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ANNEXES

TERMS OF REFERENCE

Consultancy Services to Prepare and Adopt a Strategic Master Plan for the Development of Smart Multimodal Transportation System - HP

1. PROJECT BACKGROUND

After the successful completion of Himachal Pradesh State Road Project – I (HPSRP – I), the World Bank has signed a subsequent tripartite agreement with the Government of India and the Government of Himachal Pradesh offering USD 82 million loan for the execution of Himachal Pradesh State Road Transformation (HPSRTP). Building on the achievements of HPSRP – I, the HPSRTP is aimed to enhance the efficiency of the transportation, logistics, and Road Safety institutions and improve priority Major District Roads (MDRs) to stimulate horticulture and overall economic growth in Himachal Pradesh. HPSRTP has multifaceted objectives and sub-objectives including institutional development, improving road safety, promoting green and safe corridor initiatives, improving road maintenance etc.

For effective implementation, the project has been divided into the following components –

1. Component 1 – Strengthening HP's transport institutions and building resilience: This component involves the re-establishment of HPRIDCL, commercialization of direct labor operations, and establishment of HP Motor Vehicle Administration (MVA).
2. Component 2 – Developing transport corridors and complementary facilities, and a logistics system for HPs horticulture and overall economic growth: Activities under this component include upgradation works on select core road network corridors of the state and designing and piloting a logistics system to support horticulture growth in the state aligned with other WB operations in the sector.
3. Component 3 – Enhancing road safety: This component will involve the implementation of 'the safe system' and 'the safe corridor initiative' which will include support to improve road accident data management and enforcement on state roads on select high-traffic and high-risk corridors of the state.

HP Roads and Infrastructure Development Corporation Limited (HPRIDCL), represented by the Director (Projects), is the Implementing Agency for this high-value World Bank-funded Project. HPRIDCL seeks to strengthen select transport institutions, including the HPDOT (Department of Transportation), through re-organizing, strengthening, and transforming reforms under Component 1 of HPSRTP. Further, as per Clause 1.3 (b)(iv) of the Project Appraisal Document, this project seeks to engage a consultant through QCBS type of procurement to prepare and adopt a Strategic Master Plan for the Development of Smart Multimodal Transportation System - HP. This policy decision to hire a consultancy firm for "designing and execution of Statewide Urban Mobility for Intermediate Cities" of HP has also been approved by the Govt of HP on September 22, 2022.

2. INTRODUCTION

A Spatial Master Plan for any urban area is a statutory document for guiding and regulating urban development that defines the future area for urbanization and addresses planning issues for various sectors in which mobility planning is vital. Transport contributes approximately 23% of total energy

related GHG emissions, but it is also vulnerable to the impacts of climate change. Keeping in view the fact that mountains have scarce land, fewer mobility options and are more vulnerable to climate change, a mobility master plan would need to incorporate multi modal transport systems/options that adapt and are climate resilient enough to better withstand those impacts. Hence, in this age of Transport Oriented Development (TOD) combating adverse impacts of Climate Change for making urban habitats sustainable especially in mountains needs careful choice of urban planning techniques that advocate a modal shift.

Planned usage of transport can powerfully advance the resilience of the community and foster overall socio-economic development. Hence this Statewide multi modal mobility Master Plan targets: -

a) Strategically using transport to serve as a tool for preventing congestion thereby reducing vulnerability by steering the statewide urban population growth and its settlement patterns over a 20 Year horizon. Simultaneously it seeks to disperse the significant floating tourist population arrivals towards alternative multiple points in HP. As ToD approach to spatial planning is currently at the conceptual level it is yet to become the focal paradigm of emerging intermediate Cities/ towns and is not adequately reflected in their development plans. Further vulnerable, hazard prone mountain zones like HP with scattered populations need a climate resilient ToD that is cost efficient on most popular mobility modes used frequently by locals, tourists, and freight movement.

b) Transport has a critical role to play before and after climate-related events in facilitating regenerative responses from vital linked sectors like energy, water, and trade.

c) The need of the hour is to design a of Low Carbon Mobility Plan with a focus on reduction in GHG and CO_2 emissions for improving the quality of the local environment through incentivizing transition from private to public transport, NMT, ease of mobility and social inclusiveness for commuters from all sections of society and genders in a cost-effective manner over multiple transport modes.

   The National Urban Transport Policy (NUTP), 2006 stressed the key role of effective transportation systems in enabling improved quality of life in Indian cities and highlighted the importance of equity in transportation systems. It recommended promoting integrated land use and transport planning, cleaner technology and a priority to public transport. The concern for urban poor is reflected in the emphasis on equitable road space distribution, priority to NMT and reduced fares for public transport. It places the needs of pedestrians and cyclists (a majority of whom are the urban poor) at the centre of urban transport planning.

   The recently launched PM Gati Shakti National Master Plan of India encompasses the 7 engines for economic transformation, seamless multimodal connectivity and logistics efficiency. This current study for HP seeks to integrate the vision and mission of the HP Transport Policy of 2014 and incorporate the mobility infrastructure developed by the State Governments in sync with the Gati Shakti Master Plan.

3. PROJECT OBJECTIVES

This project seeks to engage a consultant through QCBS type of procurement to prepare and adopt a Strategic Plan for Development of Multimodal Transportation System - Smart Transportation System", HP. This policy decision has also been approved by the Govt of HP on September 22, 2022. This Consultancy seeks to deliver on the core objectives of creating an environmentally sustainable mobility strategy for Himanchal Pradesh with a 20-year horizon by designing model mobility templates for cities/ towns sampled to represent the three major agro- climatic terrains as given in the table below. These templates could be adopted by intermediate towns/ cities while conceptualizing their traffic and transport components in their spatial development plans

S. No.	Name of Town	Terrain
1.	Keylong	Hilly Terrain
2.	Mandi	Middle Hilly Terrain
3.	Nalagarh-Una corridor	Plain Terrain

Keeping in view the rapidly changing IT enable ecosystem that rapidly generates new Infratech options this 20-year master plan would be reviewed after every 5 years for inserting course corrections/ updation. The Plan aims at: -

a) To better understand hazard-prone areas and vulnerable assets, a climate risk assessment (hazard & vulnerability) must be conducted. In order to strategically design cities and towns, resilient designs and strategies must be used.

b) Decongestion of brownfield cities/ towns through traffic dispersal using Climate-Resilient ToD (Transport oriented Development)

c) Providing cost effective, multi-Modal, seamlessly integrated, green transport options including Non-Motorized Mobility (NMT) in Greenfield towns/ cities.

