built up area				
	related campus unit					
15	Industry					
16	Domestic Service, Small scale industry	0.60 E.C.S per 100 M2 of built up area				
	Other Industry	0.75 E.C.S per 100 M2 of built up area				
	Warehouse, Cold storage	1.00 E.C.S per 100 M2 of built up area				
17	Stadium	1 E.C.S for every 20 seats				
18	Amusement Park, Other Recreational	30 % of the total area of scheme.				
	places, Exhibition halls					
	Note:-					
	1.00 ECS (Equivalent Car Space) shall mean as under:-					
	(i) For parking in open =	= 23 M ²				
	(ii) For parking in stilts or ground floor = 28 M^2					
	(iii) For parking in basement floor =	32 M ²				

- iii. In case, space as per requirement for parking is available in open, over and above the set backs, condition of parking floor shall not be insisted. The closed floors in a building at any level, if proposed and feasible for parking, may be converted into parking floors. However, only one parking floor shall be exempted from Floor Area Ratio (FAR), subject to the height of building restriction and structural stability.
- iv. Though, one parking floor is mandatory yet second parking floor can be constructed which will be optional. Here too only one parking floor shall be exempted from Floor Area Ratio (FAR), subject to the height of building restriction and structural stability.
- v. In the parking floor one store/driver room (maximum area 9.50sqmtr.) and toilet (maximum area 2.30Sqmtr.) shall be permissible subject to the condition that, there will be no obstruction occurring to park the vehicles.
- vi. Fee for parking floor(s) shall have to be payable in all cases.
- 7) Every room intended to be used for the Residential purpose or for habitation shall have a height of minimum 2.75 Meters and maximum 3.50 Meters measured from the surface of floor to lowest point of the ceiling (bottom of slab). However, in case of special uses, the maximum height of floor can be increased as per requirement, subject to overall height of building. The cornices and window sills may also project into any required Set Backs.
- 8) The following structures shall not be considered in regulating the height of the building:-
 - (i) Roof tanks and their supports not exceeding 2.00 Meter in height.
 - (ii) Mechanical, electrical, HVAC, lift rooms and similar service equipment.
 - (iii) Staircase mumty not exceeding 3.00 Meter in height.
 - (iv) Architectural features serving no other function except that of decoration, chimneys, poles, parapet and other projections not used for human habitation, may extend beyond the prescribed height limits, not exceeding 1.50 Metre in height, unless the aggregate area of such structures exceeds 1/3rd of the roof



area of the building on which these are erected.

(v) Solar panels installed on the roof.

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

- 9) Sloping roof shall be mandatory in hilly areas. Sloping roof height may be in accordance with volume of the structure and the width of floor plate. However, the total building height should be within the prescribed permissible height of building. The Dormer on either side of the roof shall be permissible, with the suitable distance. Height of sloping roof zero at eaves and maximum 2.75 at centre shall be permissible. However, in case of habitable attic maximum height of roof shall be 3.00 meters. The roof shall be painted with post office red or forest green or natural roofing material such as slates.
- 10) Set Backs:--
- i. Minimum front Set Back from the line of controlled width of National Highways/4-Lanes Highways shall be 3.00 Metre.
- ii. In case of Himachal Pradesh Public Works Department's Schedules Roads falling within the Planning Area /Special Area limits (excluding the land, included in the inhabited sites of an village as entered and demarcated in the Revenue record or on sites in notified Municipal or town area that are already built up), the minimum front Set Back from the line of controlled width shall be 1.00 Metre.
- iii. Minimum front Set Back from non-scheduled roads and Municipal roads shall be 3.00 Metres.
- iv. Every building should have a clear means of access there to from a street or road. The competent authority may require the provisions of an access lane or access road within the site of any new building. Where for the purpose of this Regulation, it is necessary to determine the width of any road or street, the same shall be determined by the Competent Authority.
- v. The following uses in the setbacks will be considered permissible:
 - (a) Parking in open space/ steel structures (in front setbacks) with 50% of plot frontage
 - (b) Porch at entrance.
 - (c) Boundary wall with height upto 1.50 m
- 11) For the plots abutting National Highways and 4 Lane Roads, No Objection Certificate (NOC)/ Access Permission from the Himachal Pradesh Public Works Department/ NHAI shall be mandatory in the cases where plot is directly abutting to these roads and there is direct access taken by way of connecting bridge and constructing ramps to such roads. However, in the other roads of Himachal Pradesh Public Works Department, the owner concerned will submit and under taking on the stamp paper of Rs. 10 duly attested by the competent authority to the contest that he/she will strictly adhere to the provisions of HP Road Side Control Act 1968 & provisions of HPTCP Act 1977 in letter and spirit.
- 12) Issuance of No Objection Certificate (NOC) for water supply and electricity connection

(i)	Temporary	At plinth level
(ii)	Permanent	On completion of dwelling unit/floor/whole building.

13) Any subsequent deviations made in the building constructed after getting the plan approved and after grant of No Objection Certificate (NOC) issued by the Department



shall entail the floor/unit of the building unauthorized, in which deviations have been carried out and NOC so issued for the said floor/ unit shall be withdrawn and the services if any, released shall be withdrawn.

- 14) Adequate distance from the electric lines as per the requirement of Himachal Pradesh State Electricity Board Limited (HPSEB Ltd.) Rules shall have to be maintained. A Self Declaration/Certificate to this effect shall be submitted by the applicant in this regard.
- 15) An applicant shall have to maintain minimum 5.00 Metres distance between two Blocks if he proposes to construct more than one block on a plot, 1.20 m open balcony over the same shall be permissible in 50% of the length of the block.
- 16) The construction shall be allowed at distance of 3.00 Metre and 5.00 Metre from Nullah and Khad respectively keeping in view of Revenue record or actual at site.
- 17) No residential building shall be permissible on land having buildable width less than 5.00 Metres after leaving Set Backs. However, if the width of proposed built up area comes to average 5.00 metre, authority competent to grant approval can consider such proposal(s) for grant of approval.
- 18) No construction shall be allowed within a radius of 2.00 Metre from the existing tree and3.00 Metres from the Forest land measured from the circumference of an existing tree.
- 19) Construction on sandwich plots in Bazaar area shall be permissible for shops as per existing building lines, only in existing built up areas.
- 20) In new sub-division of land :--

i.	Minimum width of path/road for sub- division of land having upto 5 plots	3.00meters
ii.	Minimum width of path/road for sub- division of land having more than 5 plots and area less than 2500 Sqmts.	5.00meters (with cul- de-sac) at the end.
iii.	Sub-division of land having area more than 2500 Sqmts shall be dealt as per provisions of Appendix-7 of HTCP Rules, 2014(as amended from time to time)	-
iv.	Minimum area for open/green space for the scheme having more than 5 plots.	10%
v.	Minimum area for soak pit etc. (irrespective of number of plots). In case of respective area under Sewage Netwrok, the same shall not be applicable.	5% of the scheme area
vi.	Orientation of the plots shall be provided in such a manner so as to be in conformity with the integration of existing plots/infrastructure, wind direction, natural flow of surface drainage to allow unobstructed rain water discharge.	-
vii.	Layout of plots shall be governed by easy access having acceptable grades minimum 1 in 15 and which may not obstruct view or vista.	-



21) Permissible Area Standard/Norms for different parts of a Building shall be as under:--

