Initial Environmental Examination

Project Number: 40648-034
August 2015

IND: Infrastructure Development Investment Program for Tourism - Tranche 3

Submitted by

Project Management Unit, Tourism Development Board, Shimla

Asian Development Bank

09/07 BRB/VV/GM.

Tourism Development Board
IDIPT-HP (ADB Loan No.2676-IND)
Project Management Unit
US Club, Shimla-171001 (H.P.)
Tel. : 0177-2659926, 2659962
Fax : 0177-2659925
E-mail : projectdirector.adbhp@gmail.com

HIMACHAL TOURISM
Unforgettable Himachal

Department of Tourism & Civil Aviation
SDA Complex, Block No. 28,
Kasumpti, Shimla-171 009, HP, India.
Tele.: +91-177-2623959, Fax : +91-177-2625456
E-mail : tourismmin-hp@nic.in
Website : www : himachaltourism.gov.in

No. IDIPT-HP/3223-IND/IEE/2015-1254 **Dated: 06.07.2015.**

Project Director

To

The Country Director,
India Resident Mission,
Asian Development Bank,
4 San Martin Marg, Chanakayapuri,
New Delhi-110021 (India).
(Fax No. 011-26870955)
Tel.: +91-11-24107200

ASIAN DEVELOPMENT BANK
INRM
COUNTRY DIRECTOR'S OFFICE
08 JUL 2015
8142
RECEIVED

Kind Attn: Mr. Leonardus Boenawan Sondjaja (ADB).

Subject: **Submission of Revised IEE for Restoration of Shimla Mall Road Extension & Jwalaji under Tranche-3.**

Ref No.: **(i) IDIPT-HP/2676/Tranche-3/2014-2905 dated 26.09.2014.**
(ii) IDIPT-HP/ 2676- IND/ IEE- Tranche 3/2014-3744 dated 05.12.2014

Madam,

This is with reference to the above referred letters vide which the Initial Environmental Examination (IEE) for Restoration of Shimla Mall Road Extension (package No. HPTDB/16/2) and Upgrading the Historic Urban Precincts and creating a Heritage Circuit, Jwalaji Town Kangra (Package No. HPTDB/13/1) as per SAR & DPR was submitted to your office.

Now, please find enclosed the revised IEE for the said projects as per the revised DPR for your approval please.

Yours Sincerely,

Project Director,
IDIPT-H.P.

Encl: As Above.

ASIAN DEVELOPMENT BANK
INRM
09 JUL 2015
RECEIVED

Initial Environmental Examination

Project Number: 40648

June, 2015

IND: Infrastructure Development Investment Program for Tourism (Tranche 3) State of Himachal Pradesh– Restoration of Shimla Mall Road Extension, Shimla (Package No. HPTDB/16/2)

Prepared by the Himachal Pradesh Tourism Development Board for the Asian Development Bank

CURRENCY EQUIVALENTS
(as of 7 October 2014)

Currency unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	$0.0163
$1.00	=	Rs 61.326

ABBREVIATIONS

ADB	–	Asian Development Bank
BPL	–	Below Poverty Line
DSC	–	Design & Supervision Consultants
EA	–	Executing Agency
EAC	–	Expert Appraisal Committee
EARF	–	Environmental Assessment Review Framework
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
GoI	–	Government of India
GoHP	–	Government of Himachal Pradesh
HPPCB	–	Himachal Pradesh Pollution Control Board
IDIPT	–	Infrastructure Development Investment Program for Tourism
IEE	–	Initial environmental examination
MC	–	Municipal Corporation
MLD	–	Million Litres per day
MOEF	–	Ministry of Environment and Forests
MSL	–	Mean Sea Level
NGO	–	Non-Governmental Organization
O&M	–	Operations & Management
PFR	–	Periodic Financing Request
PIU	–	Project Implementation Unit
PM	–	Particulate Matter
PMC	–	Project Management Consultants
PMU	–	Project Management Unit
REA	–	Rapid Environmental Assessment
SEAC	–	State Expert Appraisal Committee
SPM	–	Suspended Particulate Matter
SPS	–	Safeguards Policy Statement
TCP	–	Town & Country Planning
TDS	–	Total Dissolved Solids
TSS	–	Total Suspended Solids

NOTES

In this report, "$" refers to US dollars.

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENT

List of Annexures

EXECTUVE SUMMARY

1. **Background.** The Infrastructure Development Investment Program for Tourism Financing Facility (the Facility) will develop and improve basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth. It will focus on: (i) strengthening connectivity to and among key tourist destinations; (ii) improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement, at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors, and protect nature and culture-based attractions. Physical infrastructure investments will be accompanied by: (iii) capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively.

2. Shimla has been primarily a tourist destination, since its discovery in 1819 and is today the most preferred tourist destinations in Himachal Pradesh especially during the summer months. The former summer capital of the British in India, and the present capital of Himachal Pradesh; Shimla has been blessed with immense natural bounties, it has got a scenic location, as it is surrounded by green hills with snow-capped peaks. Apart from the main market area, Shimla historic town is connected via major roads and streets which are not only the main circulation routes but also the best scenic walks of the city. These roads have either restricted vehicular movement or completely pedestrian movement which makes them witness a lot of tourist.

3. **Executing and implementing agencies.** The executing agency is the Dept. of Tourism and Civil Aviation, HP. Project Management Unit (PMU) is set up at Shimla to coordinate the overall execution. Project Management Consultant (PMC) at Shimla provides assistance to PMU in execution. The implementing agency is Project Implementation Unit (PIU), to be supported by Design Supervision Consultant (DSC). The asset owner is the Municipal Corporation of Shimla.

4. **Categorization.** Shimla town subproject Package HPTDB/16/2 is classified as Environmental Category B as per the SPS as no significant impacts are envisioned. Accordingly this Initial Environmental Examination (IEE) has been prepared and assesses the environmental impacts and provides mitigation and monitoring measures to ensure no significant impacts as a result of the subproject.

5. **Subproject Scope.** The major scope of this subproject as per Detail Project Report Package No. HPTDB/16/2 are:

    - Upgrading the tourist core of the city, Twelve of the main roads have been selected, viz., CTO to Advanced Studies, High Court to Mall Road, Oakover to Bede's Chowk, Kalibari to Scandal Point, Scandal Point to Ritz, Ritz to Sanjauli, Chalet Day School to Chhota Shimla, Ritz to Chalet Day School via U.S. Club, Ramchandra Chowk to U.S. Club, Peterhoff Road, Benmore to Raj Bhawan and Mall Road to Bentony.
    - Creating plaza space near Telegraph office, Advanced studies and Ambedkar Chowk.
    - The project also includes the proposals for façade restoration of the focus stretch of Mall Road (1.8 km), which is being undertaken under (Tranche 1). The façade improvement includes Restoration of the Mall Road Shop fronts/ Facades of the buildings, Repair of the facades of the buildings as per the Heritage Regulations and Additional restoration proposals that follow the inherent architectural character of each building and also aims at providing homogeneity along the entire focus stretch.

- Other components are creating visual friendly environment through development of streetscape, improvement of retaining wall, landscaping and street furniture conforming to heritage character of the site, Developing public amenities and facilities. , Improvement of the site signage - The signages installed at site would conform to heritage character of the area, Street-side drainage improvement and enhancing parks and gathering spaces through landscaping design interventions, Making parks more accessible to public &develop for recreational activities, Improvements of railing, street lights (for the safety of women and children in the nights), seating and children activities.

6. **Description of the Environment.** Subproject components are located in urban areas of Shimla town. Shimla features a subtropical highland climate under the Köppen climate classification. The climate in Shimla is predominantly cool during winters and moderately warm during summer. Temperatures typically range from −4 °C (25 °F) to 31 °C (88 °F) over the course of a year. The average temperature during summer is between 19 °C (66 °F) and 28 °C (82 °F), and between −1 °C (30 °F) and 10 °C (50 °F) in winter and there is no natural habitat left at these sites. The subproject components will be located in government-owned sites. There are no protected areas, wetlands, mangroves, or estuaries in or near the subproject locations.

7. **Environmental Management.** An environmental management plan (EMP) is included as part of this IEE, which includes (i) mitigation measures for environmental impacts during implementation; (ii) an environmental monitoring program, and the responsible entities for mitigating, monitoring, and reporting; (iii) public consultation and information disclosure; and (iv) grievance redress mechanism. A number of impacts and their significance have already been reduced by amending the designs. The EMP will be included in civil work bidding and contract documents.

8. Locations and siting of the proposed infrastructures were considered to further reduce impacts. The concepts considered in design of the subproject are (i) design, material and scale will be compatible to the local architectural, physical, cultural and landscaping elements; (ii) preference will be given to the use of local material and labour as best as possible; (iii) for conservation, local construction material available in the nearby region as best as possible suiting to those in existence; (iv) all painting (interior and exterior) will be with environment-friendly low volatile organic compounds paints; (v) for retaining wall repair works, random rubble masonry will be used, with locally available stone to be laid in cement mortar by local skilled labour; (vi) earth backfill, if any will be done from the site excavated material; and (vii) ensuring all planning and design interventions and decisions are made in consultation with local communities and reflecting inputs from public consultation and disclosure for site selection.

9. During the construction phase, impacts mainly arise from the need to dispose of moderate quantities of waste soil. These are common impacts of construction in urban areas, and there are well developed methods for their mitigation. Measures such as conducting work in lean season and minimizing inconvenience by best construction methods will be employed. In the operational phase, all facilities and infrastructure will operate with routine maintenance, which should not affect the environment. Facilities will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.

10. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Mitigation will be assured by a program of environmental monitoring to be conducted during construction. The environmental monitoring program will ensure that all measures are implemented, and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. Any requirements for corrective action will be reported to the ADB.

11. The stakeholders were involved in developing the IEE through discussions on-site and public consultation, after which views expressed were incorporated into the IEE and in the planning and development of the subproject. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB and Himachal Pradesh Department of Tourism websites. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation.

12. The tourists, business people and citizens of Shimla town area will be the major beneficiaries of the project. The most noticeable net environmental benefits to the tourists and population of the town will be positive and large as the proposed subproject will improve access to reliable and adequate tourism facilities and propagate the local traditions and Cultural Heritage of the state. This subproject will also provide a common platform for local traditions and values, provide and improve business opportunities for local communities, linked to the cultural and natural heritage tourism.

13. **Consultation, Disclosure and Grievance Redress.** Public consultations were done in the preparation of the project and IEE. On-going consultations will occur throughout the project implementation period. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

14. **Monitoring and Reporting.** The PMU, PIU, PMC and DSC will be responsible for environmental monitoring. The PIU with support from the DSC will submit monthly, quarterly and semi-annual monitoring reports to the PMU. The PMU will consolidate the semi-annual reports in assistance of PMC and will send it to ADB. ADB will post the environmental monitoring reports on its website.

15. **Conclusions and Recommendations.** Therefore the proposed subproject is unlikely to cause significant adverse impacts. The potential impacts that are associated with design, construction and operation can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures. Based on the findings of the IEE, there are no significant impacts and the classification of the subproject as Category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS, 2009 or Government of India EIA Notification, 2006.

I. INTRODUCTION

1. Infrastructure Development Investment Program for Tourism (IDIPT) will develop and improve basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth.[1] It will focus on: (i) strengthening connectivity to and among key tourist destinations; (ii) improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement, at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors, and protect nature and culture-based attractions. Physical infrastructure investments will be accompanied by: (iii) capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively..