d) The regulatory provisions which are not in tune with modern day requirements for smart, swift transportation system needs to be re-looked and changes suggested accordingly.

e) Increasing Women's participation in transport sector.

f) Easy evacuation of Horticulture, Agriculture, Industrial produce & Tourism through streamlined transport corridors

g) Citizen friendly cost-effective transportation (Integrated Travel Pass)- those accounts for the significant floating tourist population in different agro-economic zones of this mountain State.

h) Motivating shift from Private to public transport.

i) Establishing UMTA as the basic institutional mechanism to achieve the objective of planned urban mobility enshrined in the GOHP approval of September 22, 2022 to HPDOT as approved in principle by GOHP on September 22, 2022 and conveyed on September 29, 2022 to HPDOT)

A Statewide Urban Mobility Technical Assistance (UMTA) is envisaged to be established as a converged institutional mechanism that does not exist presently. UMTA will bring together multiple

stakeholders for holistic urban mobility planning that focuses on establishing an evidence based environmentally sustainable transport development process. UMTA will enable the state and local authorities to continually:

- Develop and update effective transport resilient strategies and development plans for intermediate cities based on rough land use plans incorporating economic, environmental and urban development goals.
- Coordinate land use and transport sector strategies to effectively manage urban development and avoid inefficient travel patterns by guiding smart urban growth in intermediate cities.
- Smartly manage the growth and operation of the urban road network in intermediate cities in that it attends to the needs of all travel modes, well promoting those that are most equitable, sustainable and climate resilient.
- Assure the availability of viable and high quality non-motorized transport (NMT) travel options in intermediate cities.
- Improve how non-motorized transport needs, including those of pedestrians and particularly for those with disabilities, are taken into account in existing and future urban road infrastructure in intermediate cities.
- Feasibility of Inland Water Transport (IWT) to encourage passenger and freight movement
- Assure that there exists a well-regulated and operated system of public transport supported by effective climate resilient infrastructure facilities and service planning in intermediate cities.
- Seamlessly integrated citizen centric transport system that is viable for facilitating mobility needs of a significant floating tourist population.
- Fully Automated Transport Barriers for seamless transport movement.

This Technical Assistance will reference and, when applicable, borrow from detailed methodologies developed at the national level, including the 2014 National Urban Transport Policy (NUTP) by the union Ministry of Urban Development and the GOHP Transport Policy 2014 and EV policy of 10th Jan 2022.

It will also ensure that overlaps and duplication with ongoing similar transport studies is avoided by engaging closely with all related stakeholder departments, parastatals, NGOs.

4. SCOPE OF WORKS

All the tasks carried out under the scope of the work needs to be performed after a climate risk assessment (hazard & vulnerability) to identify the hazard prone areas and vulnerable assets and accordingly to propose the climate-resilient strategies/methods/designs to withstand the future climate impacts.

Task A: Design a statewide Urban Mobility Process to: (1) Develop green transport infrastructure and services development strategies based on drafting rough land use plans for intermediate cities/towns, and (2) Create an urban transport infrastructure and services action plans to enact these strategies by identifying, evaluating and executing mobility initiatives focused on non-motorized and public transport, as well as traffic management.

The design of this process should:

- Specify the division of responsibilities among sector institutions and units within these institutions. This will likely focus on the Himachal Pradesh Public Works Department (HPPWD)/ HPRIDCL and coordination with the Department of Transport (DOT) regarding regulation of trucking and public transport services, as well as urban land use planning and administration units of cities with Dept of Urban Development (UD) and Town & Country Planning (TCP).
- Create institutional coordination and public participation procedures to include local input in each step of the Urban Mobility Process, from the development of rough land use plans, the identification of sector problems, the establishment of sector priorities, the evaluation of alternative solutions to these problems, to the prioritization and execution of initiatives needed to carry out chosen solutions.

This process should have the following steps:

a. Develop a **rough land use plan (**in the absence of development plan/master plan) through an assessment of growth potential based on economic and urban development trends and goals, the historical experience of the state's largest city (Shimla), the potential for becoming a pole for urban migration, as well as specific possibilities to host increased economic activity from sectors such as agriculture, horticulture, tourism, academic/universities and transport logistics.

b. Perform a **transport sector diagnostic**, characterizing present and future transport demand based on existing and expected land uses as organized in rough land use plans, collecting information on the quantity and quality of transport infrastructure and services within intermediate cities, as well as comparing transport supply to demand towards identifying issues and problems.

c. Prepare a **green transport infrastructure and services development strategy** to effectively accommodate present and future transport demand, while promoting the provision of green and affordable transport solutions to influence it towards the use of environmentally sustainable modes of transport (non-motorized and public transport), which facilitate the positive evolution of land use (densification as opposed to sprawl).

d. Identify, evaluate, and select initiatives to become part of an **urban transport infrastructure improvement action plan.** To enact this strategy, developing urban transport infrastructure to preserve an effective roadway network, while most equitably and efficiently serve present and future travel demand. This will involve, preparing a transport infrastructure network (arterial, sub-arterial and local roads network) improvement plan to support the implementation of the anticipated land use plan. The infrastructure shall have provision for adequate pedestrian walkways, access and safety to the disabled, utility lines, etc.

e. Identify, evaluate, and select initiatives to become part of an **urban transport services action plan.** to enact this strategy, providing urban transport services to equitably and efficiently serve present and future travel demand.

This action plan should be organized as a non-motorized transport, public transport, electric /solar power battery vehicles and traffic management project pipeline (implementation program) for

intermediate cities. The following initiatives should be considered, incorporating green technologies when possible, and comprehensively addressing access and safety for disabled persons:

- Non-motorized transport initiatives, such as the establishment of a priority network for pedestrians, widening and paving of footpaths, and providing improved street lighting.
- Public transport initiatives such as constructing/improving transfer terminals (between inter-urban and urban services), formalizing stop locations, improving service quality, and upgrading service standards with respect to safety, equity and reliability.
- Traffic control initiatives such as the installation of traffic control devices, crosswalks, and improving intersection geometry.
- On street and off-street parking solutions, including management and pricing strategies.

f. Prepare the priority projects of this pipeline for construction by finalizing designs and cost estimates.
g. Execute prior projects in this pipeline, either through existing established design, procurement, construction, and supervision mechanisms, or enabled by a newly established independent project preparation and execution procedures and facilities.