Habitable room	Minimum floor area	9.50 M ²
	Minimum width	2.40 M
Kitchen	Minimum floor area	4.50 M ²
	Minimum width	1.80 M
Bath room	Minimum floor area	1.80 M ²
	Minimum width	1.20 M
Water Closet(WC)	Minimum floor area	1.10 M ²
	Minimum width	0.90 M
Toilet (WC+ Bath)	Minimum floor area	2.30 M ²
	Minimum width	1.20 M
Minimum width of	For Residential use	1.00 M
corridor	For Other uses	1.20 M
Minimum width of	For Residential use	1.00 M
stairs	For Other uses	1.50 M
Minimum width of	For Residential use	25 Centimeter wide for
treads without nosing	For Other uses	internal stairs 30 Centimeter
		wide for internal stairs case
Maximum height of	For Residential use	19 Centimeter
riser	For Other uses	15 Centimeter
Provision of spiral stair	For Other uses expect	Provision of spiral stair case
case	Residentialuse	not less than 1 50 Metre dia
	Residentialase	with adequate head height
		for fire escape in addition to
		regular stair case
Openings	For sufficient air and lig	t, windows and ventilators
0.000	should have minimum are	a equivalent to $1/6^{TH}$ of Floor
	area.	
Projections overall set	0.60 M	
backs.		
Palcony Draigstions	1 20 M wide Palaany as	alata anan an tura sidas with
	1.20 IVI WILLE BAILONY COM	ding frontage where minimum
	front Sot Pack is 2 00 M shall	he permissible
	ITOTIL SEL BACK IS 5.00 IVI SHAII	be permissible.

- 22) Plot size restrictions shall not be applicable for the plots existing prior to enforcement of Act.
- 23) Though minimum area of plot has been defined in respective Regulations, yet the plots allotted by the Central or State Government under various Social Housing Schemes including Gandhi Kutir Yojana, Indira Awas Yojana, Rajiv Awas Yojana etc and any such Affordable Housing Schemes, launched by the Central or State Government, may be considered and permission accorded in relaxation of Regulations. However, the minimum area of plot for the persons belonging to the Economically Weaker Sections and Low Income Groups of society should not be less than 45 M² and 80 M² respectively.
- 24) Service floor wherever proposed and required for transferring of the plumbing and other services effectively and to maintain the hygiene of habitable area in case of Commercial/ Shopping Complex and Tourism Unit. For service floor, wherever proposed shall have height restriction of 2.10 Metres and this floor shall not be counted in the FAR, however, the overall height restriction of building will remain the same.





- 25) Before according development permission in areas adjoining to Helipads at Chalonti, Jubbarhatti, Chharabara (Kalyanni Hallipad) and Annandale, the No Objection Certificate (NOC) from the Competent Authority shall have to be obtained.
- 26) Wherever proposed, the Swimming Pools and Helipads and other such specialized support infrastructure facilities should preferably be proposed on the ground level. However, in case of roof top design of Swimming Pools and Revolving Restaurants etc. The detailed Soil Investigation Report/Geological Report and Structural Design Report along with Structure Stability Certificate of the proposed building shall be mandatory. In case of rooftop Helipads, the detailed Soil Investigation Report/Geological Report/Geological Report and Structural Design Report and Structural Design Report along with Structure Stability Certificate and necessary approval from the nearby defence installations, Competent Authority or the Ministry of Civil Aviation, Govt. of India shall be mandatory before the start of operation.
- 27) In order to promote restricted vehicular use to reduce vehicular pollution in the tourism destinations across the state, tourism units /land parcels where road connectivity to the final destination does not exist, which is especially true in difficult terrain areas of the State, in such cases the owners shall be allowed to park the vehicles at a slightly far off location and hence the tourist would have to walk in order to reach the destination/unit. However, any such walking road/trail/ kacha path/path should be certified so by the concerned field Office of the Department in whose ownership the said road/trail/ kacha path/path stands. For example if the land belongs to the Revenue Department, then the Patwari concerned may certify that it is being used as a raasta/path. Same would be applicable to field Officers of the other Departments as well. The parking for such tourism units has to be mandatorily provided by the owner at an appropriate distance as per norms and same parking areas has to be in ownership/control of the owner of the tourism unit.
- 28) The onus of obtaining all the necessary approvals/clearances required from all the concerned Departments in respect of Self-Declaration/Certificate given by the applicant before starting actual execution of the work shall be on the applicant. The Department of Town & Country Planning shall not be liable for any violations done by the applicant in respect of other applicable acts, rules and any legal dispute.
- 29) At the time of submission of proposal for grant of planning permission by TCP/MC, the owner concerned shall be liable to submit an undertaking that he/she will not obstruct laying of water pipe line, sewerage line, telephone line, electric service line/cable which fall under the essential services in his/her setbacks.
- 30) In case of petrol filling station, the layout plan/norms of the Petrol Pump/ Fuel Station as prescribed and approved by Indian Oil Corporation Limited (IOCL)/ other such Oil Companies shall be adopted.
- 31) Every development proposal shall have explicit mention of Muck/malva disposal plan. The concerned owner of the plot will ensure to submit an undertaking to the effect that he/she will not throw the Muck/malva during the course of plot development in the Nalla's/forest land, which cause danger to the adjoining settlements/ properties in the rainy season.
- 32) The provision of Rain Water Harvesting Tank shall be mandatory and proposed in the plan @20 Litre per sq. m. of the roof top area.
- 33) Where the area of land proposed to be developed exceeds five hundred square meters or the number of apartments proposed to be developed exceed eight inclusive of all phases and sale/purchase is also involved, such planning permission case shall be further required to get registered with the H.P. Real Estate Regulatory Authority (RERA), as per provisions of Real Estate (Regulation & Development) Act, 2016.



34) Although Forest Land Use has been prescribed in the Proposed Land Use map of this Development Plan. However, for private plots falling within the prescribed forest land use development permission shall be granted as per ownership/ revenue document.

35) Premium FAR

In Non-Core Area, plots having area more than 1500 Sqmts and abutting the roads having width more than 9.00 mts, the Premium FAR of 0.25 to 0.50 over and above the permissible FAR shall be granted subject to payment of charges/ fee prescribed by the State Govt.

36) Re-construction of existing buildings:-

Regulations regarding re-construction of houses/ buildings in existence in Core/Green/Non-Core Areas shall be on predominantly existing building lines, with same plinth area and Nos. of Storeys, provided the minimum width of road /path is maintained as available at site, and roof projections, sun shades shall be permitted over streets or paths, as the case may be.

37) Change of Land Use and Building Use:-

Change of existing land use for Residential, Commercial, Public and semi-public and Industrial, shall be on existing pattern of development and site conditions subject to the conditions that where basic services like paved roads, drainage, water supply, sewerage disposal, electrical supply line, street lighting etc. do not exist, change of land use or development of land shall not be permitted unless the applicant undertakes that these services shall be provided at his own cost. In public interest and in interest of town design and other such material considerations, the Change of Land Use shall be allowed by the Director only. However, the Building Use shall be allowed by the Chairman SADA / Commissioner, MC.

38) Relaxations:-

Relaxation in set backs, height of floors and building etc. may be allowed in Government projects in the public interest. In case of private construction/projects relaxation in set backs, height of floors and building etc. may be considered by the Competent Authority keeping in view the site conditions. However, in private projects having plot area of more than one hectare, relaxation shall be allowed by the State Government only.