2. Himachal Pradesh proposed 15 subprojects under Tranche 3. Mall Road subproject Package HPTDB/16/2 is one of the subprojects to support tourist clusters inclusive of management-plan/master-plan based investments (IDIPT Output 1) and support improvement of basic tourist facilities and amenities in tourist attractions by constructing toilets, drinking water facilities, solid waste management, drainage, parking, street lighting, street furniture, and signage (IDIPT Output 3). The proposed project area is situated near Mall Road in the heart of Shimla. The coordinates of the site are 310 06' 15.8" N & 770 10' 33.2" E and 310 06' 20" N & 770 10' 95" E respectively. The project will enhance facilities and improve the cultural value and facilitate the residents and tourists alike.

3. **Executing and implementing agencies.** The executing agency is the Department of Tourism, Government of Himachal Pradesh. The implementing agency is Himachal Pradesh Tourism Development Board. Project Management Unit (PMU) is set up at Shimla to coordinate the overall execution. Project Management Consultant (PMC) at Shimla provides assistance to PMU in execution. Three Project Implementation Unit (PIUs) are set up in Shimla, Kangra and Kullu (under process) being supported by respective Design Supervision Consultant (DSC) teams. The asset owner is Municipal Corporation of Shimla. A team of technical, administrative and financial officials, including safeguards specialists, is being provided at the PMU to implement, manage and monitor project implementation activities. The PIUs are staffed by qualified and experienced officers and responsible for the day-to-day activities of subproject implementation in the field, and will be under the direct administrative control of the PMU. Consultant teams are responsible for subproject planning and management and assuring technical quality of design and construction; and designing the infrastructure and supervising construction; and safeguards preparation.

4. **Proposed subproject.** The major scope of this subproject as per Detail Project Report Package No. HPTDB/16/2 are:

- Upgrading the tourist core of the city, Twelve of the main roads have been selected, viz., CTO to Advanced Studies, High Court to Mall Road, Oakover to Bede's Chowk, Kalibari to Scandal Point, Scandal Point to Ritz, Ritz to Sanjauli, Chalet Day School to Chhota Shimla, Ritz to Chalet Day School via U.S. Club, Ramchandra Chowk to U.S. Club, Peterhoff Road, Benmore to Raj Bhawan and Mall Road to Bentony.

[1] The five outputs of IDIPT are: **Output 1:** Enhanced quality of natural and cultural attractions; **Output 2:** Greater participation by local communities in tourism-related economic and livelihood activities; **Output 3:** Improved basic urban infrastructure and incidental services at tourist destinations and gateways; **Output 4:** Improved connectivity to tourist attractions; and **Output 5:** Strengthened capacity of sector agencies and local communities for planning, development, management and marketing of tourist destinations and attractions and promoting private sector participation and small businesses.

- Creating plaza space near Telegraph office, Advanced studies and Ambedkar Chowk.
- The project also includes the proposals for façade restoration of the focus stretch of Mall Road (1.8 km), which is being undertaken under (Tranche 1). The façade improvement includes Restoration of the Mall Road Shop fronts/ Facades of the buildings, Repair of the facades of the buildings as per the Heritage Regulations and Additional restoration proposals that follow the inherent architectural character of each building and also aims at providing homogeneity along the entire focus stretch.
- Other components are creating visual friendly environment through development of streetscape, improvement of retaining wall, landscaping and street furniture conforming to heritage character of the site, Developing public amenities and facilities. Improvement of the site signage - The signages installed at site would conform to heritage character of the area, Street-side drainage improvement and enhancing parks and gathering spaces through landscaping design interventions, Making parks more accessible to public &develop for recreational activities, Improvements of railing, street lights (for the safety of women and children in the nights), seating and children activities.

4. **Categorization.** An environmental assessment using ADB's Rapid Environmental Assessment (REA) checklist for urban development (**Annexure 1**) was conducted. Results of the assessment as per subproject appraisal report (SAR-6) and preliminary design show Package No. HPTDB/16/2 is unlikely to cause significant adverse impacts. Thus it is classified as Environmental Category B as per ADB SPS as no significant impacts ,are envisioned.

5. **Purpose of the IEE.** This report gives an account of the initial environmental examination (IEE) of subproject Package No. HPTDB/16/2 as per DPR. It has been prepared in accordance with ADB SPS's requirements for environment Category B projects and provides measures to (i) ensure the environmental sustainability of subproject Package No. HPTDB/16/2; (ii) integrate environmental considerations into the project preparation process; and (iii) provide for environmental management during project implementation.

II. DESCRIPTION OF THE SUBPROJECT

A. Location, Existing Condition and Need of the Subproject

6. **Location.** The proposed project area is situated near Mall Road in the heart of Shimla. The coordinates of the site are 310 06' 15.8" N & 770 10' 33.2" E and 310 06' 20" N & 770 10' 95" E respectively. The project will enhance facilities and improve the cultural value and facilitate the residents and tourists alike. The **Figure 1** below depicts index map of the project location.

7. **Existing Conditions and Need of the Subproject.** All the roads under consideration have been witnessing repairs, addition and various infrastructural changes through time. As a result a sort of patchwork has rendered the areas un-aesthetic and haphazard in terms of visual perception. The whole area needs homogenization so that a visual harmony is brought about. The road junctions of all these areas need proper planning interventions as presently there is a lot of confusion in terms of pedestrian and vehicular movement. Apart from the functional & aesthetic reasons, improvement of the public facilities is a major component of the project in order to provide amenities for the pedestrians. Photos of existing conditions of proposed roads are attached as **Annexure 2**.

B. Proposed Subproject

5. The major scope of this subproject as per Detailed Project Report (DPR) - Package No. HPTDB/16/2 are:

S. No.	Description of Features*
1.	Improvement of Paving etc at Mall Road at selected locations/ Metalling / tarring of Mall Road extended stretches (13.515 Km Twelve Stretches)
2.	Streetscaping work at Mall Road with provision of Street Furniture, Waste Disposal, Signages etc.
3.	Provision of Railing along the Mall conforming to heritage character of the area in consistent design typologies
4.	Provision of New Rain Shelters & Improvement of existing Rain Shelters
5.	Improvements of storm water road side drains with steel M.S. framed gratings.
6.	Cast iron lamp post conforming to heritage character with provision for signage
7.	Improvements of Chowks
8.	Illumination of trees
9.	Improvements to Retaining wall at selected sections
10.	Provision of Dustbins
11.	Provision of new separate toilets
12.	Provision of Drinking Water Spouts
13.	Development of Telegram Office Plaza
14.	Sculpture murals.
15.	Façade work
16.	Renovation / Restoration of Labour Hostel near Shimla Club

* By default here, No.1, 2, 4, 14, 15 item would be barrier-free friendly compliant for access and built-provision of service facility wherever possible. Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons, Central Public Works Department, Ministry of Urban Affairs & Employment, GoI, 1998 referred.

8. The lengths of the roads under consideration are as follows:

- CTO to Advanced Studies – 2.445 km
- High Court to Mall Road – 0.06 km
- Oakover to Bede's Chowk – 2.745 km
- Kalibari to Scandal Point – 0.585 km
- Scandal Point to Ritz – 0.30 km
- Ritz to Sanjauli – 2.515 km
- Chalet Day School to Chhota Shimla – 1.35 km
- Ritz to Chalet Day School via U.S. Club – 1.17 km
- Ram Chandra Chowk to U.S. Club – 1.905 km
- Peterhoff Road – 0.246 Km

- Benmore to Raj Bhawan – 0.123 Km
- Mall Road to Bentony 0.072 Km

9. All sites for subproject (Package No. HPTDB/16/2) are owned by Government (Municipal Corporation of Shimla) thus no land acquisition is required. The sites are located in Shimla urban area which was converted into urban use for many years ago, and there is no natural habitat left at these sites. The sites are not within or adjacent to any protected area.

10. The design, material and scale will be compatible to the local architectural, physical, cultural and landscaping elements. Preference will also be given to the use of local material and labour as best as possible. For the conservation, local construction material available in the nearby region as best as possible suiting to those in existence. All painting (interior and exterior) will be with environment-friendly low volatile organic compound paints.

11. For retaining wall repair works, masonry will be used, with locally available stone to be laid in cement mortar by local skilled labour. The earth backfill, if any will be done from the site excavated material. Stone aggregate and sand are available within 60 km radius from sites. Also formwork and skilled labour is locally available. For brick wall construction, bricks are also available within 100 km radius from the proposed site/region.

12. Water supply during construction will be provided by Municipal Corporation Shimla or HP Irrigation and Public Health (IPH) Department from their existing system or will be transported through mobile water tankers, if required. Solid waste generated at sites will be disposed at designated areas.

C. Project Cost and Implementation Schedule

13. Detailed estimated cost of the proposed project is approximately Rs. 3069.36 lacs

14. Detailed design of the subproject has been done by the Design and Supervision Consultant (DSC) team and it is estimated that construction period will cover 24 months.

Figure 1: Index Map of Shimla showing the proposed Subproject site (HPTDB/16/2)

III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. ADB Policy

15. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, and loans involving financial intermediaries, and private sector loans.

16. **Screening and Categorization.** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impact and are assigned to one of the following four categories:

- **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all Projects will result in insignificant impacts.

17. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment is prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

18. **Public Disclosure.** The IEE has been put in an accessible place (e.g., local government offices, libraries, community cum tourist reception centers, etc.) has been displaced and shared with the concerned stakeholders. The following safeguard documents will be put up in ADB,s website so that the affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

- For environmental category A projects, a draft EIA report at least 120 days before Board consideration;
- Final or updated EIA and/or IEE upon receipt; and
- Environmental monitoring reports submitted by the Project Management Unit (PMU) during project implementation upon receipt.

B. National and State Laws

19. Implementation of the subproject will be governed by the national and State of Himachal Pradesh environmental acts, rules, regulations, and standards. These regulations impose restrictions on activities to minimize/mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national, state or municipal/local.

Compliance is required in all stages of the subproject including design, construction, and operation and maintenance.

20. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in **Table 1**. The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment and Forests (MoEF, GoI) specifies the mandatory environmental clearance requirements. Accordingly, projects and activities are broadly categorized in two categories[2] - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and; natural and man-made resources.

Table 1: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
Restoration of Shimla Mall Road Extension	The Environment Protection Act, 1986 - under EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impacts.	The sub-project is not covered in the ambit of the EIA notification as they are not covered either under Category A or Category B of the notification. Hence, the categorization, subsequent environmental assessment and clearance requirements either from the State Government or the GoI is not triggered.
	ADB's Safeguard Policy Statement 2009	Categorization of sub-project components into A, B or C and developing required level of environmental assessment for each component. Categorized as B and IEE prepared
	The Wildlife Conservation Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	The proposed sites are 10 km away from the boundary of Shimla Water Catchment Wildlife Sanctuary. But due to the proposed works there will not be any impact to the sanctuary as this is only a restoration project of the existing roads of the town.
	The Forest Conservation Act, 1980 and its subsequent amendments necessitate obtaining clearance from the MoEF for diversion of forest land for non-forest purposes.	The project does not evolve any land diversion or tree cutting therefore, no clearance required. However, the whole town and its surroundings are interspersed with designated protected or reserved forests which have an associated eco-system value that plays

[2]All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfil the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In addition, General Condition (GC) of the notification specifies that any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries.