The Consultant should review determinations with practitioners towards agreement on the Urban Mobility Process. Make clear recommendations (based on diagnosis, comparable peer comparison and best practices), provide options, then listen to feedback and modify determinations accordingly.

The individual steps of the procedures conducted in the development of urban mobility plans for Shimla as well as the specific urban transport infrastructure and services initiatives they recommended should be considered in designing this process by judging their applicability to be used in the smaller scale of intermediate cities.

The Consultant should directly address the applicability of the specific types of interventions recommended in these studies by elaborating on the appropriateness of their characteristics and timing in the setting of intermediate cities, documenting this analysis and presenting it to the Client as part of the Inception Report.

At the End of Task A, the Consultant will prepare the Inception Report (content is specified in Item 8of this ToR). This report will be submitted to the Client for review and comment.

Task B: Outline the institutional, human resource and financial requirements to develop and maintain a framework such that state and local authorities can jointly carry out the Urban Mobility Process designed in Task B in an effective and sustainable fashion.

Subtask B-1: Determine the most effective location for the creation of a unit to manage the Urban Mobility Process designed in Task A, likely to be within the Himachal Pradesh Public Works Department (HPPWD), and the best division of responsibilities between this new unit and the existing units of the HPPWD, Urban Development Department (UDD) and Department of Transport (DOT).

While this unit would be in-charge of the execution of the Urban Mobility Process, it would not necessarily conduct all activities directly. For example, the design and construction of road infrastructure, or the implementation of public transport regulations, might be best carried out by

existing units. However, the newly formed unit would be in-charge of the planning process, reviewing design work, and monitoring and evaluating the execution of works.

Subtask B-2: Specify the division of responsibilities between in-house public sector staff and outsourced services.

Subtask B-3: Design a training program to create the managerial and technical capacities among public personnel to fulfill the roles they are assigned within procedures outline for the planning, design and execution of non-motorized and public transport initiatives. Internationally followed training aids/modules/best practices shall be studied and suggested.

Subtask B-4: Determine the most effective application of outsourcing methods, examining the possibility of the execution of non-motorized and public transport initiatives by local capacity. If deemed feasible, design the Urban Mobility Process to build up this local capacity to make such contributions.

The Consultant should review determinations with practitioners towards agreement on the framework to implement the Urban Mobility Process. Make clear recommendations (based on diagnosis, comparable peer comparison and best practices), provide options, then listen to feedback and modify determinations accordingly.

At the End of Task B the Consultant will prepare the Interim Report (content is specified in Item 8 of this ToR). This report will be submitted to the Client for review and comment.

Task C: Guide the setting up of the institutional, human resource and financial framework outlined in Task B necessary to carry out the Urban Mobility Process designed in Task A.

The work of this task must be coordinated with the ongoing institutional strengthening/reorganization initiative, and be supported by the consulting experts brought in to do this overall work. Strengthening brought about by this other effort may come to create the capacities that can support the Urban Mobility Process. In such a case, efforts should not be duplicated.

The work of this task must benefit from the experience of the urban mobility studies recently carried out for Shimla CMP including those awarded recently by HPRIDCL in this HPSRTP II. Coordination has to be ensured without duplication in any follow-up activities resulting in optimal application of available institutional, human resource and financial frameworks. Such improvements may serve to provide to build capacities that can support and sustain the Urban Mobility Process. In such a case, efforts should not be duplicated.

Task D: Pilot intermediate cities urban transport solutions design- Facilitate the steps of an initial execution of the Urban Mobility Process designed in Task A to address the present and future urban mobility needs of 3 pilot intermediate cities.

Subtask D-1: Guide the selection of the specific pilot cities to be addressed.

Assess the growth potential of each of Himachal Pradesh's 3 intermediate cities, based on:

a) The historical experience of its largest city Shimla.

b) Specific possibilities to host increased economic activity from sectors such as agriculture, horticulture, tourism, industrial output, academic/universities and transport logistics.
c) Influence of the location relative to existing and future sites for increased economic activity.
d) Ability to become a pole for urban migration from surrounding and nearby rural areas.

Organize these cities into 3 categories based on the different scale of expected growth, or the contrasting nature of the economic and urban development expected in their settings. Categories may represent intermediate cities which are/have the potential to be: (i) tourism/ pilgrimage hubs, (ii) agricultural MSME clusters and/or specialized services providers, such as education, hospitals, etc. and (iii) business centers, including wholesale markets

Subtask D-2: Carry out the steps outlined in the Urban Mobility Process designed in Task A for each of the 3 pilot intermediate cities, namely Keylong, Mandi and Nalagarh-Una corridor:

a. Develop a **rough land use plan, pattern and population density factoring in the floating population**
b. Perform a **transport sector diagnostic**, delineating TAZ (Traffic Analysis Zones), existing transport systems & travel behavior, review energy & environment, SLBs (service level benchmarks) & corresponding indicators.
c. Develop a BAU (Business As Usual) scenario covering socio-economic projections; land use transition; transport demand analysis; technology transitions; CO2 emissions & Air quality; analysis against benchmarks.
d. Develop environmentally sustainable urban transport scenarios covering the parameters at 'c' above incorporating a **green transport infrastructure and services development strategy**
e. Prepare an **urban transport infrastructure improvement action plan**
f. Prepare an **urban transport services mobility action plan**
g. Prepare the **priority projects for implementing of this programme pipeline for construction by finalizing designs and cost estimates**

The following activities are critical to the success of this initial execution of the Urban Mobility Process, and therefore priority must be given to their timely and effective performance:

a) Conduct a training program to build the critical capacity of local officials such that they will be able to independently carry out the Urban Mobility Process themselves in the future.
b) Facilitate inclusive and equitable public participation during the preparation of a green transport infrastructure and services development strategies, as well as during the identification, evaluation and execution of the non-motorized and public transport initiatives which will form part of the project pipelines organize into urban transport infrastructure and services development plans.
c) Launch a campaign raising awareness among technical practitioners statewide, as well as local decision-makers, of the benefits of improving the urban mobility of intermediate cities in the context of their future growth (as prepared in Task F).
d) Directly aid, as necessary, in the implementation of the highest priority initiatives organized in the urban transport infrastructure and services action plan, whether it be accomplished through the

existing previously established procurement, construction and supervision mechanisms, or enabled by a newly established independent project execution procedures and facilities.