- 39) Fire fighting provisions and specification shall be as per National Building Code of India, 2016.
- 40) In case of any clarification with reference to any provision or if there is no any specific provision, the provisions as envisaged in the Urban and Regional Development Plans Formulation and Implementation Guidelines, 2014 of the Government of India or the National Building Code of India, 2016 shall have to be adhered to.

17 Constitution of Single Umbrella Committee

i. There is a need for simplification and uniformity to facilitate the general public and to adhere the regulations in letter and spirit in Core/Non-Core area within the limit of Municipal Corporation area, as well as and to avoid the conflict between the M.C Act, and HPTCPAct,1977 and rules framed their under. Therefore, for the purpose of according building plan approvals in all types of area in Municipal Corporation area established under the provisions of Municipal Corporation Act, 1994 there shall be a Single Umbrella Committee (herein after refereed to the 'SUC'), which shall comprise of the following :-



- a. Commissioner Municipal Corporation Shimla
- b. Town & Country Planner, Shimla
- c. Executive Engineer (Urban Development)

(Chairman) (Member) (Member) (Member) (Member Secretary)

- d. District Revenue Officer, Shimlae. Architect Planner, MC Shimla
- ii. The single umbrella committee (SUC) shall discharge the following functions namely:-
 - 1. Grant approval as per regulations framed under this Development Plan.
 - 2. The SUC meeting will be held twice a month so as to ensure disposal of all cases within the stipulated time period.
 - 3. In context of Heritage Zone, the Single Umbrella Committee shall consider cases of Heritage Area only on the recommendation of the State Heritage Advisory Committee.

References:

- 1. AMRUT Design and Standards Guidelines.
- 2. Census of India 2001 and 2011.
- 3. City Development Plan Shimla, 2007.
- 4. City Disaster Management Plan, 2012.
- 5. Comprehensive Mobility Plan, Shimla, 2014
- 6. Carrying Capacity Report for Shimla prepared by the Expert Committee, constituted by GoHP as per directions of the Hon'ble National Green Tribunal, 2017.
- 7. City Sanitation Plan for Shimla, MC Shimla, Prepared by GIS Asem (2011)
- 8. District Census Handbook, Shimla, 2011.
- 9. Hazard Risk and Vulnerability Analysis Report, Shimla.
- 10. Heritage of Shimla, Department of Town and Country Planning. (2011)
- 11. Himachal Pradesh Development and Regulation Act, 1968.
- 12. Himachal Pradesh Municipal Corporation Act, 1994.
- 13. Himachal Pradesh Town and Country Planning Act, 1977(Act No. 12 of 1977).
- 14. Himachal Pradesh Town and Country Planning Rules, 2014.
- 15. Interim Development Plan Shimla, 1979, Department of Town and Country Planning, H.P.
- 16. National Building Code, 2016.
- 17. Hon'ble National Green Tribunal Orders dated 16.11.2017 w.r.t. Shimla Planning Area.
- 18. Organization, C. P. (1999). Manual on Water Supply and Treatment.
- 19. State Economy Survey. HP, (2020-21)
- 20. Urban and Regional Development Plans Formulation and Implementation Guidelines. (2014).
- 21. Urban Sprawl and other Spatial Planning Issues, Shimla, Himachal Pradesh. (2011)



Annexure A: Area Notified Under Shimla Planning Area

The 22,450 Hectares of total area (as per Revenue Record) as taken into account for revision and formulation of Development Plan, includes, Municipal Corporation, Shimla, Special Area Development Authorities of Kufri, Shoghi and Ghanahatti Special Area & Additional Shimla Planning Area; which is as under:-

Sr. No	Name of Area	Remarks		
01	Municipal Corporation			
02	Kufri Special Area	As notified vide Notification No. TCP-F(5)4/2000 dated		
		30.11.2000 and further extended vide Notification No.		
		TCP-F (5) 13/ 2001 dated 2.3.2002.		
03	Shoghi Special Area	As notified vide Notification No. TCP-F(5)4/2000 dated		
		30.11.2000 .		
04	Ghanahatti Special Area	As notified vide Notification No. TCP-F(5)-5/2004 dated		
		4.11.2004.		
05	Additional Shimla Planning	As notified vide Notification No. TCP-F(5)-1/2006 dated		
	Area	12.07.2007.		

Kufri special area has following revenue villages:

Sr.	Name of the	Hadbast No.		
No.	Village			
1.	Lambi Dhar	349 (Whole)		
2.	Jungle Mashobra	247(Partly, as already bifurcated in M.C. Shimla).		
3.	Kolu Ka Jubbar	309 (Partly, as bifurcated by Khasra No. 2,21, 85, 79, 80, 95, 96, 106 inclusive towards Shimla-Suni Road).		
4.	Jhalti	307 (Whole)		
5.	Chanavat	308 (Partly, as bifurcated by Khasra No. 64, 65, 66, 67, 68 inclusive towards Shimla-Sunni Road).		
6.	Bontlu	306 (Whole)		
7.	Dhagog	305 (Partlv. As bifurcated by Khasra No. 1, 3, 4, 22, 151, 158, 162, 215, 219, 220, 221, 119, 117, 116, 112 inclusive towards Shimla-Sunni Road).		
8.	Jungle Dhagog	304 (Whole)		
9.	Jotlu	303 (Partly, as bifurcated by Khasra No. 1, 8, 128, 129, 137, 138, 155, 156, 186, 187, 188, 195, 196 inclusive towards Shimla-Sunni Road).		
10.	Bhatla	302 (Partly, as bifurcated by Khasra No. 1,2, 3,4, 5, 6, 79, 80, 8 l, 72, 73, 66, 152 inclusive towards village Sandhora).		
11.	Sandhora	296 (Whole)		
12.	Kailidhar	297 (Whole)		
13.	Jungle Barog Sheel	298 (Whole)		