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
		a vital role in lending Shimla its unique natural heritage NOC from state forest department shall be obtained.
	Water (Prevention and control of pollution) Act, 1974 and; Air (prevention and control of pollution) Act, 1981	Consent for Establishment (CFE) & Consent for Operation (CFO) from the HP PCB for setting up of diesel generators (if any), hot mix plant, wet mix plant, crusher plant (if exclusively for this project) to be obtained by the Contractor, prior to commencement of construction works at site. If contractor purchases the construction materials (eg. Sand, gravel) from third party, he must ensure that materials are coming from approved quarry sites.
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments. The Himachal Pradesh Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1976;	Regulated heritage area under MC, Shimla Notification dated 22 Aug. 2002 and as per Zoning Regulations of TCP notification No. TCP-F(5)-5/2010, dated 28.2.2011 implemented by MC Shimla require NOC.
	Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005; Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Rules, 2006;	At the site or nearby, no ground water shall be used while construction, therefore, not applicable.
	Himachal Pradesh Policy on Ecotourism;	Shall be adopted.
	Himachal Pradesh Participatory Forest Management Regulations, 2001;	NOC from state forest department shall be obtained whenever required.
	The Himachal Pradesh non-biodegradable garbage (control) Act, 1995;	Shall be adopted.
	The Himachal Pradesh Town and Country Planning Act, 1977;	Will be followed
	The Shimla Road users and Pedestrians (Public Safety and Convenience) act, 2007;	Shall be adopted.

21. The proposed subproject does not require statutory clearances from MoEF. All no objection certificates, CFEs and other clearances will be obtained prior to award of contract.

IV. DESCRIPTION OF THE ENVIRONMENT

A. Physical Environment

22. **Climate.** Shimla features a subtropical highland climate under the Köppen climate classification. The climate in Shimla is predominantly cool during winters and moderately warm during summer. Temperatures typically range from −4 °C (25 °F) to 31 °C (88 °F) over the course of a year. The average temperature during summer is between 19 °C (66 °F) and 28 °C (82 °F), and between −1 °C (30 °F) and 10 °C (50 °F) in winter. Monthly precipitation varies between 15 millimetres (0.59 in) in November to 434 millimetres (17.1 in) in August. It is typically around 45 millimetres (1.8 in) per month during winter and spring and around 175 mm (6.9 inch) in June as the monsoon approaches. The average total annual precipitation is 1,575 millimetres (62 in), which is much less than most other hill stations but still much heavier than on the plains. Snowfall in the region, which historically has taken place in the month of December, has lately (over the last fifteen years) been happening in January or early February every year. The maximum snowfall received in recent times was 38.6 cm in January 2013.

23. **Geology and Soil.** The geological formation in the area is categorized into Pre-Cambrian system, Late Pre-Cambrian systems, Silurain and carboniferous systems. Pre-Cambrian system consists of schists, gneiss, grains and quartzite. Late Pre-Cambrian Himanta system is marked by phylities, quartzites, contomerates, shales and states.

24. In Shimla district, the soil is generally shallow in depth except in areas having vegetation cover. The soils are acidic in nature with the organic content ranging from medium to high.

25. **Land Use.** Of the total area of 9950 hectares of Shimla, 15% of the area is under urban use. 21.85% in agriculture, 61.12% covered by forests, 2.20% comprises of water-bodies and undeveloped land. The existing land use of urban area shows 61.19% residential use, 1.71% commercial, 0.62% industrial, 1.47% tourism, 9.4% for public and semi-public use, 0.41% for parks and opens spaces, and 3.75% for traffic and transportation.

26. **Water bodies.** Shimla is highly dissected by a number of seasonal tributaries joining the consequent streams. Shimla being a hill city, natural drains carries the water to valleys into Khads, which are used as source of water supply. Sutlej River about 21 km away is the nearest river system. There are no major surface water bodies both natural and artificial within Shimla Planning Area.

27. **Ambient Air and Noise Quality.** Air quality is being monitored in two stations at Tekka Bench on Ridge and ISBT (Bus stand). The range of monthly average values of SO_2, NO_x and RSPM monitored from April 2012 to March 2013 are found to be mostly within the maximum permissible limits. The RSPM, however, observed in June 2012 was more than permissible limits. The air quality of Shimla is shown in table 2 below:

Table -2 :Ambient Air Quality of Shimla

Month	Station: Tekka Bench (Residential) Monthly Average			Station: Bus stand (Residential) Monthly Average		
	SO_2 in µg/ m^3	NO_X in µg/ m^3	RSPM in µg/ m^3	SO_2 in µg/ m^3	NO_X in µg/ m^3	RSPM in µg/ m^3
April 2012	2.0	9.1	55.2	2.0	16.0	61.5
May 2012	2.0	10.1	71.9	2.0	19.6	81.7
June 2012	2.0	6.2	86.1	2.0	8.8	122.2
July 2012	2.0	12.0	50.1	2.0	10.6	68.9
August 2012	2.0	9.1	31.5	2.0	11.1	33.0

Month	Station: Tekka Bench (Residential) Monthly Average			Station: Bus stand (Residential) Monthly Average		
	SO_2 in µg/ m^3	NO_X in µg/ m^3	RSPM in µg/ m^3	SO_2 in µg/ m^3	NO_X in µg/ m^3	RSPM in µg/ m^3
September 2012	2.0	8.9	24.1	2.0	12.8	30.9
October 2012	2.0	10.6	38.2	2.0	11.3	40.4
November 2012	2.0	8.4	43.8	2.0	12.8	54.8
December 2012	2.0	10.7	41.3	2.0	11.3	47.9
January 2013	2.0	9.4	41.6	2.0	12.4	57.0
February 2013	2.0	8.5	40.3	2.0	12.2	45.4
March 2013	2.0	9.2	44.6	2.0	12.6	48.0
Standard	**80.0**	**80.0**	**100.0**	**80.0**	**80.0**	**100.0**

Source: Himachal Pradesh Pollution Control Board (2014)

28. The main source of air pollution and increased noise in Shimla are vehicles as Shimla is having a large number of vehicles and increased vehicle movement as it is located along national highways. Ambient air quality and noise levels in the subproject Package No. HPTDB/16/2 site, are expected to be within Himachal Pradesh State Pollution Control Board standard. Air and noise quality monitoring will be doneat proposed site before construction and during implementation periods as per EMP.

29. Ambient noise level was monitored at Ridge in Shimla town during October 2010, shows 53.8, 62.9 and 56.3 dB (A) respectively in day time, which was within the limit of 65 dB(A) prescribed for day time (6.00AM to 10.00PM) for commercial area. The ambient noise level at night observed as 46.2, 55.9 and 44.2 dB(A) which exceeded the prescribed limit of 55 dB(A) for night hours (10.00PM to 6.00AM) for commercial areas.

30. Ambient air and noise level monitoring will be done before start of construction activity and during construction phase exclusively for the project.

B. Ecological Environment

31. Shimla is adorned with meadows and wooded hill sides laced with pine, fir, poplar, oak and deodar. All these contribute in making the serene hill station even more romantic.

32. **Flora and fauna.** Forests constitute about 55% of Shimla. The city is known for its City/Urban Forest, and urban forest is part of the fabric of Shimla bringing nature into urban landscape. There are about 9 parks/gardens and 8 open space/grounds in the city covering about 6 ha. In addition to forestlands, 1000 ha of land is under estate forest. The predominant species in the forest area are Deodar, Pine, Oak, Kail, Rai and Rhodendron. The wild life has migrated towards deeper forests and is limited to Pheasants.

33. There are no trees present within the sub project influence area. In addition, the whole town and its surroundings are interspersed with designated protected or reserved forests which have an associated eco-system value that plays a vital role in lending Shimla its unique natural heritage.

34. **Protected areas.**The proposed roads sites more than 10 km from the boundary of Shimla Water Catchment Wildlife Sanctuary but in proposed works there will not be any impact to the sanctuary as this is only a restoration project of the existing historic structures of the town. There are no other protected areas (forests, wetlands, mangroves, or estuaries) in or near the subproject sites.

C. Socio Cultural and Economic Environment

35. **Demographic Profile.** In 2011, Shimla district had population of 814,010 of which

male and female were 425,039 and 388,971 respectively. In 2001 census, Shimla had a population of 722,502 of which males were 380,996 and remaining 341,506 were females. The initial provisional data released by census India 2011, shows that density of Shimla district for 2011 is 159 people per sqkm. In 2001, Shimla district density was at 141 people per sqkm. Shimla district administers 5,131 sqkm of areas. Average literacy rate of Shimla in 2011 were 83.64 compared to 79.12 of 2001. If things are looked out at gender wise, male and female literacy were 89.59 and 77.13 respectively. For 2001 census, same figures stood at 87.19 and 70.07 in Shimla District.

36. As per reports of Census India, population of Shimla city (urban area) in 2011 is 169,758; of which male and female are 93,364 and 76,394 respectively. Although Shimla city has population of 169,758; its urban / metropolitan population is 171,817 of which 94,797 are males and 77,020 are females. In education section, total literates in Shimla city are 147,799 of which 82,486 are males while 65,313 are females. Average literacy rate of Shimla city is 94.67 percent of which male and female literacy was 95.75 and 93.35 percent. The sex ratio of Shimla city is 818 per 1000 males. Child sex ratio of girls is 890 per 1000 boys. Total children (0-6) in Shimla city are 13,646 as per figure from Census India report on 2011. There were 7,221 boys while 6,425 are girls. The child forms 8.04 % of total population of Shimla City.

37. **Economy and Agriculture.** Employment is largely driven by the Government and tourism. Education and horticultural produce processing, comprise most of the remainder. In addition to being the local hub of transportation and trade, Shimla is the area's healthcare centre, hosting a medical college and four major hospitals: the Indira Gandhi Hospital (formerly known as Snowdown Hospital,) Deen Dayal Upadhyay Hospital (formerly called Ripon Hospital,) Kamla Nehru Hospital, and Indus Hospital. The city's development plan aims make Shimla an attractive health tourism spot. Hotel industry is one of the major sources of income generation for the city. Shimla leads the list of Indian cities with the highest ranked hotels. Government is trying to promote technology and IT sector as the new area for growth and promotion although not many companies have yet settled in Shimla. Two notable companies that are registered in Shimla are Avant-Garde Digital, an international company, and Instablogs, a company that deals with media publishing.

38. Maize and wheat are the major cereal crops in Shimla district. Under cash crop, potato is the main crop. Area and production under other crops viz. Millets, pulses and oil seeds is very low. Shimla district occupies a place of pride in the field of horticulture not only in the State but also in the country. Shimla is the biggest Apple growing district in Himachal Pradesh. Other fruits grown include peach, plum apricot, walnut, almond cherry, citrus, etc. Biological Environment.

39. **Industry.**Tourism and agriculture are the mainstays of the district economy. Shimla is a multifunctional city with dominance in tourism, administration and institutional activities. Percentage contribution of primary sectors to total GDP is 25.40%, while that of secondary sector is 35.59 % and tertiary sector is 39.01%. Industrial development in the past has been limited largely due to unavailability of proper infrastructure, hilly region, and cost of transportation. Traditional small-scale industries like wool spinning and weaving, basket making, metal work, that use local resources are still alive without much progress. Apart from this, wood working, black-smith, dying and manufacturing works, oil crushing, leather works, pottery, gold smith, food processing are other small scale industries practiced in the town. The drivers for the majority of these industries are tourists and local people. There are around 259 registered small scale industries in Shimla, with food based industries, textile, leather, wood and wood works, paper and paper products manufacture, and service industries.

40. **Physical Infrastructure and Services.** Department of Irrigation and Public Health and Shimla Municipal Corporation (SMC) are planning and implementing drinking water supply as well as sewage disposal. Public Works department is responsible for planning, construction and operation and maintenance of road network; while internal roads are maintained by SMC. SMC does solid waste disposal and management. Shimla has the network of sewerage system with treatment plants. Health infrastructure includes 7 hospitals, 3 primary health centres and 21 dispensaries of the State Government. Shimla characterized by unique and distinct British Heritage is famous for built heritage such as Vice Regal Lodge (India Institute of Advanced Studies), Rothney Castle, Railway Board Building, Gaiety Theatre and Gorton Castle. The architectural heritage in Shimla shows eminence diversity including Tudor, Victorian, Edwardian style in such small geographical area and are very precious assets of Shimla's Built Fabric. The Government of Himachal Pradesh, under Town and Country Planning Act has notified the 50m area around Mall Road possessing significant evidence of heritage as Heritage Zone.

V. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

41. The assessment of environmental impacts for the proposed interventions under this package has been carried out during the preparation of the SAR. An environmental assessment using ADB's Rapid Environmental Assessment (REA) checklist for urban development (Annexure 1) was conducted. The following are categories of impacts assessed:

- **Location impacts.** Impacts associated with site selection, including impacts on environment and resettlement or livelihood related impacts on communities
- **Design impacts.** Impacts arising from project design, including the technology used, scale of operations etc.
- **Construction impacts.** Impacts resulting from construction activities including site clearance, earthworks, civil works, etc.
- **O&M impacts.** Impacts associated with the operation and maintenance of the infrastructure built in the project.

42. **Land Acquisition and Resettlement Impacts.** The sub-project does not envisage any diversion of forest land for which any statutory and necessary formalities is required. The project sites are within the main city of Shimla Town, which is a popular tourist destination. The area is administered under the Municipal Corporation of Shimla. All the proposed roads are government property and no any land acquisition is required therefore no any resettlement impact will be anticipated.

43. **Design considerations to avoid environmental impacts.** The following are design considerations to avoid environmental impacts:

- Incorporation of adequate drainage provisions
- Adoption of design compatible with the natural environment and suitable selection of materials to enhance the aesthetic appeal and blend with the natural surroundings.
- Straight lines and simple geometry in the proposed landscape and architectural features.
- Use of subtle colours and simple ornamentation in the structures.
- Use of local stone in the proposed walkways and built structures thus maintaining a rustic architectural character

44. The results of interventions are unobtrusive and will be integral part of the ambience of the site. The physical components have been proposed with minimalist design treatment

emphasising use of local materials (wood, stone, etc.) as defined in the management plan of the area.

A. Assessment of Environmental Impacts

45. **Determination of Area of Influence.** The primary impact for subproject Package No. HPTDB/16/2 will be the disturbance in utilities, traffic diversion and need to dispose of moderate quantities of construction debris and waste soil from proposed site.

46. In the case of this subproject Package No. HPTDB/16/2 the components will involve straight forward construction and operation, and impacts will be mainly localized, short in duration and expected only during construction period.

B. Pre-construction Impacts and Mitigation Measures

47. **Consents, permits, clearances, no objection certificate (NOC), etc.** All the consents, permits, clearances and NOCs shall be obtained during detailed design and before start of works. Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works.

48. **Mitigation measures.** The following will be conducted during detailed design phase:

- Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.
- Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.
- Include in detailed design drawings and documents all conditions and provisions if necessary

49. **Erosion control.** Most of the impacts will occur due to excavation and earth movements during construction phase. Prior to commencement of civil works, the contractor will be required to:

- Apart from the archaeologists, consult a certified geologist to look into soil stability to enable contractors to employ effective soil stabilization and erosion control measures to sustain restorative measures under the subproject
- Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality.
- Minimize the potential for erosion by balancing cuts and fills to the extent feasible.
- Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure).
- Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time.

50. **Utilities.** Interruption of services (water supply, toilets, bathing areas, etc.) will be scheduled and intermittently related to localized construction activities. To mitigate impacts, PIU/DSC will:

- Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase.

- Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.
- Require contractor to obtain from the PIU and/or DSC the list of affected utilities and operators;
- If relocations are necessary, contractor alongwith PIU will coordinate with the providers to relocate the utility.
- Require contractor to specify condition of general housekeeping (storage of construction implements, stockpiles, wastes, chemicals) in order to ensure compliance with environmental laws and provide reference for monitoring purposes.

51. **Social and Cultural Resources.** There is a risk that any work involving ground disturbance can uncover and damage archaeological and historical remains. Although no such sites have been identified. For this subproject, excavation will occur in and around existing sites, RoWs and specified government land so no risk is foreseen to these structures. Nevertheless, the PIU/DSC will:

- Consult Archaeological Survey of India and/or State Department of Archaeology to obtain an expert assessment of the archaeological potential of the site.
- Consider alternatives if the site is found to be of medium or high risk.
- Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available.
- Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.

52. **Sites for construction work camps and areas for stockpile, storage and disposal.** The priority is to locate these near the subproject sites. The contractor will be required to meet the following criteria for the sites:

- Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc.
- Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime).
- Disposal will not be allowed in to nearby water course or any nearby sensitive areas which may pollute surface water or can inconvenience the community.
- The construction camp, storage of fuel and lubricants should be avoided at the river bank. Any construction camp site will be finalized in consultation with DSC and PIU.

53. **Sources of construction materials.** Significant amounts of gravel, sand, and cement will be required for this subproject. Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution. The contractor will be required to:

- Use quarry sites and sources permitted by government.
- Verify suitability of all material sources and obtain approval from PIU/DSC.
- If additional quarries are required after construction has started, obtain written approval from PIU/DSC.
- Submit to PIU/DSC on a monthly basis documentation of sources of materials.

54. It will be the construction contractor's responsibility to verify the suitability of all material sources and to submit NOCs/approvals of the quarry sites and obtain the approval of PIU/DSC. If additional quarries are required after construction is started, then the

contractor should obtain written approval of PIU.

55. **Access.** Hauling of construction materials and operation of equipment on-site can cause traffic problems and conflicts in ROWs. Construction traffic will access most work areas from the existing roads therefore potential impacts will be of short-duration, localized and can be mitigated. The contractor will need to adopt the following mitigation measures:

1) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.
2) Schedule transport and hauling activities during non-peak hours.
3) Locate entry and exit points in areas where there is low potential for traffic congestion.
4) Keep the site free from all unnecessary obstructions.
5) Drive vehicles in a considerate manner.
6) Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours.
7) Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.
8) Provide free access to households and businesses/shops along the ROWs during the construction phase.

56. Summary of pre-construction activities is presented in **Table 3**. The responsibilities, monitoring program and costs are provided in detailed in the EMP. The contractor is required to update the information during detailed design phase. Sample waste/spoils management plan, traffic management plan, etc. are attached as **Annexes 3 & 4**. Site-specific plans will be developed as per detailed design.

Table 3: Summary of Pre-Construction Mitigation Measures

Parameters	Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. • Include in detailed design drawings and documents all conditions and provisions if necessary
Erosion control	• Apart from the archaeologists, consult a certified geologist to look into soil stability to enable contractors to employ effective soil stabilization and erosion control measures to sustain restorative measures under the subproject. • Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality. • Minimize the potential for erosion by balancing cuts and fills to the extent feasible. • Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure). • Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time.
Utilities	• Identify and include locations and operators of these utilities in the

Parameters	Mitigation Measures
	detailed design documents to prevent unnecessary disruption of services during the construction phase. • Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. • Obtain from the PIU and/or DSC the list of affected utilities and operators; • Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. • If relocations are necessary, contractor will coordinate with the providers to relocate the utility. • Require contractor to specify condition of general housekeeping (storage of construction implements, stockpiles, wastes, chemicals) in order to ensure compliance with environmental laws and provide reference for monitoring purposes.
Social and Cultural Resources	• Consult Archaeological Survey of India or State Department of Archaeology to obtain an expert assessment of the archaeological potential of the site. • Consider alternatives if the site is found to be of medium or high risk. • Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available. • Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.
Sites for construction work camps, areas for stockpile, storage and disposal	• Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. • Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). • Disposal will not be allowed near sensitive areas which will inconvenience the community. • Disposal will not be allowed in nearby river to check water pollution • The construction camp, storage of fuel and lubricants should be avoided at the river bank. The construction camp site for intake well should be finalized in consultation with DSC and PIU.
Sources of construction materials	• Use quarry sites and sources permitted by government. • Verify suitability of all material sources and obtain approval from PIU/DSC. • If additional quarries are required after construction has started, obtain written approval from PIU/DSC. • Submit to PIU/DSC on a monthly basis documentation of sources of materials.
Access	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Schedule transport and hauling activities during non-peak hours. • Locate entry and exit points in areas where there is low potential for traffic congestion. • Keep the site free from all unnecessary obstructions. • Drive vehicles in a considerate manner. • Coordinate with the Traffic Police Department for temporary road

Parameters	Mitigation Measures
	diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. • Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints. • Provide free access to households and businesses/shops along ROWs during the construction phase.

C. Anticipated Construction Impacts and Mitigation Measures

57. **Construction Schedule and Method.** As per detailed design, construction activities will cover 24 months.

58. The infrastructures will be constructed manually according to design specifications. Excavations and trenches, if required, will be dug by small backhoe diggers supplemented by manual digging where necessary. Excavated soil will be placed nearby. Excavated materials will be reused to the maximum extent possible. Materials will be brought to site by trucks and will be stored on unused areas within sites and nearby vacant areas. Any excavated road will be reinstated. The working hours will be 8 hours daily, the total duration of each stage depends on the soil condition and other local features. Night works may be considered in commercial areas and high day-time traffic.

59. Proposed roads are narrow and busy city roads. There will be no space for storage of huge quantity of construction material or plying construction machineries. Therefore contractor will be require to bring the required quantity of construction material for a single day only and the contractor will also need to remove all construction and demolition wastes on a daily basis.

60. Although construction of these project components involves quite simple techniques of civil work, the invasive nature of excavation and the subproject sites in built-up areas where there are a variety of human activities, will result to impacts to the environment and sensitive receptors such as residents, businesses, and the community in general. These anticipated impacts are short-term, site-specific and within relatively small areas.

61. **Erosion Hazards.** The sites is having uneven terrain therefore risk of erosion is very high but limited during construction activities and expected to have negative impact on the drainage and hydrology of the area. Runoff will produce a highly variable discharge in terms of volume and quality. Therefore the contractor will be required to:

- Save topsoil removed during excavation and use to reclaim disturbed areas, as soon as it is possible to do so.
- Use dust abatement such as water spraying to minimize windblown erosion.
- Provide temporary stabilization of disturbed/excavated areas that are not actively under construction.
- Apply erosion controls (e.g., silt traps) along the drainage leading to the water bodies.
- Maintain vegetative cover within unused land to prevent erosion and periodically monitor the area to assess erosion.
- Clean and maintain catch basins, drainage ditches, and culverts regularly.
- Conduct routine site inspections to assess the effectiveness of and the maintenance requirements for erosion and sediment control systems.

62. **Impacts on Water Quality.** Excavated materials may end up in drainages and water

bodies adjacent to the subproject sites, particularly during monsoon season. Other risks of water pollution may be caused by: (i) poorly managed construction sediments, wastes and hazardous substances; and (ii) poor sanitation practices of construction workers. The contractor will be required to:

- Schedule civil works during non-monsoon season, to the maximum extent possible.
- Ensure drainages and water bodies within the construction zones are kept free of obstructions.
- Keep loose soil material and stockpiles out of drains, flow-lines and watercourses.
- Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.
- Re-use/utilize, to maximum extent possible, excavated materials.
- Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites).
- Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.
- Develop a spill prevention and containment plan, educate workers about the plan, and have the necessary materials on site prior to and during construction.
- Refuel equipment within the designated refueling containment area away from drainages, *nallahs*, or any water body.
- Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.

63. **Impacts on Air Quality.** There is potential for increased dust particularly during summer/dry season due to stockpiling of excavated materials. Emissions from vehicles transporting workers, construction materials and debris/materials to be disposed may cause increased in air pollutants within the construction zone, including construction camps. These are inherent impacts which are site-specific, low magnitude, short in duration and can be easily mitigated. The contractor will be required to:

- Conduct regular water spraying on earth piles, trenches and sand piles.
- Conduct regular visual inspection along alignments and construction zones to ensure no excessive dust emissions.
- Spreading crushed gravel over backfilled surfaces if re-surfacing of disturbed areas cannot be done immediately.
- Maintain construction vehicles and obtain "pollution under control" certificate from HPSPCB.
- Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.