Process Requirements:

a) Sample Survey Forms
b) Stakeholder Consultation
c) List of NUIS Scheme Towns
d) Data Collection Approach – Methodology and Sources
e) Four-Step Modelling
f) Emission Factors for Vehicle Fleets under Alternative Scenarios
g) Preparing TORs for appointment of sub – Consultants on areas other than KPIs for preparing subsets to the multi modal transport plan
h) Sample Work Schedule for Preparation of multi modal transport plan
i) Sample Table of Contents of multi modal transport plan
j) Self-Appraisal Checklist to be filled by the consultant/client for INCEPTION REPORT formulation.
k) Indicative Checklist for Evaluating of multi modal transport plan
l) List of Maps to be Prepared
m) Example of cross- classification method.

The work of this task must benefit from the experience of the urban mobility studies recently carried out for Shimla as well as any follow-up activities. Indicative list is attached as Annexure-C

Task E: Incorporation of non-motorized and public transport elements in road infrastructure

Subtask E-1: Create design and planning standards to guide the incorporation of infrastructure and operational (traffic management) elements accommodating the necessary safety and capacity needs of non-motorized and public transport users, particularly persons with disabilities, into the expansion and construction of new urban road infrastructure.

The Consultant should review determinations with practitioners towards agreement on the design and planning standards. Make clear recommendations (based on diagnosis, comparable peer comparison and best practices), provide options, then listen to feedback and modify findings accordingly.

Subtask E-2: Create design and planning standards directly addressing the specific needs and concerns of persons with disabilities with respect to ensuring their access and safety.

Subtask E-3: Based on the design and planning standards developed in Subtask E-1, guide the initial execution a program to retrofit existing urban roads incorporating infrastructure and operational (traffic management) elements to make sure that non-motorized and public transport users can do so with sufficient capacity and safety, with special attention to ensuring access and safety for disabled persons.

Supporting this execution must be done while simultaneously carrying out a training program necessary to build the critical capacity of local officials to understand and incorporate new NMT and public transport design and planning standards. Internationally followed training aids/modules/best practices shall be adopted.

This initial execution could be coordinated with the initial execution of the Urban Mobility Process (initial implementation of the non-motorized and public transport project pipeline) described in Tasks A-D, or carried out separately.

Task F: Create a mechanism to develop better connection between urban development projects and policies and transport projects and policies in intermediate cities.

Subtask F-1: Examine scenarios of future land use patterns resulting from enacting a range of different transport sector policies and executing a range of different transport sector projects, including:

- A scenario that captures what future land use patterns in intermediate cities would be if the strictly follow the example of transport sector development exhibited historically by the state's capital city Shimla, which has resulted in widespread urban sprawl and congestion.
- A scenario what future land use patterns in intermediate cities would be if they deviated from this path, instead implementing a transport sector strategy guided by people-centered sustainable mobility principles, not solely accommodation of vehicles.

The difference in costs and benefits between each scenario should be documented, highlighting the challenges and opportunities involved in making each scenario happened, including:

- Decisions that could be unpopular with the owners of private vehicles.
- Substantial savings in the cost of providing urban services to residents organized in denser patterns of land use.

Subtask F-2: Based on key determinations of the examination of scenarios conducted in Subtask F-1, prepare a campaign (to be executed as part of Subtask D-2) raising awareness among technical practitioners statewide, as well as local decision-makers, of the benefits of wisely improving the urban mobility of intermediate cities (ideally in tandem with effective land use planning and controls) in the context of their future growth.

This awareness campaign should highlight the best advantage of the synergistic relationship between people centered sustainable urban mobility projects and policies and land use planning, incentives and controls aimed at supporting densification of urban development towards creating livable urban spaces and travel demand that can be most effectively served by the urban transport system.

Subtask F-3: Create a mechanism to develop better connection between urban development projects and policies and transport projects and policies in intermediate cities.

In creating this mechanism, the following should be considered:

- Taking best advantage of the synergistic relationship between people-centered sustainable urban mobility projects and policies and land use planning, incentives and controls aimed at supporting densification of urban development towards creating livable urban spaces and travel demand that can be most efficiently and equitably served by the urban transport infrastructure and services.
- Developing coordinated land use and transport strategies for intermediate cities.
- Incentivizing the performance of master plans (formalizing the development of land use plans taking place as part of the Urban Mobility Process designed in Task B) or the execution of land use incentives for efficient development or restrictions on sprawl activities by enabling access to

resources for transport sector infrastructure and service improvements in intermediate cities on the successful accomplishment of these advances.

*At the End of Task F the Consultant will prepare the **Final Strategy and Roadmap Report** (content is specified in Item8 of this ToR). This report will be submitted to the Client for review and comment.*

5. DURATION OF ASSIGNMENT

Twelve (12) months from the date of signing of contract by both the parties. Any extension will be mutually discussed and agreed.

6. FACILITIES AND SERVICES TO BE PROVIDED BY THE CLIENT

The Consultants shall verify the correctness of the data/information provided by the Client or other Govt. Agencies and satisfy them about the accuracy of data/information /material before these are used. Data/information /material provided to the consultants shall remain the property of the originating agency and shall be provided solely for the purpose of the work to be done under this contract. All such borrowed material shall be returned to the Client upon completion of the assignment.

The consultants shall arrange its own equipment (vehicles, survey equipment, office and computer equipment, telecommunication and document printing and reproduction systems) including office space and furniture required for operational purposes. The consultants shall make own arrangement for travel/stay for performing the assignment.

7. PROJECT IMPLEMENTATION TEAM AND REVIEW COMMITTEE

The Consultant will be contracted by and report directly to HPRIDCL as Client, represented by a HPDOT as nodal department. HPDOT will organize a panel representing transport sector stakeholders, most likely to the part of UMTA when formed. The HPDOT and the panel of stakeholders will be the Consultant´s main interlocutors.

Roles and Responsibilities of the Client:

The Client will provide consistent support in the complete implementation process. For ensuring an effective communication and smooth implementation, the client will constitute a dedicated multi stakeholder “Implementation Steering Committee” (ISC) that shall be responsible for providing all the necessary data/ inputs and other logistic support to the Consultant team. The Committee will regularly monitor the work undertaken by the Consultants and shall pursue all the matters related to obtaining necessary Government approvals. The Committee will also review all the reports submitted by the Consultant and give comments/ suggestions, if any. The ISC may also hold meetings with the Consultant as necessary to discuss reports submitted and review the progress, etc.