Sr.	Name of the	Hadbast No.		
No.	Village			
14.	Balldehan	283 (Whole)		
15.	Shaiser	291 (Partly, as bifurcated by Khasra No. 582, 486, 329, 333, 334, 345,		
		346, 347, 348, 354, 355, 366, 367. 364 inclusive towards Shimla-Sunni		
		Road).		
16.	Mashobra	246 (Partly, as bifurcated in M.C.Shimla).		
17.	Retreat	243 (Whole)		
18.	Chharabra	241 (Whole)		
19.	Jungle	240 (Whole)		
	Chharabra			
20.	Kufri Junga	228 (Whole)		
21.	Kufri Koti	229 (Whole)		
22.	Catchment	242 (Whole)		
	Area			
23.	Badah	350 (Partly, as bifurcated in M.C.Shimla)		
24.	Chhakryal	352 (Partly, as bifurcated in M.C.Shimla)		
25.	Chamyana	372 (Partly, as bifurcated in M.C.Shimla)		
26.	Shanan	375 (Partly, as bifurcated in M.C.Shimla)		
27.	Malyana	378 (Partly, as bifurcated in M.C.Shimla)		
28.	Mewag	353 (Whole)		
29.	Ganoti	377 (Partly, as already bifurcated in M.C.Shimla)		
30.	Jungle Ganoti	380 (Partly, as already bifurcated in M.C.Shimla		
31.	Kamali	379 whole		
32.	Shakral	381 (Partly, as bifurcated in M.C. Shimla).		
33.	Mehli	113 (Partly, as bifurcated in M.C. Shimla).		
34	D.P.F.	45 (Whole village)		
25	Kanger			
35				
36.	D.P.F. Teer Manasu	2 (Whole Village)		
37	Gallu Kalan	320 (Including area difurcated by Knasra No. 6, 7, 8, 34, 28, 29, 30, 31, 70, 90, 91, 94, 75, 122, 122, 147, 150, 206, 206/1, 207, 210, 217, 216		
		79, 80, 81, 84, 75, 155, 152, 147, 150, 200, 200, 1, 207, 219, 217, 210, 104, 103, 364, 358, 356, 514, 517, 607, 639/1, 645, 643, 642, 653		
		677 676 679 683 767 772 775 (included) towards NH -22		
		(Hindustan Tibet Road)		
38.	Fagu	241 (Including area bifurcated by Khasra No. 183, 181, 176, 201, 154,		
		152, 151, 150, 149, 263, 264, 266, 354,372, 373, 392, 393, 394, 395,		
		410,		
		411, 412, 413, 414, 415, 416, 417, 418, 423, 424, 425(included)		
		towards N.H22 (Hindustan Tibet Road), Fagu Bazar and Dehna		
		Mohal).		
39.	Dehna	370(Including area bifurcated by Khasra No. 1, 2, 79, 1135/3/2, 3, 5,		
		6, 8, 9, 247, 248, 298, 299, 394, 395, 294, 263/1, 266, 1185/260,		
		258 whole, 202, 161, 178, 175, 174, 173 (included) towards Fagu		
		Bazar).		
40.	Bani	371 (Whole village)		
41.	Kadrav	384 (Including area bifurcated by Khasra No. 2, 1180/1, 46, 1182/53,		
		1236/68, 65, 1232/62, 1191/1173/91, 503, 504(included) towards		
42	Kar fa	Denna Mohal).		
42.	Kasutar	292 (Whole village)		
43.	Snainai	290 (including area biturcated by Khasra No. 809, 810, 803, 802, 798,		



Sr.	Name of the	Hadbast No.			
No.	Village				
		796, 795, 794, 783, 781, 779, 181, 180, 178 (included) towards			
		Shimla- Mandi Road and Jangle Naldehra).			
44.	Naldehra	279 (Whole village)			
45.	Jangle Baldayan	278 (Including area bifurcated by Khasra No. 13(Min)(included),			
		towards Shimla-Mandi Road, bifurcated by Khasra No. 37, 38			
		(included) towards Shaiser, bifurcated by Khasra No. 48, 49 (included)			
		towards Kasufar and bifurcated by Khasra No. 59, 55, 56, 57, 72, 73,			
		74 towards Baldayan).			
46.	Neri	281 (Including area bifurcated by Khasra No. 1, 2, 3, 4, 5, 6, 10, 11, 12			
		(included) towards Shimla-Mandi Road).			
47.	Durgapur	134 (Including area bounded by Khasra No. 108, 107, 106, 114, 104,			
		103, 101, 90, 89, 86, 85, 84, 65, 30, 29, 27, 26, 20 (included) towards			
		Shimla-Mandi Road bifurcated by Khasra No. 24, 23, 136, 142,			
		216/145, 217/145, 146(included) towards Durgapur, bifurcated by			
		Khasra No. 154, 155, 221/157, 164, 174, 175, 176, 177 (included)			
		towards Shimla-Mandi Road and bounded by Khasra No. 209, 211,			
		213, 214, 215, 196, 136(included) Shimla-Mandi Road).".			

Shoghi Special Area Has Following Revenue Villages:

Sr.	Name of Village	Hadbast No.		
No.				
1.	Pawad	393 Min.		
		(Partly, as bifurcated by Khasra No. 617, 618, 621, 623, 583, 600, 599,		
		595, 593, 591, 571, 572, 574, 447, 648, 298, 297, 282, 283, inclusive		
		towards Shimla-Kalka Road).		
2.	Chelli Chola	382 (Whole)		
3.	Gusan	117 Min.		
		(Partly, as bifurcated by Khasra No. 562/8, 2, 12, 15, 68, 69,103, 104,		
		105, 106, 107, 108, 113, 114, 192, 357, 358, 143, 136, 539/132,		
		542/135, 539/132, 515/23, 512/20, 513/20, 514/20, 19, 559/511/18,		
		556/510/18, 555/510/18, 557/510/18, 547/1, 549/4, 551/5, 564/8		
		inclusive towards villages Sargheen and Kwara).		
4.	Pujarli	116 Min.		
		(Partly, as bifurcated by Khasra No. 83, 82, 85, 89, 1402/ 321, 327,		
		328, 329, 338, 344, 360, 359, 357, 356, 355, 342, 341, 337 inclusive		
		towards villages Kwara and Gusan).		
5.	Kwara	115 Min.		
		(Partly, as bifurcated by Khasra No. 250, 118, 189, 220, 217, 219, 200,		
		209, 210, 366, 365, 401, 402, 399, 480, 481, 505, 483, 511, 513,		
		948/791, 789, 788 inclusive towards village Sargheen).		
6.	Sargheen	114 Min. (As bifurcated by M.C.Shimla)		
7.	Patti Rehana	110 Min. (As bifurcated by M.C.Shimla)		
8.	Rajhana	109 (Whole)		
9.	Nehra	108 (Whole)		



Sr.	Name of Village	Hadbast No.		
No.				
10.	Bihar	104		
		(Partly, as bifurcated by M.C.Shimla).		
11.	Barhai	102 Min.		
		(Partly, as bifurcated by M.C.Shimla).		
12.	Malog	100 (Whole)		
13.	Sheel Gaon	99 (Whole)		
14.	Pattiud	98 (Whole)		
15.	Bhog	125 Min.		
		(Partly, as bifurcated by Khasra No. 118, 117, 108, 105, 101, 106, 30,		
		37, 38, 39, 1111/43, 562, 1112/177, 150, 561, 558, 626, 630, 777,		
		775, 644, 646, 603 inclusive towards Dhalli-Shoghi Road).		
16.	Mahauri	96 Min.		
		(Partly, as bifurcated by Khasra No. 34, 30, 26, 741, 46, 739/24,		
		748/204, 203, 154, 153, 149, 148, 137, 138, 188, 116,112, 111, 385,		
		813/367, 811/645 inclusive towards Dhalli-Shoghi Road).		
17.	Shoghi	95 (Whole)		
18.	Gawahi	397 Min.		
		(Partly, as bifurcated by Khasra No. 338, 303, 302, 425 inclusive		
		towards Shimla-Kalka Road).		
19.	Panog	396 Min.		
		(Partly, as bifurcated by Khasra No. 151, 203/139, 126, 183, 110, 107,		
		106, 184 inclusive towards Shimla-Kalka Road).		
20.	Ganaidi	382 Min.		
		(Partly, as bifurcated by Khasra No. 179, 157, 176, 177, 178 inclusive		
		towards village Batlana).		
21.	Batlana	381 Min.		
		(Partly, as bifurcated by Khasra No. 207, 380/268, 266/220 inclusive		
		towards Shimla-Kalka Road).		
22.	Jungle Tarab	97 (Whole)		
23.	Matholi	370 (Whole)		
24.	Bharyal	6/87 Min.		
		(Partly, as bifurcated by M.C.Shimla)		
25.	Majthai	6/86 Min		
		(Partiy, as bifurcated by M.C.Shimla).		
26.	Dawat	6/82 (Partly, as already bifurcated in M.C. Shimla)		
27.	Manglooj	6/84 (Whole)		
28.	Badoh	338 (Whole)		
29.	Kayargi	30/42 Min.		
		(Partly, as bifurcated by Khasra No. 28, 29, 33, 27 inclusive towards		
20	Deger	Village Bagna).		
30.	Bagana	343 (WNOIE)		
31.	Panti	344 (Whole)		
32.	Dhanokri	345(Whole)		