64. **Noise and Vibration Impacts.** Noise and vibration-emitting construction activities include earthworks, rock crushing, concrete mixing, movement and operation of construction vehicles and equipment, and loading and unloading of coarse aggregates. The significance of noise and vibration impacts will be high in areas where noise-sensitive institutions such as health care and educational facilities are situated. These impacts will be temporary, short-term, intermittent, and expected to be in the range of 80 to 100 dB (A) as per **Table 4**(typical noise levels of principal construction equipment).

Table 4: Typical Noise Levels of Principal Construction Equipment

CLEARING		STRUCTURE CONSTRUCTION	
Bulldozer	80	Crane	75-77
Front end loader	72-84	Welding generator	71-82
Jack hammer	81-98	Concrete mixer	74-88
Crane with ball	75-87	Concrete pump	81-84

		Concrete vibrator	76
EXCAVATION & EARTH MOVING		Air compressor	74-87
Bulldozer	80	Pneumatic tools	81-98
Backhoe	72-93	Bulldozer	80
Front end loader	72-84	Cement and dump trucks	83-94
Dump truck	83-94	Front end loader	72-84
Jack hammer	81-98	Dump truck	83-94
Scraper	80-93	Paver	86-88
GRADING AND COMPACTING		LANDSCAPING AND CLEAN-UP	
Grader	80-93	Bulldozer	80
Roller	73-75	Backhoe	72-93
		Truck	83-94
PAVING		Front end loader	72-84
Paver	86-88	Dump truck	83-94
Truck	83-94	Paver	86-88
Tamper	74-77	Dump truck	83-94

Source: U.S. Environmental Protection Agency. Noise from Construction Equipment and Operations. Building Equipment and Home Appliances.NJID. 300.1. December 31. 1971

65. The contractor will be required to:

- Limit construction activities which produce excessive noise in proposed roads to daytime only. If night works are required, where roads are very busy or narrow noisy activities to be done during day only.
- Plan activities in consultation with the PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.
- Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.
- Avoid loud random noise from sirens, air compression, etc.
- Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach.
- If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager:
  - Locate stationary construction equipment as far from nearby noise-sensitive properties as possible.
  - Shut off idling equipment.
  - Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
  - Notify nearby residents whenever extremely noisy work will be occurring.
- Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone.[3]
- Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS:3028-1998.

66. **Impacts on Flora and Fauna.** As per preliminary design, tree-cutting is not required. This will be reassessed during detailed design phase. There are no protected areas in the

[3] Day time shall mean from 6.00 am to 10.00 pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by HPSPCB. Mixed categories of areas may be declared as one of the above mentioned categories by HPSPCB.

direct and indirect impact zones and no diverse ecological biodiversity as vegetation and animals found in the construction zones are common in built up/urban areas. The contractor will be required to:

- Conduct site induction and environmental awareness.
- Limit activities within the work area.
- Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department.

67. **Impacts on Physical Cultural Resources.** There may be inconvenience to tourists, residents, businesses, and other road users due to construction activities in the proposed area. This potential impact is site-specific, short-term and can be mitigated. The contractor will be required to:

- Ensure no damage to structures/properties near construction zone.
- Provide walkways and metal sheets where required to maintain access of people and vehicles.
- Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.
- Increase the workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;
- Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement.
- Ensure workers will not use nearby/adjacent areas as toilet facility.
- Coordinate with DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc.
- Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.
- Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.

68. **Impact due to Waste Generation.** Construction activities will produce excess excavated soils, excess construction materials, and solid wastes (such as removed concrete, wood, trees and plants, packaging materials, empty containers, oils, lubricants, and other similar items). These impacts are negative but short-term and reversible by mitigation measures. The contractor will need to adopt the following mitigation measures:

- Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas.
- Coordinate with Local Municipal Authority for beneficial uses of excavated soils/silts/sediments or immediately dispose to designated areas.
- Recover used oil and lubricants and reuse; or remove from the sites.
- Avoid stockpiling and remove immediately all excavated soils, excess construction materials, and solid waste (removed concrete, wood, trees and plants, packaging materials, empty containers, oils, lubricants, and other similar items).
- Prohibit disposal of any material or wastes (including human waste) into drainage, *nallah*, or watercourse.

69. **Impacts on Occupational Health and Safety.** Workers need to be mindful of occupational hazards which can arise from construction works. Exposure to work-related

chemical, physical, biological and social hazard is typically intermittent and of short duration, but is likely to reoccur. Potential impacts are negative and long-term but reversible by mitigation measures. Overall, the contractor should comply with IFC EHS Guidelines on Occupational Health and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES).The contractor will be required to:

- Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.
- Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project.
- Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents.
- Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers.
- Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.
- Provide medical insurance coverage for workers.
- Secure construction zone from unauthorized intrusion and accident risks.
- Provide supplies of potable drinking water.
- Provide clean eating areas where workers are not exposed to hazardous or noxious substances.
- Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted.
- Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.
- Ensure moving equipment is outfitted with audible back-up alarms.
- Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.

70. **Impacts on Socio-Economic Activities.** Manpower will be required during the 24months construction phase. This can help generate contractual employment and increase in local revenue. Thus potential impact is positive and long-term. As per preliminary design, land acquisition and closure of roads are not required; therefore no negative impact is expected. However, the contractor will need to adopt the following mitigation measures:

- Leave space for access between mounds of soil.
- Provide walkways and metal sheets where required to maintain access to shops/businesses along trenches.
- Consult businesses and institutions regarding operating hours and factoring this in to work schedules.
- Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.

- Employ at least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available.

71. **Summary of Mitigation Measures during Construction. Table 5**provides summary of mitigation measures to be considered by the contractor during construction phase. The detailed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related implementation arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators are provided in the EMP

Table 5: Summary of Mitigation Measures during Construction Phase

Potential Impact	Mitigation Measures
Erosion hazards	• Save topsoil removed during excavation and use to reclaim disturbed areas, as soon as it is possible to do so. • Use dust abatement such as water spraying to minimize windblown erosion. • Provide temporary stabilization of disturbed/excavated areas that are not actively under construction. • Apply erosion controls (e.g., silt traps) along the drainage leading to the water bodies. • Maintain vegetative cover within road ROWs to prevent erosion and periodically monitor ROWs to assess erosion. • Clean and maintain catch basins, drainage ditches, and culverts regularly. • Conduct routine site inspections to assess the effectiveness of and the maintenance requirements for erosion and sediment control systems.
Impacts on water quality	• Schedule civil works during non-monsoon season, to the maximum extent possible. • Ensure drainages and water bodies within the construction zones are kept free of obstructions. • Keep loose soil material and stockpiles out of drains, flow-lines and watercourses. • Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets. • Re-use/utilize, to maximum extent possible, excavated materials. • Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites). • Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989. • Develop a spill prevention and containment plan, educate workers about the plan, and have the necessary materials on site prior to and during construction. • Refuel equipment within the designated refueling containment area away from drainages, nallahs, or any water body. • Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.
Impacts on air quality	• Conduct regular water spraying on earth piles, trenches and sand piles. • Conduct regular visual inspection along alignments and construction

Potential Impact	Mitigation Measures
air quality	piles. • Conduct regular visual inspection along alignments and construction zones to ensure no excessive dust emissions. • Spreading crushed gravel over backfilled surfaces if re-surfacing of disturbed ROWs cannot be done immediately. • Maintain construction vehicles and obtain "pollution under control" certificate from HPSPCB. • Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.
Noise and vibrations impacts	• Limit construction activities in temple complexes and other important sites to daytime only. • Plan activities in consultation with the PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance. • Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers. • Avoid loud random noise from sirens, air compression, etc. • Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach. • If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: (i) locate stationary construction equipment as far from nearby noise-sensitive properties as possible; (ii) shut off idling equipment; (iii) reschedule construction operations to avoid periods of noise annoyance identified in the complaint; and/or (iv) notify nearby residents whenever extremely noisy work will be occurring. • Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone.[4] • Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS:3028-1998.
Impacts on flora and fauna	• Conduct site induction and environmental awareness. • Limit activities within the work area • Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department.
Impacts on physical resources	• Ensure no damage to structures/properties near construction zone. • Provide walkways and metal sheets where required to maintain access of people and vehicles. • Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints. • Increase the workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; • Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement. • Ensure workers will not use nearby/adjacent areas as toilet facility.

[4] Day time shall mean from 6.00 am to 10.00 pm Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by HPPCB. Mixed categories of areas may be declared as one of the above mentioned categories by HPPCB.

Potential Impact	Mitigation Measures
	Communicate road detours via visible boards, advertising, pamphlets, etc. • Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.
Impacts on waste generation	• Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. • Coordinate with Town Municipal Authorities for beneficial uses of excavated soils/silts/sediments or immediately dispose to designated areas. • Recover used oil and lubricants and reuse; or remove from the sites. • Avoid stockpiling and remove immediately all excavated soils, excess construction materials, and solid waste (removed concrete, wood, trees and plants, packaging materials, empty containers, oils, lubricants, and other similar items). • Prohibit disposal of any material or wastes (including human waste) into drainage, *nallah*, or watercourse.
Impacts on occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. • Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. • Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. • Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers. • Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps. • Provide medical insurance coverage for workers. • Secure construction zone from unauthorized intrusion and accident risks. • Provide supplies of potable drinking water. • Provide clean eating areas where workers are not exposed to hazardous or noxious substances. • Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted. • Ensure the visibility of workers through their use of high visibility vests

Potential Impact	Mitigation Measures
	when working in or walking through heavy equipment operating areas. • Ensure moving equipment is outfitted with audible back-up alarms. • Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.
Impacts on socio-economic activities	• Leave space for access between mounds of soil. • Provide walkways and metal sheets where required to maintain access to shops/businesses along trenches. • Consult businesses and institutions regarding operating hours and factoring this in to work schedules. • Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints. • Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available. • "Mobility Plan" has to be chalked out in consultation with the District Administration prior to start of work.

72. The construction related impacts due to proposed subproject components are generic to construction activities, and are typical of small-scale construction projects. The potential impacts that are associated with construction activities can be mitigated to standard levels without difficulty through incorporation or application of the recommended mitigation measures and procedures.

D. Post-Construction Impacts and Mitigation Measures

73. Site clean-up is necessary after construction activities. The contractor will be required to:

- Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase.
- Use removed topsoil to reclaim disturbed areas.
- Re-establish the original grade and drainage pattern to the extent practicable.
- Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees.
- Restore access roads, staging areas, and temporary work areas.
- Restore roadside vegetation.
- Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites.
- Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy condition.
- Request in writing from PIU/DSC that construction zones have been restored.

E. Anticipated Operations and Maintenance (O&M) Impacts and Mitigation Measures

74. Impacts on environmental conditions associated with the O&M of the subproject Package No. HPTDB/16/2 components pertain to impacts related to increased tourists in the areas resulting to increased vehicular movement along the roads, increased demands for services, and increased solid waste generation. These impacts can be mitigated by:

- Increased vehicular movement along the roads - speed restrictions, provision of appropriate road signage and well located rest points for pedestrians shall minimize impacts on safety of the people
- Increase demands for services – addressed through the subproject design
- Increase solid waste generation – Municipal Corporation to put in place solid waste management programs.

F. Cumulative Impact Assessment

75. The cumulative impact assessment examined the interaction between the subproject's residual effects (i.e., those effects that remain after mitigation measures have been applied) and those associated with other past, existing, and reasonably foreseeable future projects or activities. The interaction of residual effects associated with multiple projects and/or activities can result in cumulative impacts, both positive and negative. The project's potential cumulative effects were considered with respect to valued components in environmental and socioeconomic categories, in four areas:

(i) of any potential residual project effects that may occur incrementally over time;
(ii) consideration of other known relevant projects or activities within the specified study area boundaries, even if not directly related to the project;
(iii) potential overlapping impacts that may occur due to other developments, even if not directly related to the proposed subproject; and
(iv) future developments that are reasonably foreseeable and sufficiently certain to proceed.