The members of the ISC shall include –

Principal Secretary (Transport) to the GoHP	Chairman
Director (Projects), HPRIDCL	Member Secretary
Director (Transport), Directorate of Transport	Member
Director, Deptt. of Tourism & Civil Aviation	Member
Director, Deptt. of Urban Development	Member

Director, Deptt. of Town & Country Planning	Member
Chief Scientific Officer, HPSPCB	Member
Any other special invitee as desired by the ISC	

A **review committee** consisting of following officers of the Client's Department will review all reports/ deliverables of consultant and suggest any modifications/changes considered necessary within 15 days of receipt.

1.	Director (Projects), HPRIDCL, Nirman Bhawan, Nigam Vihar, Shimla-171002	Chairman
2.	Executive Director-cum-Superintending Engineer (P&D), HPRIDCL, Nirman Bhawan, Nigam Vihar, Shimla-171002	Member
3.	General Manager (F&A)-cum-Joint Controller (F&A), HPRIDCL, Nirman Bhawan, Nigam Vihar, Shimla-171002	Member
4.	Environmental Specialist, HPRIDC (As Applicable)	Member
5.	Social Development Specialist, HPRIDC (As Applicable)	Member
6.	Representative of concerned department /agency (As applicable)	Member

Implementation Mechanism:

I. HPRIDCL has established the Project Implementation Unit (PIU) in Shimla, Head Quarter PIU is headed by a Director (Projects), who is an officer of the rank of the Chief Engineer. He is assisted full time by one Executive Director (Design)- cum- Superintending Engineer (Planning and Design) and two Executive Engineers (EEs), four Assistant Engineers (AEs), two Graduate Junior Engineers to look after planning/ overall coordination, procurement, technical/ designs, contract management/ structures/ utilities /environmental and social policy and standards.

II. HPRIDCL has also engaged a Project Management Consultant (PMC) to assist it in effective implementation and administration of the HPSRTP project, focusing on both, the quality and timely implementation of various project components. Both HPRIDCL and the PMC team shall oversee the tasks and deliverables submitted by the Consultant on-boarded for this assignment. The tasks envisaged for PMC team will remain the primary responsibility of the PMC agency itself. Also, this engagement is advisory in nature and does not include providing legal opinion/ support.

8. DELIVERABLES AND PAYMENT SCHEDULE

The Consultant will document their findings and recommendations in six reports that will be delivered to the Client at the time specified in Table X:

Inception Report is due at the conclusion of Task A. This report will present the design of an Urban Mobility Process focusing on intermediate sized cities to identify, evaluate and execute mobility initiatives centered on non-motorized and public transport, as agreed upon with the Client. It will contain the steps of the Urban Mobility Process, outline division of responsibilities, state requirements

for institutional coordination and public participation, and determine its budget. It will also discuss the applicability of the initiatives recommended in the urban mobility studies conducted in Shimla to setup of intermediate cities.

Interim Report is due at the conclusion of Task B. This report will present the institutional, human resource and financial requirements to develop and maintain a framework such that state and local authorities can jointly carry out the Urban Mobility Process designed in Task A in an effective and environmentally sustainable fashion, as agreed upon with the Client.

Final Report is due at the conclusion of the Consultancy, collecting together all written products and summarize all activities of the consultancy that were necessary to support the initial execution of the Urban Mobility Process during Task D, and setting up of the institutional, human resource and financial framework during Task C necessary to carry out this process. It will also collect all written products and summarize all activities of the consultancy necessary for

Tasks E-F. Finally, it will highlight any challenges confronted that affected the ultimate success of the effort, identifying the main underlying issues that caused these challenges.

The deliverables and payment schedule for the project include:-

Table X

S. No.	*Reports*	*No. of Copies*	*Timeline*	*Payment (% of Contract Price)*
1	Inception Report	3	T+45 Days	5
2	Draft Implementation Strategy including Financial Implication	3	T+3 Months	10
3	Corporate Governance Assessment	3	T+4 Months	10
4	Final Implementation Strategy including Financial Implication for stakeholder discussion, review and feedback	6	T+6 Months	20
5	Interim review of final Implementation Strategy	6	T+9 Months	20
6	Adoption of Strategic Master Plan	6	T+12 Months	35

(T: Commencement Date of the assignment)

Note:

(i) 50% payment will be released to the Consultant after submission and approval from Review committee.
(ii) 50% payment will be released after approval from the ISC.

A soft copy including database material (in PDF and Word /Excel /PPT/Dwg. format) shall be submitted with each of the above. Even the model developed should be submitted in PDF as well as in the software used for modelling.

The payment to the consultant will be made against satisfactory implementation of the program, deliverables and Milestone set out by Implementation Steering Committee against the DLI's performance and output observing the successful implementation.

The Program implementation milestones will be examined and verified by the Implementation Steering Committee. The payment to the Consultant will be made upon approval of the deliverables by the Implementation Steering Committee.

9. CONSULTANT FIRM AND TEAM QUALIFICATIONS

Qualifications of the Firm

The Consultancy will be performed by an established consulting firm with broad experience in the field of the planning, design and development of urban transport infrastructure and services, traffic control solutions, public transport services, and parking management, especially in the setting of medium-sized cities, as well as in the development of land use plans in this context. Because of the wide range of technical capacity required for the assignment, it is expected that firm may need to supplement their inhouse staff with outside short-term consultants. The firm itself must have demonstrable experience carrying out assignments in the following fields:

- Urban transport planning
- Non-motorized and e-Mobility transport project planning and design
- Public transport/ community and rural transport
- Integrated transport and land use (master plans, modeling)
- Highway engineering (design)
- Traffic engineering (signaling, geometrics, pavement markings)
- Transport sector institutional, human resource and financial framework development

Qualifications of Team Members

Proposed team members international-standard experience and should be familiar with Indian laws and engineering practices. Staff nominated by the firm must be confirmed as available to do the scheduled work according the schedule given in Table Y.

Total envisaged minimum man-month for key experts **is given in table below.** However, the consultants can make their own assessment of the manpower requirements in terms of man months for the different categories of personnel proposed to be deployed for the tasks as envisaged in this TOR.