Sr.	Name of Village	Hadbast No.
No.		
33.	Shilru	331(Whole)
34.	Patina	330(Whole)
35.	Khalog	95(Whole)
36.	Thalu Chamaru	329
37.	Kot	326 (Whole)-Solan District)
38.	Chandoli	325 (Whole)-(Solan District)
39.	Pawabo	324 (Whole)-(Solan District)
40.	Sayari	322 Whole-(Solan District)
41.	Balain	16/195(Whole)
42.	Banwi	16/196 (Whole)
43.	Mawari	16/198(Whole)
44.	Barog	16/188(Whole)
45.	Kaphlerh	16/169(Whole)
46.	Jakari	9/108(Whole)
47.	Khayari	9/101(Whole)
48.	Baghli	86/337(Whole)
49.	Gudshali	6/83(Whole)

Ghanahatti Special Area has Following Revenue Villages:

Sr. No.	Name of	Hadbast	Partly / whole	Remarks
	Revenue Village	Number		
1.	Rehal Bachadi	7/88	Whole	-
2.	Fatnechi	7/89	-do-	-
3.	Kanda	11/109 Min.	Partly	As already included in
				Shimla Planning Area
4.	Dhayla	11/108	Whole	-
5.	Padech	63 Min.	Partly	As already included in
				Shimla Planning Area
6.	Ichhaser	60	Whole	-
7.	Bharoi	61 Min.	Partly	As already included in
				Shimla Planning Area
8.	Jablog	62	Whole	-
9.	Fataichi	4/63	-do-	-
10.	Neri	64	-do-	-
11.	Rihai	67	-do-	-
12.	Girb Khurd	65	-do-	-
13.	Girb Kalan	66	-do-	-
14.	Dhainda	80 Min.	Partly	As already bifurcated in



Sr. No.	Name of	Hadbast	Partly / whole	Remarks
	Revenue Village	Number		
				M.C. Shimla
15.	Kyar	79	Whole	-
16.	Chandi	77	-do-	-
17.	Gdawag	78	-do-	-
18.	Chayali Kalan	76	-do-	-
19.	Chayali Khurd	75	-do-	-
20.	Sangti	3/13	-do-	-
21.	Sanog Uprala	3/14	-do-	-
22.	Kyar Giri	5/71	-do-	-
23.	Bhoong	3/30	-do-	-
24.	Manla	3/29	-do-	-
25.	Neri	3/35	-do-	-
26.	Krand	28	-do-	-
27.	Hiun	5/72	-do-	-
28.	Chamu	3/17	-do-	-
29.	Karog	3/15	-do-	-
30.	Kyalu	3/16	-do-	-
31.	Nawag	18	-do-	-
32.	Golchha	19	-do-	-
33.	Kawai	20	-do-	-
34.	Mathav	320	-do-	-
35.	Jangle Pagog	322	-do-	-
36.	Pagog	323 Min.	Partly	As already bifurcated in M.C. Shimla

Additional Planning Area has following Revenue Villages:

Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
1.	Marhabag	76	
2.	Ghandal	85	
3.	Jhundla	82	
4.	Gharog	92	
5.	Jhakdi Upperli	75	
6.	Sedan	77	
7.	Bashaul	84	
8.	Tool	83	
9.	Shakrah	79	
10.	Dhar	80	
11.	Jungal Kamala	81	
12.	Jungal Badua	67	
13.	Jhakdi Nichali	74	



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
14.	Shahech	78	
15.	Chauri	70	
16.	Maghech	66	
17.	Padech	63 (Whole)	Partly already included in Shimla Planning Area.
18.	Dafawag	65	
19.	Badua	67	
20.	Bhutuva	68	
21.	Chalohag	69	
22.	Up-Mohal Jhamrech (Mohal Jhakdi Nichali)	74	
23.	Jadhog	72	
24.	Kashad	71	
25.	Jungle Balau (Mohal Balau)	13/121	
26.	Balau	13/121	
27.	Chdah	13/119	
28.	Kanda	11/109 Whole)	Partly already included in Shimla Planning Area.
29.	Balogdi	73	
30.	Jungle Rapra (Mohal Rapra)	134	
31.	Jajed	133	
32.	Dhanedi	13/120	
33.	Kadech	13/123	
34.	Rapra	134	
35.	Gawahi Khurd	137	
36.	Patshal Kalan	131	
37.	Talayala	132	
38.	Charund	13/122	
39.	Bhaloh	13/126	
40.	Tikri Mashah	13/118	
41.	Khadol	13/110	
42.	Roda	10/105	
43.	Ladvi	11/111	
44.	Kated	10/107	
45.	Khanet	7/91	
46.	Badhawnee	7/92	
47.	Gaag	7/93	
48.	Jadenee	29/336	
49.	Hathni Ki Dhar (Mohal Rehal Vaychdi)	7/88	



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
50.	Patshal Khurd	130	
51.	Khadau	129	
52.	Gawahi Kalan	141	
53.	Seri	13/127	
54.	Panchauti	13/125	
55.	Panesh	113	
56.	Shavla	12/116	
57.	Ner	8/96	
58.	Jabag	7/90	
59.	Patta	140	
60.	Jungal Dalata (Mohal Panchauti and MohalMajhaila)	13/124 and 13/125	
61.	Majhaila	13/124	
62.	Shildu	112	
63.	Deshdi	12/115	
64.	Chavag	104	
65.	Raudi	142	
66.	Jungle Khryad (Mohal Shildu)	112	
67.	Shalagda	10/106	
68.	Phagla	8/94	
69.	Shilli	28 334	
70.	Bhalavag	28/332	
71.	Dhamun	9/160	
72.	Panevla	9/97	
73.	Galot	12/117	
74.	Fagera	114	
75.	Kutasni	8/95	
76.	Kalimu	28/335	
77.	Dadhol	9/98	
78.	Raudi	9/99	
79.	Khadun	9/100	
80	Bhaanna	28/333	
81.	Anji	33/362	
82.	Kayargi	342 (Whole)	
83.	Chanan	340	
84.	Majhaula	341	
85.	Shillibagi	339	
86.	Jamlog	6/85	
87.	Rampuri	277	



Sr. No.	Name of Revenue Village	Hadbast Number	Remarks
88.	Hiun	33/363	
89.	Shamleeg	33/364	
90.	Jadyal	33 365	
91.	Dhanool	33/366	
92.	Kharog	33/367	
93.	Bijli	368	
94.	Shageen	369	
95.	Baun	388	
96.	Kotla	387	
97.	Jadiyana	374	
98.	Dharighat	375	
99.	Shadiyana	380	
100.	Phayal	371	
101.	Kakret	360	
102.	Sandhut	359	
103.	Taradi	386	
104.	Laga	389	
105.	Nagadi	386	
106.	Dooh	33/361	
107.	Dhari Bageri	372	
108.	Dol	373	
109.	Lagdu	376	
110.	Sari	351	
111.	Nareval	358	
112.	Salana	357	
113.	Thadi	392	
114.	Nyaee	391	
115.	Shakoh	390	
116.	Javag	385	
117.	Sehal	383	
118.	Jamati	384	
119.	Badi	377	
120.	Jalel	379	
121.	Ganperi	378	
122.	Keed	352	
123.	Lagdu	353	
124.	Thalakdhar	354	
125.	Thalaknal	355	
126.	Pawad	393 (Whole)	Partly already included in Shimla Planning Area.
127.	Gawahi	397 (Whole)	Partly already included in Shimla Planning Area.