76. The project has identified the valued components as air quality, acoustic environment, socioeconomic and socio-community components, and human health and safety. There are no foreseeable projects that will overlap with the subproject. The spatial boundary of the subproject is the subproject component sites and the temporal boundary can be considered as the whole Shimla town.

77. It has been recommended that infrastructures be (i) designed to the current best practice standard and notified Government of Himachal Pradesh codes and management plans; (ii) built that the floods do not damage them; (iii) road drains are to be kept free from wastes and siltation; and (iv)toilet facilities kept clean and desludged regularly. No negative cumulative impact and the potential long-term environmental impacts are positive; including mainstreaming climate risk reduction into infrastructure development ensures subprojects infrastructure are less vulnerable to floods, landslides and impacts of other extreme weather events.

78. **Air quality.** Emissions of common air contaminants and fugitive dust may be elevated in proximity to active work sites during construction and O&M phases, these impacts will be short-term and localized to the immediate of the sites. Greenhouse gas (GHG) emissions may increase as a result of the subproject activities (i.e., vehicle and equipment operation, concrete production, disposal of excavated material, land-filling of residual wastes). Given the subproject's relatively minor contribution to common air contaminants and GHG emissions during construction, the overall significance rating of both these potential residual and cumulative effects is considered to be negligible.

79. **Acoustic environment.** Noise levels during construction and O&M activities in immediate proximity of work sites are expected to increase. The duration of exposure will be relatively brief and imperceptible. The exposure represents a temporary, localized, adverse residual effect of low significance for affected receptors. While building damage due to ground vibrations is unlikely, there may be annoyance to spatially located receptors during

construction and O&M activities. The overall significance rating of potential residual and cumulative effects is considered to be negligible.

80. **Socio-economic and socio-community.** Concerns on existing provisions for community, business owners and tenants in shops along roads to be resurfaced under the subproject will occur spatially during construction and O&M activities. Existing conditions within the subproject sites and immediate surroundings will be improved once the activities are completed. Since the subproject will be improvement of existing infrastructures, it will not conflict with existing or planned land use. However, following improvement in infrastructures and services, added residential developments, commercial, and business facilities and increased densities are expected to develop and enhance Shimla town. This can be considered a long-term cumulative benefit of the subproject.

81. Given the scale of the project it is likely that local people will obtain at least temporary socio-economic benefits, by gaining employment in the construction workforce, and thus raising their levels of income. These benefits can bring wider social gains if they are directed at vulnerable[5] groups.

82. **Community and workers health and safety.** No adverse residual effects to human health will occur as a result of construction or O&M activities, and mitigation measures are in place to ensure public and worker safety, and will be closely monitored. While exposure to elevated noise levels, fugitive dust and common air pollutants will occur in proximity to work sites, due to their short-term and localized nature, these effects are expected to be minor and insignificant with no measurable effects on human health.

83. Therefore the project will benefit the general public by contributing to the long-term improvement of municipal services and community liveability in Shimla town.

VI. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. ADB Disclosure Policy

84. Public consultation was undertaken as per ADB SPS requirements. All the five principles of information dissemination, information solicitation, integration, coordination and engagement into dialogue were incorporated during the task. A framework of different environmental impacts likely from the project was prepared based on opinions of all those consulted, especially at the micro level, by setting up dialogues with the local people and fishermen from whom information on site facts and prevailing conditions were collected.

85. As per ADB safeguard requirement, public consultation is to be carried out before and after impact identification. Public consultation was therefore carried out twice, once at the time of start of work with the key stakeholders particularly with wild life authorities and NGOs, and secondly to discuss mitigating measures and get concurrence of stakeholders.

B. Process for Consultation followed

86. During project preparation (June to August 2014), consultations have been held with the HP Department of Tourism, tourists of Shimla and District administration, District Municipal Administration, local community representatives, tourism officers, and tourist guides/photographers regarding issues pertaining to the selection of subprojects and identification of key issues including addressing the current gaps in provision of basic

[5]Vulnerable groups are those without legal title to land and other assets; households headed by single earner females, the elderly or disabled; indigenous peoples (based on ADB OM); and households with incomes that are below the poverty line.

services and improvement of tourist infrastructure. Records of the consultations are provided in **Annexure-5**.

C. Plan for continued public participation

87. To ensure continued public participation, stakeholder engagement at main stages of work during the project design and implementation is proposed. A grievance redress cell has been set up within the PIU/DSC at field office and PMU, Shimla office. To ensure an effective disclosure of the project proposal to the stakeholders and the community living in the vicinity of the sub-project location, information regarding grievance redress mechanism shall be published in local newspapers. This information is also made available on Himachal Tourism website.

88. The public consultation and disclosure program with all interested and affected partied will remain a continuous process throughout the project implementation, and shall include the following:

(i) **Consultations during construction phase:** (a) public meetings with affected communities to discuss and plan work programs and allow issues to be raised and addressed once construction has started; and (b) smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts, and to provide a mechanism through which stakeholders can participate in project monitoring and evaluation.

(ii) **Project disclosure:** (a) public information campaigns (via newspaper, flyers, and media) to explain the project to the wider city population and prepare them for disruptions they may experience once construction is underway; (b) public disclosure meetings at key project stages to inform the public of progress and future plans, and to provide copies of summary documents in local language; (c) formal disclosure of completed project reports by making copies available at convenient locations in the study areas, and informing the public of their availability; and (d) providing a mechanism through which comments can be made.

89. The EA will submit to ADB the following documents for disclosure on ADB's website: (i) the final IEE; (ii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and (iii) the semi-annual environmental monitoring reports.

90. For the benefit of the community, relevant information in the IEE (Executive Summary) will be translated in Hindi and made available at: (i) Office of the PMU; and, (ii) Office of the District Commissioner, Shimla District. These copies will be made available free of cost to any person seeking information on the same. Hard copies of the IEE will be available in the PMU/PIU as well as the district library at Shimla, and accessible to citizens as a means to disclose the document and at the same time creating wider public awareness. On demand, the person seeking information can obtain a hard copy of the complete IEE document at the cost of photocopy from the office of the PMU/PIU, on a written request and payment for the same to the Project Director. Electronic version of the IEE will be placed in the official website of the Tourism Department and the website of ADB after approval of the documents by Government and ADB. The PMU will issue notification on the disclosure mechanism in local newspapers, ahead of the initiation of implementation of the project, providing information on the project, as well as the start date and expected completion dates etc. The notice will be issued by the PMU in local newspapers one month ahead of the implementation works.

VII. GRIEVANCE REDRESS MECHANISM

91. The affected person/aggrieved party can give their grievance verbally or in written to the local grievances committee. Grievances of affected person will first be brought to the attention of the PIU who can resolve the issue at site level. If the matter is not solved within 7 days period by the PIU, it will be brought to the Grievance Redress Committee constituted for the purpose in PIU. This GRC shall discuss the issue in its monthly meeting and resolve the issues within one month of time after receiving the grievance. If the matter is not resolved by GRC at PIU level within stipulated time, it shall be referred to GRC at PMU level by Executive Engineer of PIU.

92. GRC at PMU shall discuss the issue and try to resolve it and inform the PIU accordingly. If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Court of Law. The PIU shall keep records of all grievances received including contact details of complainant, date of receiving the complaint, nature of grievance, agreed corrective actions and the date these were affected and final outcome. The grievance redress process is shown below.

A. Composition and Functions of GRC

93. **Local Grievance Committee (LGC).** In this LGC has worked with NGO, SHG, Line Agency, representative of Gram Panchayat, Special invitee.

94. **Grievance Redress Committee (GRC) at PIU.** In each PIU there shall be one GRC, which will include Project Manager (PIU), District Tourist Officer of Department of Tourism of Govt. of Himachal Pradesh, Community Development Officer of PIU, nominated representative of District Magistrate and nominated representative committee shall be headed by Project Manager (PIU). The committee will meet at least once in every month. Agenda of meeting shall be circulated to all the members and affected persons/aggrieved party along with venue, date and time; informed in written at least 7 days in advance of meeting. The matters shall remain with GRC at PIU level for one month and if grievance is not resolved within this time period, the matter shall be referred to GRC at PMU.

95. **GRC within Environmental and Social Management Cell (ESMC) at PMU**. There is one GRC in PMU. The matters not resolved by the GRC at PIU level within one month shall come under GRC at PMU. GRC at PMU will include Community Development Expert of PMU, Safeguard Specialist of PMU and Additional Project Director (APD) of PMU. The Committee shall be headed by APD of PMU. This committee shall look the matters, which are referred to and not resolved by GRC at PIU level. If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Executive Committee/State Level Empowered Committee (SLEC). Sample Grievance Redress Form is attached as **Annexure-6**

96. **Approach to GRC.** Affected person/aggrieved party can approach to GRC for redress of his/their grievances through any of the following modes:

- Web based: A separate corner will be developed at the program website so that public / community/ affected person can register their complaint in the online column.
- Telecom based: A toll free no. Will be issued by the PMU/ PIU so that general public can register their complaint through telephone / mobile phone to the PIU/PMU office.

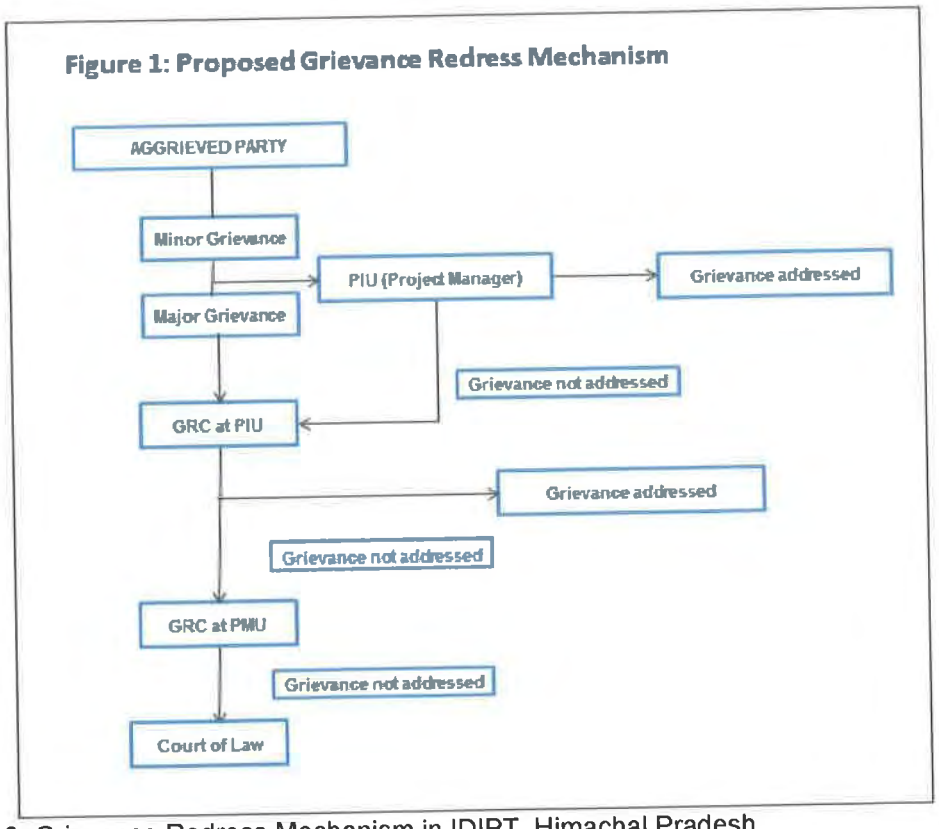


Figure 3: Grievance Redress Mechanism in IDIPT, Himachal Pradesh

Note: LGC -NGO, SHG, Line Agency, Representative of Gram Panchayat, Special invitee GRC – PM, CDO, Engineer, DFO, DTO, SDM GRC in Environment and Social Management Cell (ESMC) – PMU (APD, SS, CDS, FS), PMC (EE, CDE)

VIII. ENVIRONMENTAL MANAGEMENT PLAN

97. The purpose of the environmental management plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i) providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project; (iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the project; and (iv) ensuring that safety recommendations are complied with (**Table 8**).