TABLE - Y

Sl. No.	Experts	Qualification/ Experience	Man-month
(A)	**Key experts**		
(i)	Urban transport planner (Project Manager/Team Leader):	Master's degree in urban or transport planning, with experience of 15 years of which 5 years as team leader for advisory and consultancy services and/or at managerial level within federal or state public works or transport agency or private companies. Experience in projects involving a range of state governments within India and/or South Asia is a requirement.	8
(ii)	Non-motorized and eMobility transport planning and design expert:	Degree in planning or engineering, minimum of 10 years' experience of which at least 5 years have been in responsible charge of design of programs to improve non-motorized transport in Indian cities. Experience in the introduction of innovate transport solutions like electric vehicles, solar power battery run three-wheelers, electric buses, etc. is added advantage.	6
(iii)	Public transport/ community and rural transport specialist:	University degree in public administration, transport planning or related field. Minimum 10 years of experience developing programs for improvement of bus public transport that includes both urban and interurban system. Prior experience working with rural and small-scale municipal bus systems. Thorough knowledge of Indian public transport practices)	6
(iv)	Integrated transport and land use expert (master plans, modeling):	Degree in urban or regional planning or closely related field. Minimum of 10 years working in the field of surface transport planning. Extensive hands-on experience in operation of four step modeling including integrated transport and land use models.	6
(v)	Senior highway engineer (design, construction supervision):	Degree in civil engineering with minimum 15 years' experience in design of road infrastructure. Thorough knowledge of Indian best practices for road design and for accommodation of all types of non-motorized transport on public roads.	6
(vi)	Traffic engineer	Degree in traffic or transport engineering with	4

Sl. No.	Experts	Qualification/ Experience	Man-month
	(signaling, geometrics, pavement markings):	minimum 10 years' experience in development of traffic management programs for small and medium towns.	
(vii)	Transport Institutional Development Expert:	At least 15 years of experience in i) the operation and management of public agencies responsible for highway transport infrastructure and services; ii) Development and implementation of programs of institutional restructuring and strengthening, iii) knowledge of transport planning as practiced in India.	4
(viii)	Human Resources Expert:	Certified human resource professional with minimum 15 years in the design and implementation of HR programs in India covering both private sector and civil service, with extensive experience in development and administration of employee professional development and training programs.	4
(ix)	Financial Management Expert:	Degree in finance, business administration or accounting; minimum of 10 Years of experience, including corporate finance management and auditing in establishing the framework for economic evaluation used in the formulation of a long-term master transportation strategy and the identification of a phased investment programme.	4
(B)	**Non-key Experts**		
(i)	Project Associate -1	Bachelor's degree from a reputed and recognized university or institution with more than 2 years of experience	12
(ii)	Project Associate -2	Bachelor's degree from a reputed and recognized university or institution with more than 2 years of experience	12

The consultant's Key Experts are required to spend at least 60% of input time in Himachal Pradesh (Shimla) zonal office of HPPWD/ HPRIDCL / HPDOT. The consultants shall address this aspect in their proposed methodology submitted to the client.

All these experts (immediately above) must have requisite experience in their respective fields and preferably have worked on similar World Bank -aided project(s), desirably at State/sub-national level. The Consultant will establish their own office, accommodation and assets in Shimla for working in close coordination with the Client.

The mobilization and demobilization of key Consultant Experts whose requirement is intermittent will be resolved in consultation with PIU. All endeavors shall be made by the Consultant to account for reasonably accepted variation in project activity and to complete the assignment in the quoted man months. The Consultant shall accordingly decide the qualifications and deployment of the support staff. Only the CVs of the abovementioned key experts will be evaluated at the time of evaluation of technical proposal.

10. WORK PROGRAM

	CDP	Master plan	CTTS	CMP	Revised CMP
Review of existing transport system in different agro-climatic zones					
Transport demand survey					
Review of land use plan					
Analysis of urban transport situations					
Preparation of future land use scenario					
Future transport network scenario					
Future technological scenarios					
Transport demand forecast model					
Model impacts on all sections of society and modes					
Network evaluation					
Model CO_2 emissions and air pollutants					
Impact analysis of scenarios on measurable indicators					
Preparation of mobility framework					
Formulation of urban transport measures					
Social and environmental impact assessment					
Institutional scheme for project implementation					
Preparation of implementation programs					
Stakeholder consultation					
Periodical update and maintenance					

ANNEXURE A

KEY POINTS OF HP TRANSPORT POLICY OF DECEMBER 2014

The HP Transport Policy of Dec 2014 replaced the 2004 formulation that outlined and notified the sectoral needs and priorities. Among the main objectives that it aimed at achieving were: spread of transportation network in rural areas by introducing the concept of 60:40 (requirement of 60% rural areas in all new routes) in the grant of stage carriage permits, the introduction of environmental concerns in the entire transport operation (by introducing the requirement of four stroke engine auto rickshaws, allowing tax rebates on multi-axle vehicles and electrically-propelled vehicles) and introduction of IT in all the transport operations. By prioritizing these, the state had taken a lead nationally which even got acknowledgement in the design and implementation of 'Vahan' and 'Sarthi' citizen centric software now widely used in easing motor vehicles registration and licensing processes. These software now need up-gradation to incorporate latest needs to ensure full realization of taxes and fees thereby eliminating the possibility of audit paras; and introduction of the latest technological developments like e-payment of taxes and fees and smart card-based registration and licenses.

(i) Key challenges:

a) Catering to increased passenger mobility demand created by rapid urbanization and increase in incomes despite the purchase of 800 buses and ancillary infrastructure under JNNURM from the Government of India in 2013.

b) Incentivizing modernization and new innovation in technology and operations of Goods transport especially horticulture, farm, and industrial produce at competitive fares;

c) Building an enabling business environment supported by effective long- term policies to tap emerging Public Private Partnerships possibilities in developing transport infrastructure;

d) Tackling increased congestion, pollution, and road safety concerns due to rising vehicle density and passenger miles travelled;

e) Revisiting old and outdated rules, procedures, perverse tax laws, majorly unskilled human resources that need improvement to maximize return from capital and technology invested to accelerate new employment opportunities in HP.

(ii) Vision:

A prosperous Himachal Pradesh with Transport playing a key role in balanced regional development and harnessing the growth potentials of each and every sector of Himachal Pradesh's economy by improving the ability and efficiency of accessing and distributing goods, services, and productive capacity with employment opportunities created around the state.

(iii) Mission Statement:

It shall be the endeavor of the government to provide state of the art transportation facilities to the travelling public with high standards of comfort and safety. Its focus would be the equity considerations to provide luxury travel in public transport at affordable fares to the poor people of

the state while simultaneously achieving a modal shift from private to public transport. It will also promote quality goods transportation infrastructure at a reasonable cost with the ability to handle high value cargo in shortest time and at minimal externalities (congestion, pollution, and accidents). It can also facilitate the realization of benefits for the Himachal economy by way of integration into external trade and investment patterns.