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
128.	Panog	396	Partly already included in Shimla
		(Whole)	Planning Area.
129.	Ganedi	382	Partly already included in Shimla
		(Whole)	Planning Area.
130.	Batlana	381	Partly already included in Shimla
		(Whole)	Planning Area.
131.	Bhog	125	Partly already included in Shimla
100		(Whole)	Planning Area.
132.	Mahauri	96 (Whala)	Partly already included in Shimla
122	Pathun		
133.	Bathun	394	
134.	Dharay	395	
135.	Briarov	124	
130.	Banadi	123	Deuthe eluce de include d'in Chinele
137.	Bharoi	4/61	Partiy already included in Shimia
138	lungal Ichaser-Pratham	4/60	
120		4/60	
139.	Shadag	4/00 E/69	
140.	Nalaval	5/08	
141.	Ndidydi	5/73	
142.	Dhanayai	5/09	
143.	Anji	5/74	
144.	Up-Mohal Tal and	5/71	
	Giri		
4.45	(Mohal Kyargiri)	24	
145.	lood	21	
146.	Shahal	25	
147.	Pavabo	24	
148.	Kamiyana	22	
149.	Up-Mohal Dudhali	21	
	(IVIONAI Tood)		
150	Bamu	333	
151	lungal Godi Ka Nal	333	
151.		224	
152.	Baprodu	225	
155.		241	
154.	(Mohal Saruila Baruila)	541	
155.	Badfar	337	
156.	Jungle Badfar-Aa	336	
157.	Jungle Badfar-Ba	340	
158.	Lindi Dhar	339	
159.	Masech	346	



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
160.	Saruila Baruila	341	
161.	Ajdhar	347	
162.	Dhani	345	
163.	Dhanain	344	
164.	Shildu Sapoli	311	
165.	Patengali	310	
166.	Kolu Jubbar	309(Whole)	Partly already included in Shimla
			Planning Area.
167.	Chanavat	308	Partly already included in Shimla
		(Whole)	Planning Area.
168.	Dhagog	305	Partly already included in Shimla
		(Whole)	Planning Area.
169.	Jotlu	303	Partly already included in Shimla
		(Whole)	Planning Area.
170.	Bhatla	302 (M(bala)	Partly already included in Shimla
171	Chaisan		Planning Area.
1/1.	Snaiser	291 (Whole)	Partiy already included in Shimia
172	Shainal	201	Partly already included in Shimla
1/2.	Shannar	(Whole)	Planning Area.
173	lungal Naldehra	278	Partly already included in Shimla
1,01	sungar rundern d	(Whole)	Planning Area.
174.	Neri	281	Partly already included in Shimla
		(Whole)	Planning Area.
175.	Seepur	245	
176.	Jungle Seepur	244	
177.	Dhojidhar	248	
178.	Jungle Mool Koti	238	
179.	Purani Koti	234	
180.	Thathrog	233	
181.	Kunee	232	
182.	Jalf	383	
183.	Gosan	117	Partly already included in Shimla
		(Whole)	Planning Area.
184.	Shakral	381	Partly already included in Shimla
		(Whole)	Planning Area.
185.	Chaili Chaula	382	Partly already included in Shimla
		(Whole)	Planning Area.
186.	Pujarli	116	Partly already included in Shimla
4.07		(Whole)	Planning Area.
187.	Kawara	115	Partly already included in Shimla
100	Kawalag Maihar	110	
100.			imle.
	Te	ensii Sunni, District Sh	imia



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
1.	Durgapur	134	Partly already included in Shimla
		(Whole)	Planning Area.
	Те	hsil Theog, District Shin	nla
1.	Galu Kalan	320	Partly already included in Shimla
		(Whole)	Planning Area.
2.	Fagu	241	Partly already included in Shimla
		(Whole)	Planning Area.
3.	Dehna	370 (Whole)	Partly already included in Shimla
1	Kadaray	294	Plaining Alea.
4.	Ndudidv	(Whole)	Planning Area
	Tehs	il Kandaghat. District S	Solan
1.	Sharer	178	
2.	Mundi Khurd	179	
3.	Mundi Kalan	180	
4.	Kanair	185	
5.	Nagalthi	184	
6	Rugda	183	
7.	Ser	181	
8.	Maihar	182	
9.	Shakret	323	
10.	Sunkhi	321	
11.	Bagi	327	
12.	Nataila	328	
13.	Vadhawani	348	
14.	Thaul Kolian	344	
15.	Kanoli	306	
16.	Shadhlyana	317	
17.	Fagoli	314	
18.	Shalog Kolian	316	
19.	Shalog logiyan	315	
20.	Kahla	94	
21.	Maihvari	346	
22.	Tikkar	310	
23.	Niuen	313	
24.	Dhroie	349	
25	Danwati	350	
26.	Mashru	302	
27.	Dhando	312	
28.	Jhekhadi	311	
29.	Sulani	88	
30.	Badivavla	89	
31.	Kandaur	90	
<u> </u>			



Sr. No.	Name of Revenue	Hadbast Number	Remarks
	Village		
32.	Aanji Brahamnna	91	
33.	Bodhan	87	
34.	Kot	86	
35.	Garu	75	
36.	Chund	76	
37.	Banota	85	
38.	Tikkar	84	
39.	Rugta	77	
40.	Gandrodi	79	
41.	Makalyan	78	
42.	Kotla	83	
43.	Nal Ka Gaun	81	
44.	Dhala	80	
45.	Katoh	276	
46.	Dihari	424	
47.	Lachog	82	
48.	Kathli	425	
49.	Shungal	398	
50.	Shadyal	399	