98. A copy of the EMP must be kept on work sites at all times. This EMP will be included in the bid documents and will be further reviewed and updated during implementation. The EMP will be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

99. The contractor will be required to (i) establish an operational system for managing environmental impacts (ii) carry out all of the monitoring and mitigation measures set forth in the EMP; and (iii) implement any corrective or preventative actions set out in safeguards monitoring reports that PMU and PIU will prepare from time to time to monitor implementation of this IEE and EMP. The contractor shall allocate a budget for compliance with these EMP measures, requirements and actions.

A. Responsibilities for EMP Implementation

100. The following agencies will be responsible for EMP Implementation:

- Department of Tourism, Government of Himachal Pradesh is the executing agency responsible for overall management, coordination, and execution of all activities funded under the loan. Himachal Pradesh Tourism Development Board is the implementing agency responsible for coordinating procurement and construction of the project.
- Project Management Unit (PMU) is set up at Shimla to coordinate the overall execution. Project Management Consultant (PMC) at Shimla provides assistance to PMU in execution, including procurement and assures technical quality of design and construction.
- A Project Implementation Unit (PIU) is established in Shimla for subprojects in Shimla District. This PIU will look into progress and coordination of day to day construction works with the assistance of DSC, who will prepare the detailed project report (DPR) of the subproject and will carry out construction supervision during project implementation. Their responsibility will also include updating this IEE based on detailed design and EMP implementation supervision;
- The contractor will be responsible for execution of all construction works. The contractor will work under the guidance of the PIU Shimla and DSC. The EMP mitigation measures relevant to construction phase will also be implemented by the contractor.

101. The contractor's conformity with contract procedures and specifications during construction will be carefully monitored by the PIU. Safeguard Specialistsare deputed in PMU, PMC and DSC, who will monitor the environmental performance of contractors. Terms of References of Safeguards Specialists are given in boxes below-

Box 1: Terms of Reference of Safeguards Specialist – PMU

- A working knowledge of India's national environmental policies and ADB SPS to reconcile parallelism and compliance between the two policy frameworks.
- Review the IEE document and ensure adequacy under Safeguard Policy Statement, 2009 and identify any areas for improvement.
- Ensure that the project design and specification adequately reflect the IEE, co-ordinate the obtaining of requisite environmental clearances for the project
- Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the IEE and advise PIU for compliance with statutory requirements.
- Develop training programme for the PMU/PIUs staff, the contractors and others involved in the project implementation, in collaboration with the Environmental Specialist of the PMC and DSC
- Review and approve the Contractor's Implementation Plan for the environmental measures, as per IEE.
- Liaise with the Contractors and Consultants on the implementation of the Environmental management measures proposed in the IEE
- Liaise with the various Government agencies on environmental and other regulatory matters
- Continuously interact with the NGOs and Community groups to be involved in the project
- Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project.
- Review the environmental performance of the project through an assessment of the periodic environmental monitoring reports submitted by the DSC; provide a summary of the same to the Project Director, and initiate necessary follow-up actions
- Provide support and assistance to the Government Agencies and the Asian Development Bank to supervise the implementation of the IEE during the construction as well as operation stage of the project
- Document the good practices in the project on incorporation and integration of environmental issues into engineering design and on implementing measures in the construction, and dissemination of the same

Box 2: Terms of Reference of Safeguards Specialist (Environment) of DSC

- A working knowledge of India's national environmental policies and ADB SPS to reconcile parallelism and compliance between the two policy frameworks.
- Review the IEE document and ensure adequacy under ADB SPS, 2009.
- Interact on a regular basis with the sector specialists of the DSC and integrate environmentally sound practices into the detailed design of project components.
- Advise PMU/PIU for compliance with statutory clearances.
- Work out the site specific mitigation measures for components as required and integrate the same into contractual provisions.
- Develop, organise and deliver environmental training programmes and workshops for the staff of the PIU and Contractors and in accordance to the Capacity Building Programme as specified in the IEE.
- Preparation of Activity Plans as identified in IEE (these include Site Management Plans, Waste Management Plans, Sludge Management and Disposal Plans, Occupational Safety Plans etc).
- Supervise the implementation of the Environmental provisions by the Contractors.
- Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor. Hold regular consultation meetings with the Environmental specialist of the PMU
- Review the Contractors' Environmental Implementation Plans to ensure compliance

Box 2: Terms of Reference of Safeguards Specialist (Environment) of DSC

with the IEE.

- Develop good practice construction guidelines to assist the contractors in implementing the provisions of IEE.
- Prepare and submit regular environmental monitoring and implementation progress reports.
- Assist Environmental Specialist of the PMU to prepare good practice dissemination notes based on the experience gained from site supervision.

Box 3: Terms of Reference of Safeguards Specialist (Environment) of PMC

Support and Advice the PMU and Consultants team in-

- A working knowledge of India's national environmental policies and ADB SPS to reconcile parallelism and compliance between the two policy frameworks.
- Best Environmental Practices for responding to environmental issues involved with implementation of the projects on a sustainable basis
- Assistance and advice on institutional strengthening and capacity building at the PMU and PIU levels in regards to environmental practices.
- Ensure that baseline surveys, environmental monitoring plans and programs, initial environmental examinations (IEE) as may be required are carried out.
- Preparation of ADB procedure compliant environmental safeguard actions including impact assessment if any during the design stage
- Management plan and mitigation measures
- Oversight of implementation of environmental standards and safeguards as part of project implementation
- Participate in preparation of Master Plan for additional sites and contribute to the environmental safeguards to the plan and sub components
- Preparation of performance monitoring reports

102. **Responsibility for updating IEE during detailed design:** DSC has updated this IEE as per Detailed Project Report and submitted to PMU for final review before submission to ADB. PMC has assisted PMU and co-ordinated with DSC for preparation of IEE.

103. **Responsibility for monitoring.** During construction, DSC's Environmental Specialist and the designated representative engineer of the PIU will monitor the contractor's environmental performance on day to day basis while PMC expert will randomly monitor the performance for corrective measures if required. During the operation phase, monitoring will be the responsibility of the Municipal Corporation Shimla.

104. **Responsibility for reporting.** PIU in coordination with DSC will submit monthly quarterly and semi-annual monitoring report to PMU. On the basis of these reports PMU will submit to ADB semi-annual reports on implementation of the EMP and will permit ADB to field environmental review missions which will review in detail the environmental aspects of the project. Any major accidents having serious environmental consequences will be reported immediately. PMC environmental expert will help in preparing quarterly, semi-annual and annual progress reports. The sample environmental monitoring template is attached as **Annexures-7 to 9**.

B. EMP Tables

Table 6 to Table 8 show the potential adverse environmental impacts, proposed mitigation measures, responsible parties, and cost of implementation. This EMP will be included in the bid documents and will be further reviewed and updated during implementation.

Table 6: Pre-Construction EMP Table

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.	Consents, permits, clearance, NOCs, etc.	PMU	EA to be reported to ADB in environmental monitoring report (EMR)	check CFEs, permits, clearance, prior to start of civil works	PMU
	• Acknowledge in writing and provide report on compliance of all obtained consents, permits, clearance, NOCs, etc.	Records and communications	PMU	EA to be reported to ADB in EMR	Acknowledge upon receipt Send report as specified in CFE, permits, etc.	PMU
	• Include in detailed design drawings and documents all conditions and provisions if necessary	Detailed design documents and drawings	Contractor	PMU and PMC PIU and DSC	Upon submission by contractor	PMU
Establishment of baseline environmental conditions prior to start of civil works	• Conduct documentation of location of components, areas for construction zone (camps, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates	Records	PMU	PIU and DSC	to be included in updated IEE report	PMU
Erosion control	• Apart from the archaeologists, consult a certified geologist to look	Erosion control and re-vegetation plan covering	Contractor	PIU and DSC	to be included in updated IEE report	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	into soil stability to enable contractors to employ effective soil stabilization and erosion control measures to sustain restorative measures under the subproject • Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality. • Minimize the potential for erosion by balancing cuts and fills to the extent feasible. • Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure). • Minimize the amount of land disturbed as much as possible.	construction phase				

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time. Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time.					
Utilities	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase. • Require contractors to prepare a	List and maps showing utilities to be shifted Contingency plan for services disruption	- DSC to prepare preliminary list and maps of utilities to be shifted - During detailed design phase, contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan	PIU and DSC	to be included in updated IEE report	DSC – preliminary design stage Contractor – detailed design stage

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	contingency plan to include actions to be done in case of unintentional interruption of services. • Obtain from the PIU and/or DSC the list of affected utilities and operators; • If relocations are necessary, contractor will coordinate with the providers to relocate the utility. • Require contractor to specify condition of general housekeeping (storage of construction implements, stockpiles, wastes, chemicals) in order to ensure compliance with environmental laws and provide reference for monitoring purposes.					
Social and Cultural Resources	• Consult Archaeological Survey of India (ASI) or Himachal Pradesh State	Chance find protocol	- PMC to consult ASI or Himachal Pradesh State Archaeology	PMU	to be included in updated IEE report	PMU

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	Archaeology Department to obtain an expert assessment of the archaeological potential of the site. • Consider alternatives if the site is found to be of medium or high risk. • Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available. • Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.		Department - PMC to develop protocol for chance finds			
Sites for	• Will not promote	List of pre-	- DSC to prepare list	PIU/DSC	Monthly	DSC

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
construction work camps, areas for stockpile, storage and disposal	instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. • Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). • Disposal will not be allowed near sensitive areas which will inconvenience the community. • The construction camp, storage of fuel and lubricants should be avoided at the river bank. The construction camp site for intake well should be finalized in consultation with DSC and PIU.	approved sites for construction work camps, areas for stockpile, storage and disposal Waste management plan	of potential sites -DSC to inspect sites proposed by contractor if not included in pre-approved sites			

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
Sources of construction materials	• Use quarry sites and sources permitted by government. • Verify suitability of all material sources and obtain approval from PIU. • If additional quarries are required after construction has started, obtain written approval from PIU. • Submit to DSC on a monthly basis documentation of sources of materials.	Permits issued to quarries/sources of materials	Contractor PMC and DSC to verify sources (including permits) if additional is requested by contractor	PMU/PIU	Upon submission by contractor, monthly	PMC and DSC
Access	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Schedule transport and hauling activities during non-peak hours. • Locate entry and exit points in areas where there is low	Traffic management plan	Contractor	PIU and DSC	Continuous during construction	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	potential for traffic congestion. • Keep the site free from all unnecessary obstructions. • Drive vehicles in a considerate manner. • Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. • Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints. • Provide free access to households along the alignments of raw and clear water transmission routes					

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	during the construction phase.					
Occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety • Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. • Include in H&S plan measures such as: (i) type of hazards in the intake wells site; (ii) corresponding personal protective equipment for each identified hazard;	Health and safety (H&S) plan	Contractor	PIU and DSC	Continuous during construction	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	(iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. • Provide medical insurance coverage for workers.					
Public consultations	• Continue information dissemination, consultations, and involvement/participation of stakeholders during project implementation.	-Disclosure records - Consultations	PMC and DSC	PMU and PMC	-During updating of IEE Report -During preparation of site- and activity-specific plans as per EMP - Prior to start of construction -During construction	PMU/PMC/DSC