(iv) Policy Objectives:

a) To provide connectivity to the remotest corner of the state enabling people to access services and facilities including markets for their farm produce. Special arrangements will be made to address the concerns of women, senior citizens, differently abled people, farmers and children. Last mile connectivity will be the special focus of mobility planning in urban areas;

b) Encourage most modern state of art goods transport vehicles entering the market for handling the farm and non-farm produce most efficiently and cost effectively for achieving export-oriented growth;

c) Mainstream Road safety concerns in the overall transport planning by bringing all the concerned departments on board. Efforts will be made to incorporate road safety in the educational curriculum at the appropriate levels;

d) Reduce environmental externalities of transport in Himachal Pradesh by developing suitable tax and non-tax incentives and disincentives that encourage environment friendly transport and discourage polluting and unsafe vehicles;

e) Alternate modes of transport like cable cars, trams and non-mechanized modes will be encouraged to achieve environmentally sustainable transport development overtime.

(v) Guiding Principles:

for achieving the above objectives, the following are the guiding principles in policy formulation in different segments:

a) Overall priority will be given to the public transport over the personalized modes of transport. Within the public transport, passenger transport to the remote and difficult areas to get a high priority notwithstanding the economic considerations. For doing so, suitable changes in the Act and Rules and tax laws to be made;

b) Since creation and maintenance of the transport infrastructure requires huge investment and at times specialized management skills also, Public Private Partnership (PPP) to be solicited in all fields to the extent poss*ible and advisable;*

c) A mix of command and control instruments (Act and Rules), economic instruments (taxes and fees), market instruments (creating and using markets), and moral education instruments (IEC) to be used to mend the behavior of individuals and firms to achieve the desired results. Action plans made here under to include leveraging of innovations in automobile technology, IT tools and management practices to ensure reduction in cost and the transport externalities;

d) All the existing Acts, Rules and procedures are to be reviewed to make them more relevant to

the present context;

e) Due importance is given to stakeholder consultation with a particular focus on women participation in all the planning and implementation process;

Implementation of the policy is to be supervised through a monitoring and evaluation process to achieve the results in a fixed timeframe.

ANNEXURE B

HP DEMOGRAPHICS AND SPATIAL AREAS

HP DEMOGRAPHICS

Himachal Pradesh has seen one of the highest population growths at 27%, between 2001-2011. It also recorded the highest GSDP among the eight north-east states, at US $4.59 billion in 2016-17. With growing economic activity, there is an increase in infrastructure and services demanded by residents, industry, and tourists.

Mountains are 2.5 times more vulnerable to adverse climate impacts. Building resilience in transport in this mountain State requires tools and approaches that identify, prioritize and dovetail climate and disaster risk adaptation systematically into investment planning and decision-making processes. Of late the State has recorded multiple instances of climate risks. Hence required tools and approaches can vary from upstream sectoral and spatial planning to post-disaster risk and recovery support; from infrastructure system solutions and support to building an enabling environment that contributes to reducing climate risks and increasing the resilience of transport systems. As most of these efforts are new and evolving to meet the increasing challenge of climate risk large gaps in knowledge and capacity remain which this multi modal mobility master plan seeks to plug by creating a GIS-enabled baseline integrated data as a planning, strategizing and implementation tool.

A comprehensive, long term Strategic Plan for Development of Smart Multimodal Transportation System - Smart Transportation System" for HP envisages raising dual awareness that transport is vulnerable to climate change and that it is critical to building the climate resilience of communities and service providers. Upgrading the following main elements is necessary for devising an efficient multimodal transport system:-

- Commercial practices,
- Administrative requirements,
- Transport infrastructure, and
- Legal and regulatory frameworks

Especially in fragile mountain terrains like Himachal Pradesh such a mobility plan should target optimizing land use of the scarce land available through transport options that explore:

a) Gaps in current infrastructure provisioning;
b) Highlight the possibility of vertical and horizontal multi modal mobility linkages/ intersections;
c) Focus on road network (arterials, collectors, and distributors etc.),
d) Parking facilities and mass rapid transit systems.
e) A master plan for the State should serve as a template for formulating CMPs (City Mobility Plans) customized to include appropriate transport modes in different agro climatic zones and terrain.
f) Such a CMP would review the future land use patterns in the master plan from a mobility optimization point of view and select a preferred need-based pattern of land use / transport integration that is a key ingredient for smart cities.

HP SPATIAL AREAS

HP has 55 Planning Areas and 35 SADAs notified under the TCP ACT. Urban mobility studies recently conducted in Shimla, the largest city of HP, while proposing critical aspects to improve transport sector performance in the capital city context is not directly applicable for the rest of the state as the other cities are significantly smaller and face different issues requiring customized solutions. There is an urgent need to systematically address the urban transport environment in the 5-6 intermediate cities of Himachal Pradesh ranging in population from 15,000 to 50,000 as smaller towns eventually grow to become medium-sized and then large.

While at present there is relatively little congestion to manage in the intermediate cities/towns of Himanchal Pradesh, there is a lot at stake with respect to the decisions that are made within the transport sector, as well as the urban development sector. Decisions governing transport infrastructure and services, as well as land use policies and practices, can be made that will prevent these cities from following the model followed by Shimla. This is a model presently leading towards sprawling development resulting in transport infrastructure and services that cannot be provided in a cost-efficient manner to effectively address transport demand.

ANNEXURE C

LIST OF STUDIES **(previous & ongoing)**, STATUTES, POLICIES, Court Orders pertaining to Transport **to help formulate CMP for Shimla city & Planning Area & HP multi modal transport master plan.** *The consultant (s) onboarded would be well advised to refer to the following documents/reports (this list is illustrative, not exhaustive).*