Annexure B : HH Survey Format

HOUSEHOLD SURV	Y				Name of	Surveyor	r:							PHYSICAL INFRASTRUCT	TURE									He	ealth Facilit	ies					ī
Town Name:					Ward/Are	ea Name	:						ſ	Water Supply			Suppli	ied by:	Municipa	ity Ov	wn	Other	Source	Fa	acility Avail	able (tick)		Priv	ate Clinic	Go	v
Name of Responde	nt:													Supply	Hou	urly I	Daily		Weekly	No	Supp	ly								Hea	al
Contact Number:					Caste: Ge	neral/OB	SC/SC/	ST						Source	Indi	lividual	Comm	on Pump/	Tanker	Na	atural s	ource									
No. of Family Mem	bers:				BPL Card	Holder?	(Yes/N	lo)				5			Tap	ps I	Bore w	vell	Supply					Di	istance to M	learest Fa	cility	km	1	km	
Family Details:	Age	Sex	Marital	Edu.	Work /	Travel	Tra	vel N	Node					Dri. Water Qua.	Very	ry good	Good	-	ОК	Ba	id/khai	ra/saline	9	Ar	ny other iss	ues & sug	gestion	s for th	e same?		
	-		Status		Study	distan			0.1.	0.1		1 10/-11/		Water Sufficiency	Ven	ry Less	Moder	rate	Enough	M	ore tha	an enou	gh								_
Name of Member						ce	w	4 W	ate	lic	le	Walk		Any Questions/Problem	ns relate	ed to water?								PL	ublic Amen	ities				03	
									Tr.	Tr.														Fa	acility Avail	able (tick)		Ma	rket Post	t Off.	C
1.													ſ	Sanitation										Di	istance to N	learest Fa	cility	km	km		k
2.														Facility Available	Individu	ual Toilet		Public Toilet	t (Open De	fecatio	n		Ar	ny other iss	ues & sug	gestion	s for th	e same?		
3.					2									Waste Discharge S	Septic Ta	Tank S	Soak Pi	it	Sewerage	Network		Open									_
4.														Any Questions/Problem	ns relate	ed to Sanitatio	on?	,	11 - 11 - 11 - 11 - 11 - 11 - 11 - 11												_
5.																								He	ome Based	Industrie	s (Econo	mic Act	tivities oth	er than /	1
		<u> </u>		·			<u> </u>					·												Ту	pe of Wor	k (tick)		Foo	d Fore	st Te	x
FAMILY EXPENDITU	RE DETA	ILS											ſ	Solid Waste										M	lention the	Activity					_
Assets Owned (tick)	elevisio	n Re	efrigerat	or Wa	ashing Ma	achine		Comp	uter	Tele	phone		Collection	Doorste	ep / Dustbins		Common Bins	k.	No Fac	ility			H	ow many p	erson invo	olved fro	om fam	ily??	1	_
Vehicles Owned (tie	:k) (cycle	2-	Wheeler	r 4-V	Wheeler			Other			-		Frequency (Daily			Weekly		No Coll	lection	ų.		A	ny other iss	ues & sug	gestion	s for th	e same?		
Category		-							Mont	nly Exp	ense (Rs.)	[Disposal/Dumping (Opp Hou	ouse		Common Plot	/Place	Munici	pal Du	stbin									-
1. Ghar Kharch (Hou	ise exper	ses like	food, wa	ter, elec	tricity, kira	ana, etc.)		-						Street Cleaning [Daily			Weekly		No Suc	h Facil	ity			counation:					1	-
2. Children Expense	s (Schoo	fees, co	ommute,	books, st	tationary,	etc.)						2		Any Questions/Problem	ns relate	ed to Solid Wa	ste?							N	o, of perso	earning	in home			10	A
3. Travelling Expense	es (Bus,	ocal con	nmute, w	ork relation	ted trip, pe	etrol, etc.)																	Fa	mily Incon	e/month		1-5.0	000	5.001	-
4. Recreation (Thea	tre movie	s, mela,	, etc.)											Roads and Transportation	on		Road	in front of ho	use: K	itcha		Pucca		(N	Aajor sourc	e of incom	e of a fa	amily is	from)		-
5. Loans, if any (Hou	using, vel	icle loar	n, person	al, etc.)															()	letal)		(Tar/c	oncrete)	A	griculture	Animal	Mini	ng/	Forest	Busin	e
6. Savings														Nearest Railway station	n:				Nearest B	is Stop/S	tand:					Hus.	mine	rals	products	/ trad	le
Additional Allo	wance	0-1 lakh	ns 1-2	lakhs	2-3 la	khs 3	3-5 lak	hs	No	such	eceiva	bles		No. of owned two whee	elers		No. o	f owned four	wheelers		Oth	ers Vehi	•3								
Money (per Year)	260083068	0100000	550 0000	732019121	-051 (SAND)	136175 P 7	0.0010100	04701	0.93	0507500	0.000047	0.07.53	l	Alternative Transport	Priv	vate Bus	Public	c Bus	Rickshaw/	eep	Othe	er								Job	Ī
Suggestions to incre	ase your	annual	family inc	come?									r											A	ny other iss	ues & sug	gestion	s for th	e same?		7
														Electricity			1.0		1.												
HOUSING:													ļ	Power Cut	Daily		Onc	ce in a Week	1	o such pr	roblem	1									Ī
Plot Area:		(sc	a.vd/sa.m	ປ	BuiltUp	Area:				(sa.v	d/sa.n	n)		Streetlight /	Adequat	ite (maintaine	ed / n	ot)	Inadequat	e (main	tained	/ not)	CI	TIZEN'S De	velopmer	t Priorit	y Rank	ing (please	give 1-	5
Ownership? (Own	Rent)	ears	If	rented (Rent?)	THE PARTY AND		Aarke	et Valu	e:				Any Questions/Problem	ns relate	ed to Electricit	ty?							Is	sues						
No. of Rooms:			To	oilet Faci	lity: (Yes/I	No)	N	10. 0	Floors			~	l												Creating I	New Empl	oyment	Opport	unity		•
Type of House	Pucca	á.	Se	emi - Puo	ca	,	K	utch	a						DE									٠	Water for	Drinking					•
	(Perm	anent)	(p	ermaner	nt + Tem. M	Mix)	0	Tem	orarv)				ſ	Education Facilities	nc.	Pri Pub	Pri	i Puh	Pri	p	ub	Pri	Pub	- I-	Water for	Agricultu	re / Anir	nal Hus	bandry		•
	Brick		R	CC / Con	crete		s	heet	s/		slum h	uts	ł	Eacility Available (tick)		Nursery	Pri	imary School	Secon	r Jarv Scho	al	Colleg	Fub		Sewerage	Connecti	on				•
	- Strick						f	abric	ated/m	ud				Distance to Nearest Fac	ility	km	kn	n	km	ary serio		km			Solid Was	te Collect	on & Di	sposal			•
Do you own Agricul	ture land	?(Yes	/ No)		Do you	practice	agricu	lture	? (Ye	s / No)			Any Questions/Problem	ns relate	ed to Educatio	in?								Improving	Housing	Conditio	ins			•
,		201 20552	59 97 EST		Major	crops:	0		a 1005	2019 - 623						in to constitution	0.005							•	Improving	Road Co	ditions	2			•
						000							L														no transitione				_

Davakhana	Prathmic	Government
h Sub-Centre	swasthya Kendra	Hospital
	km	km

ardens	Play Ground	Dairy	Temple	Bank
n	km	km	km	km

ricultu	ire & Mine	eral M	ining)	
les	Craft	D	airy	Any Other??
2	3	4	5	6

	Be mare	al/day for work:			km	
0,0	00	10,001- 25,000		Above 25000		
s	Tourisn	n Small scale Industry	Fa Pl	ctory/ ants	Any Other	

5 rank (only5) which are most IMP for them)

Health Facilities (new &/or up-gradation)	
Education Facilities (new &/or up-gradation)	
Gardens and playgrounds	
Factory and manufacturing plants	
Tourism Facilities (Hotels & Restaurants)	
Mineral Mining activity	
Any Other (please mention & tick)	