1. HP Transport policy of 2014.
2. HP Electric Vehicle Policy of 10 Jan 2022.
3. TCP's Development Plan, Shimla Planning Area, 2041.
4. Deloitte final report to HPSRTP II on the transformation of institutions needed as implementation prerequisite for WB assisted HPSRTP II roads project- as approved by GOHP for HPPWD on 5th Jan 2022 and for HPDOT on 22nd Sept 2022.
5. Deloitte report Page No. 81 –para 11.3refers to draft report on the "AS IS" Assessment & Gap Analysis of HRTC.
6. Comprehensive Mobility Plan, Shimla (3 reports) of July 2013 by UMTC.
7. Inland water Transport possibilities for HP (reservoir-Chamera, Pandhoh, Govind Sagar, Pong, Kol Dam.
8. 2022-23 HP Budget speech extracts- vision documents.
9. GATI Shakti Scheme of GOI.
10. WB's 'moving towards climate resilient Tpt -2015'-Jane Olga The WB's experience from building adaptation into programs-Nancy Vardylee.
11. L&T's March 2022 Shimla study and expanded scope of work beyond ongoing URIP in 8 district Headquarters of HP.
12. Smart city Shimla - tasks under the Smart City Project.
13. RTDC, HP Ltd commissioned WAPCOS study on "Ropeway mobility for urban decongestion of Shimla, Manali and Dharamsala cities'(ropeways planned for vertical mobility intersections). And final GOHP approval of RTDC project external funding in OCT 2022.
14. HP Logistics studies- Deloitte.
15. ICF Br High Commission- mobility plan to decarbonize Shimla with uptake of more EVs.
16. Table 1 on page 4 of CMP toolkit 2014.
17. The 9th meeting of the Implementation Committee pursuant to hon'ble NGT order of 16/11/2017 in OA # 121/ 2014- Mobility Plan for Shimla Town- Report by SP Shimla.
18. NGT exparte order of 12/05/2022 staying TCP's Development Plan, Shimla Planning Area, 2041. Case heard by NGT on 14/10/2022. GOHP appeal dt 3/11/2022 in OA 121/2014 against NGT order of 2017 pending in the Apex Court. CWPL 19/2016 Traffic & mobility orders.
19. Based on OA # 121/2014 filed by Yogender Mohan Sengupta the NGT order of 12/03/2015 and recommendation on carrying capacity of Shimla made by Sh. Shashi Shekhar Committee.

ANNEXURE D

Secondary Data Collection from various Stakeholder's agencies and departments along with their inputs (most of whom should be members on the HP -UMTA):

1. Directorate, Town and Country Planning Department, Government of Himachal Pradesh
2. Railway Authority
3. Airport Authority
4. Himachal Pradesh State Infrastructure and Industrial Development Corporation (HSIIDC)
5. Economics and Statistics Department
6. HP Infrastructure Development Board
7. HP Bus Stands Management & Development Authority
8. HP State Agriculture Marketing Board
9. Inland water tpt authority
10. RTDC (includes Railways).
11. Smart Cities Corporations, Shimla, Dharamshala
12. Director, Urban Affairs Department, Himachal Pradesh
13. Municipal Corporations of Shimla, Mandi, Solan, Dharamshala, Palampur.
14. AGISAC- Aryabhatta Geo Informatics Centre, HP.
15. Himachal Road Transport Corporation
16. Traffic police
17. Himachal Pradesh Public Works Department
18. HP State Transport Department
19. Officer in Charge, Special Area Development Authority
20. Tourism & Civil Aviation Department
21. Himachal Pradesh Pollution Control Board

ANNEXURE-E

No. CT-1-1/HPRIDC/2021- 6646
Directorate of Transport
Himachal Pradesh Shimla-4

To

Dr.Purnima Chauhan
GAAP IDAP expert, PMC
(drpurnimachauhan@gmail.com)

Dated: - Shimla-171004, 29.09.2022

Subject: - **Agro Climate Zone wise towns.**

Madam,

Please refer to your email dated 27.09.2022 on the above cited subject.

In this context, following Agro Climate Zone wise towns have been finalized to design State-wide Urban Mobility for Intermediate Cities in Himachal Pradesh Mater plan for 20 years-25 years:-

S.No.	Name of Town	Terrain
1.	Keylong	Hilly Terrain
2.	Mandi	Middle Hilly Terrain
3.	Nalagarh-Una corridor	Plain Terrain

You are, therefore, requested to take up this matter with World Bank Consultant so that he can prepare pilot templates of Transport Oriented Development (TOD).

Yours faithfully,

(Ghanshyam Chand, IAS)
Additional Commissioner Transport
Himachal Pradesh

LIST OF ABBREVIATIONS

1. CDP-City Development Plan
2. CMP-Comprehensive Mobility Plan
3. CMP-Comprehensive Mobility Plan
4. ECS-Equivalent Car Space
5. ECS-Equivalent Car Space
6. GATI Shakti- National Master Plan for Multi modal Connectivity.
7. GSDP- Gross State Domestic Product
8. HPDOT- HP Dept of transport
9. HPMVA- HP Motor Vehicle authority
10. HPRIDCL- HP Roads & Infrastructure Development Corporation
11. HPSRTP- HP State Road Transport Project
12. HRTC- Himachal road transport corporation
13. ICF- UK-
14. IPT-Intermediate Public Transport
15. IPT-Intermediate Public Transport
16. ISBT-Inter State Bus Terminal
17. ISBT-Inter State Bus Terminal
18. JnNURM-Jawaharlal Nehru National Urban Renewal Mission
19. JnNURM-Jawaharlal Nehru National Urban Renewal Mission
20. L&T- Larsen & Toubro
21. LCV-Light Commercial Vehicle
22. LCV-Light Commercial Vehicle
23. MAV-Multi Axle Vehicle
24. MAV-Multi Axle Vehicle
25. MCRTS-Medium Capacity Rapid Transit System
26. MCRTS-Medium Capacity Rapid Transit System
27. MoUD-Ministry of Urban Development, Government of India
28. MoUD-Ministry of Urban Development, Government of India
29. NGT- National Green Tribunal
30. NMT-Non-Motorized Transport
31. NMT-Non-Motorized Transport
32. NUTP-National Urban Transport Policy
33. NUTP-National Urban Transport Policy
34. PCU-Passenger Car Unit
35. PCU-Passenger Car Unit
36. RTDC- Ropeways Transport Development Corporation
37. SADA- Special Area Development Authority- HP
38. SMC-Shimla Municipal Corporation
39. SMC-Shimla Municipal Corporation
40. SPA-Shimla Planning Area
41. SPA-Shimla Planning Area

42. TAZ-Traffic Analysis Zone
43. TAZ-Traffic Analysis Zone
44. TCP- Town & country Planning Dept
45. TOD-Transit Oriented Development
46. TOD-Transit Oriented Development
47. TSM-Transport System Management
48. TSM-Transport System Management
49. UDPFI-Urban Development Plans Formulation and Implementation Guidelines
50. UDPFI-Urban Development Plans Formulation and Implementation Guidelines
51. UMTA- Urban Mobility Technical Assistance
52. UMTC- Urban Mass Transit Company Ltd
53. V/C Ratio-Volume/Capacity Ratio
54. V/C Ratio-Volume/Capacity Ratio
55. WAPCOS- water & power Consultancy

MAPS & TABLES

Table: Developed Area Density for different size of cities/towns as per URDPFI Guidelines

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