Annexure D-1 : Traffic Volume Count

		1			Preparati	on of GIS Based	l Master	Plan for	• Shimla	Plannin	g Area		FORMANO			
						CLASSIFIFD	TR A FFI		F COUN'	Г			_ FORM NO. TIME: DAV/NICI	ar		
										<u>+</u>			LOCATION : MI	D BLOCK / IN	TERSECT	ΓΙΟΝ
LOCATIO	N:												DAY/DATE:			
DIDECTI			E.			T									I	1
DIRECTION	JN		From:									••••••	ENUMERATOR :			
TIME OF	PASSENGER VEHICLES						GOODS VEHICLES				AGR.TRACTOR		SLOW MOVING			т
SURVEY	BUS	MINI BUS	CAR	VAN/JEEP	THREE WHEELER	TWO WHEELER	TRUCK 2-AXLE	TRICK 3-AXLE	MAV	LCV GOODS	TRAILE R	WITHOUT TRAILER	CYCLE	CYCLE RICKSHAW	ANIMAL DRAWN	HAND DRAWN
From																
То																
Total														<u></u>		
From															╞━━━━	
То																
Total																
From																
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Total																
From																
То																
Total														<u> </u>	<u> </u>	<u> </u>



Annexure D-2 : Road Network Inventory

			_									
					Road Inv	entory Su	rvey					
Road :						-	-	Sheet :				
Section From :			To :					Date :				
Chanage From :			To :				Name	of Surveyor	:			
1. Road and Ro	ad Side Fe	atures										
Road Cla	ssification				(Arterial : 1	Sub Arteri	al : 2 , Coll	lector :3, Lo	cal :4, Oth	ers :5)		
		Left	Right									
Landu	se Type		g	(Residen	tial - 1,Comn	nercial -2,R	esidential a	& Commerc	ail -3,Publi	& Semi Public	-4, Industria	al -5,
Main Ca	riagoway			Aggricult	ure -6,Open	-7)						
Walli Ca	llageway						Loft	Right				
	Carriage	way Type	(Dive	ded:1,	Carriagev	vay Width	Leit	rtigrit		Median Width		1
			Undiv	vided :2)	Shoulde	er Width				Available ROW		-
					Chicalda					(Clear distance	e between	1
Servic	e Road & F	ootpath								building	line)	
	Detail		1 - 4	Disht			1 - 4	Disht			1.54	Disht
	Servic	e Road	Len	Right		Width	Leit	Right		Length	Len	Right
	Foo	tooth				Width				Longth	r	-
	(Existing	g -1, Not Ex	cisting -2)			width				Length		
				_	_							
Bus	Stop	Left			Right		1					
Drainar	o Detaile											
Diamag	e Detalis		Left	Right	_		Left	Right			Left	Right
	Drainage	Channel	Lon	lugit		Туре	Lon	rugni		Condition	Lon	, agin
	(Existing] -1, Not E>	visting -2)		-	(Open -1,L	ined -2,Und	dergroun -3)		(Good -1,Fair ·	-2,Bad -3)	
On Stree	et Parking											
		Left	Right	_		Left	Right					
	Parking (Existing	a -1. Not Ex	(isting -2)	_	Type (Perpend	dicular -1.A	ngular -2)					
2.Pavement D	etails		J				J					
Туре		(Bitumin	ous :1,Wa	iter Bound I	Macadum :2,	Concrete ::	3,Others(S	pecify):4)				
Condition	-	(Verv G	Good 1 Go	od ·2 Fair	3 Bad (4)							
3.Street Furn	iture	(vory c		.2,1 all .	.0,Duu .+)							
		Left		Centre		Right						
Roa	d Light						(Existin	g -1, Not Ex	cisting -2)			
Т	уре						(Sodium V	apour :1,Me	ercury Lam	:2,Flourecent :	3,Tungsten	i filemei
Road	Marking				Traffic	Signage						
	Cent	re line				Inform	natory					
	Edge Lin	/larking e Marking		_		Prohi Mano	batory datory					
	Pedestria	n Marking				Oth	ners					
4 Traffic Mana	(Presen	it :1,Not Pro	esent :2)			(Preser	nt :1,Not Pr	esent :2)				
4. Trainc Manag	jement we	asures										
	One Way	Restriction		(Yes	:1,No :2)		Restrictio	n On Freigh	nt Vehicles		(Yes :	1,No :2
				D' 14			Postriction		/ Mini Bus	r	(Yes :	1,No :2
	Restrictio	on For On	Left	Right	~ ~ ~		Restriction	i on rampo	1		(1.55.	1
	Restriction Street	on For On Parking	Left	Right	(Yes :1	I,No :2)	Restriction					
5. Remarks on	Restriction Street	on For On Parking	Left	Right	(Yes :1	I,No :2)	Restriction					



					_
1. Have you been to this city before? (1) Yes (2) No		(7) Temporary free stay (Temple, Tent, etc.)			
2. How have you traveled to the city this time?		(8) House on Rent / Tourist Bungalow			
(1) Train		(9) Youth Hostel			
(2) Bus		(10) Bed and Breakfast unit			
(3) Air		(11)Other			
(4) Personal Vehicle	9.	On an overall basis, how satisfied or dissatisfied a	re vou on a	 iccount	of
(5) Taxi		below.			
(6) Other					
3 How often do you travel?		[5] Highly Satisfied [4] Satisfied [3] Satisfied	but not co	omplete	ιy
(1) Once a week or more often		dissatisfied			
(2) Once a fortnight		(Ask satisfaction level only if response is yes)			
(3) Once a month					
(3) Once in 3 months		Parameter	Yes	No	
(4) Once in 5 months		Asseilsbilites of Town Operators			Ľ
(5) Once in o months	1	Availability of Transportation			\vdash
4. What is your main purpose of visit?	2	Availability of Tour Guide		+	┝
(1) Business	4	Availability of good quality accommodation			⊢
(2) Holidaying, leisure and Recreation	5	Public convenience			\vdash
(3) Social	6	Eating places		+	F
(4) Pilgrimage/Religious activity	7	Information centres			
(5) Education/Training	8	Souvenir shops			
(6) Health/Medical	9	Entertainment places			
(7) Shopping	10	Security			L
(8) Other	11	Quality of roads			L
5. Are you a part of an organized group / package tour? (1) Yes (2) No	12	Behavior of locals			L
If yes, what does the package include?	15	Shops other than souvenir shops			┡
(1) Travel + Food	14	Accommodation tariff			\vdash
(2) Travel + Accommodation	15	Quality of information provided		+	\vdash
(3) Travel + Transport + Accommodation		Quality of Information provided			L
(4) Travel + Transport + Accommodation + Food	1.	What were the tourist spots you visited during yo	ur stay in th	he city?	
(5) Any Other		(Names of the spots)			
7. How did you make your travel arrangements?					
(1) Self					
(2) Office/Employer					
(3) Travel Agent					
(4) Tour Operator		the solution of the design of the balance of the solution of t			
(5) Other	2.	How did you find your visit to the city as per your	expectation	ns?	
8 Where did you stay during your visit?		[5] IVIUCH better than expectation			
(1) Hotol		[4] Somewhat better than expected			
(1) IUCEI (2) Sonvice Apartment		[3] As per expected			
(2) Matal		[2] worse than expected [1] Much worse than expected			
(3) WOLEI					
(4) GUEST HOUSE					
(5) Dharamshala					
(6) Friends / Relatives					

f each	n paran	neter n	nentio	oned	
y [2]	Dissat	isfied	[1] c	ompl	etely
Level Code	l of S)	atisfac	tion	(Use	
					-
					1