Table 7: EMP Table during Construction Phase

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Erosion hazards	• Save topsoil removed during excavation and use to reclaim disturbed areas, as soon as it is possible to do so. • Use dust abatement such as water spraying to minimize windblown erosion. • Provide temporary stabilization of disturbed/excavated areas that are not actively under construction. • Apply erosion controls (e.g., silt traps) along the drainage leading to the water bodies. • Maintain vegetative cover within road ROWs to prevent erosion and periodically monitor ROWs to assess erosion. • Clean and	Erosion control and re-vegetation plan	Contractor	PIU and DSC PIU to submit EMP monitoring report to PMU	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	maintain catch basins, drainage ditches, and culverts regularly. • Conduct routine site inspections to assess the effectiveness of and the maintenance requirements for erosion and sediment control systems.					
Impacts on water quality	• Schedule construction activities during non-monsoon season, to the maximum extent possible.	Work schedule	Contractor	PIU and DSC PIU to submit EMP monitoring report to PMU	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	
	• Ensure drainages and water bodies within the construction zones are kept free of obstructions.	Visual inspection				
	• Keep loose soil material and stockpiles out of drains and flow-lines.	Visual inspection				
	• Avoid stockpiling of excavated and construction materials	Visual inspection				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	(sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.					
	• Re-use/utilize, to maximum extent possible, excavated materials.	condition in waste management plan				
	• Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites).	condition in waste management plan				
	• Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.	condition in waste management plan				
	• Refuel equipment within the designated refueling containment area away from drainages, nallahs, or water body.	condition in list of pre-approved sites for construction work camps, areas for stockpile, storage and disposal				
	• Inspect all vehicles daily for fluid leaks before leaving the vehicle staging	Vehicle inspection report				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	area, and repair any leaks before the vehicle resumes operation.					
Impacts on air quality	• Conduct regular water spraying on stockpiles.	- Visual inspection - No complaints from sensitive receptors - Records	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during dry season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Conduct regular visual inspection in the construction zones to ensure no excessive dust emissions.	Visual inspection				
	• Maintain construction vehicles and obtain "pollution under control" certificate from Himachal Pradesh SPCB.	PUC certificates				
	• Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.	CTE and CTO				
Noise and vibrations impacts	• Limit construction activities in temple complexes	Work schedule	Contractor	PIU and DSC	- daily inspection by contractor supervisor	Contractors

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	and other important areas to daytime only. • Plan activities in consultation with PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.				and/or environment specialist - weekly visual inspection by DSC (more frequent during noise-generating activities and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	
	• Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.	Report on ambient noise level monitoring within direct impact zones				
	• Avoid loud random noise from sirens, air compression, etc.	zero incidence				
	• Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach.	feedback from receptors within direct and direct impact zone				
	• If specific noise complaints are	-Complaints addressed				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: • Locate stationary construction equipment as far from nearby noise-sensitive properties, such as the hospital, as possible. • Shut off idling equipment. • Reschedule construction operations to avoid periods of noise annoyance identified in the complaint. • Notify nearby residents whenever extremely noisy work will be occurring.	satisfactory - GRM records				
Impacts on flora and fauna	• Conduct site induction and environmental awareness.	Records	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment	Contractor

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	• Limit activities within the work area.	Barricades along excavation works			specialist - weekly visual inspection by DSC (more frequent if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	
	• Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut. Replacement species must be approved by District Forest Department.	Number and species approved by District Forest Department				
Impacts on physical and cultural resources	• Ensure no damage to structures/properties adjacent to construction zone.	- Visual inspection - any impact should be addressed by project resettlement plan	Contractor In coordination with PIU and DSC for any structures within proposed site and construction zone	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.	- no complaints received -photo-documentation				
	• Increase the workforce near the school and other sensitive receptors.	- Records of workers deployment - Work schedule				
	• Implement good housekeeping. Remove wastes immediately.	- Visual inspection - No stockpiled/ stored wastes				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	• Ensure workers will not use nearby/adjacent areas as toilet facility.	- No complaints received - Sanitation facilities for use of workers				
	• Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc. • Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.	- Approved routes in traffic management plan				
	• Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such	-condition in chance find protocol				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	time chance finds are cleared by experts.					
Impact due to waste generation	• Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. • Coordinate with PIU/DSC for beneficial uses of excavated soils or immediately disposal to designated areas. • Recover used oil and lubricants and reuse; or remove from the site. • Avoid stockpiling and remove immediately all excavated soils, excess construction materials, and solid waste (removed concrete, wood, trees	condition in waste management plan	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	and plants, packaging materials, empty containers, oils, lubricants, and other similar items). • Prohibit disposal of any material or wastes (including human waste) into drainage, nallah, or watercourse.					
Impacts on occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety	- Visual inspection - Records	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	- Visual inspection - Work schedule - Noise level monitoring in work area				
	• Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site,	- Records - Condition in H&S plan				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	personal protective protection, and preventing injury to fellow workers.					
	• Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.	- Visible first aid equipment and medical supplies - Condition in H&S plan				
	• Provide medical insurance coverage for workers.	Records				
	• Secure construction zone from unauthorized intrusion and accident risks.	- Area secured - Trenches barricaded				
	• Provide supplies of potable drinking water.	- Supply of water				
	• Provide clean eating areas where workers are not exposed to hazardous or noxious substances.	- Workers area				
	• Provide visitor orientation if visitors to	- Records - Condition in H&S				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted.	plan				
	• Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.	- Visual inspection - Condition in H&S plan				
	• Ensure moving equipment is outfitted with audible back-up alarms.	- Construction vehicles - Condition in H&S plan				
	• Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and	- Visible and understandable sign boards in construction zone - H&S plan includes appropriate signs for each hazard present				

Potential Impact	Mitigation Measures	Parameter / Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	the general public as appropriate.					
Impacts on socio-economic activities	• Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	Visible and understandable sign boards in construction zone	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Employ at least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available.	Employment records				

Table 8: EMP Table during Post-Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Solid waste (debris, excavated soils, etc.)	• Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase. • Use removed topsoil to reclaim disturbed	Pre-existing condition Construction zone has been restored	Contractor	PIU and DSC PIU to submit EMP monitoring report to PMU	- visual inspection by contractor supervisor and/or environment specialist	Contractor

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	areas. • Re-establish the original grade and drainage pattern to the extent practicable. • Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees. • Restore access roads, staging areas, and temporary work areas. • Restore roadside vegetation, if removed • Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites. • Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy					

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	condition. • Request in writing from PIU/DSC that construction zones have been restored.					

C. Summary of Site and Activity-Specific Plans as per EMP

105. **Table 9** summarizes site and activity-specific plans to be prepared as per EMP tables.

Table 9: Site- and Activity-Specific Plans/Programs as per EMP

To be Prepared During	Specific Plan/Program	Purpose	Responsible for Preparation	Responsible for Implementation
Detailed Design Phase	Environmental monitoring program as per detailed design	Indicate sampling locations, methodology and parameters	PMC/DSC	Contractor
Detailed Design Phase	Erosion control and re-vegetation plan	Mitigate impacts due to erosion	PMC/DSC	Contractor
Detailed Design Phase	List and maps showing utilities to be shifted	Utilities shifting	DSC during preliminary stage Contractor as per detailed design	Contractor
Detailed Design Phase	Contingency plan	Mitigate impacts due to interruption of services during utilities shifting	Contractor	Contractor
Detailed Design Phase	Chance find protocol	Address archaeological or historical finds	PMC/DSC	Contractor
Detailed Design Phase	List of pre-approved sites	Location/s for work camps, areas for stockpile, storage and disposal	PIU and DSC	Contractor
Detailed Design Phase	Waste management plan	Mitigate impacts due to waste generation	Contractor	Contractor
Detailed Design Phase	Traffic management plan	Mitigate impacts due to transport of materials and pipe laying works	Contractor	Contractor
Detailed Design Phase	H&S plan	Occupational health and safety	Contractor	Contractor
Detailed Design Phase	Spill prevention and containment plan	Mitigate impacts of accidental spills of oil, lubricants, fuels, concrete, and other hazardous materials	Contractor	Contractor

D. Environmental Monitoring Program

106. Through integration of mitigation measures in project design, impacts are mostly insignificant, temporary in nature and can be properly avoided or mitigated by following proposed mitigation measures given in the EMP of this IEE report.

107. **Table 10** provides the indicative environmental monitoring program which includes relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards, and responsibility. This will be updated during detailed design to ensure EMP and monitoring program is commensurate to the impacts of the subproject.

Table 10: Indicative Environmental Monitoring Program

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
1. Detailed Design Phase							
Consents, permits, clearances, no objection certificate (NOC), etc.	- Consents, permits, clearance, NOCs, etc. - Records and communications - Detailed design documents and drawings	n/a	Visual inspection	check CFEs, permits, clearance, Acknowledge upon receipt Send report as specified in CFE, permits, etc.	Obtained prior to start of civil works Conditions of consents, permits, clearance, NOCs, etc incorporated in detailed design	already covered under PMU and PIU	PMU
Establishment of baseline environmental conditions prior to start of civil works and monitoring during-construction & post-construction time	Ambient air quality – RSPM, SO_2, NO_2	Two Locations: 1-In between Ramchandra Chowk to U. S. Club 2-Ritz to Sanjauli (one location each)	Collection of air samples (continuously 24 hours)	Thrice: 1-Prior to start of civil works 2-During-construction & 3-Post-construction time (Pre-monsoon & Post-monsoon)	baseline data included in updated IEE report	10,000 per sample	PMU
	Noise levels – day time	Two Locations: 1-In between Ramchandra Chowk to U. S. Club 2-Ritz to Sanjauli (one location each)	Use of noise meters (once)	Thrice: 1-Prior to start of civil works 2-During-construction & 3-Post-construction time (Pre-monsoon & Post-monsoon)	baseline data included in updated IEE report	4,000 per sample	PMU
Erosion control	Erosion control and re-vegetation plan covering construction phase	n/a	Checking of erosion control and re-vegetation plan	Upon finalization of detailed design	included in updated IEE report provided to contractor	already covered under PMU and PIU	Contractor
Utilities	List and maps showing utilities to be shifted Contingency plan for services disruption	n/a	Checking of list and maps showing utilities to be shifted Checking of	Upon finalization of detailed design	included in updated IEE report provided to contractor	already covered under PMU/PIU and PMC/DSC	DSC – preliminary design stage Contractor – detailed design

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
			contingency plan for services disruption				stage
Social and Cultural Resources	Chance find protocol	n/a	Checking of chance find protocol	Upon finalization of detailed design	included in updated IEE report copy and orientation provided to contractor	already covered under PMU/PIU and PMC/DSC	PMU
Sites for construction work camps, areas for stockpile, storage and disposal	List of pre-approved sites for construction work camps, areas for stockpile, storage and disposal	sites for construction work camps, areas for stockpile, storage and disposal	Visual inspection	Upon approval of site/s	included in updated IEE report information provided to contractor		DSC
	Waste management plan	n/a	Checking of waste management plan	Upon finalization of detailed design	included in updated IEE report provided to contractor	already covered under PMU/PIU and PMC/DSC	
Sources of construction materials	Permits issued to quarries/sources of materials	n/a	Checking of permits	Upon submission by contractor	contractor's submission	already covered under PMU/PIU and PMC/DSC	PMC and DSC
Access	Traffic management plan	n/a	Checking of traffic management plan as per detailed design (alignment, routes, etc)	Prior to start of civil works	contractor's submission	contractor's cost	Contractor
Occupational health and safety	Health and safety (H&S) plan	n/a	Checking of H&S plan	Prior to start of civil works	contractor's submission	contractor's cost	Contractor
Public consultations	- Disclosure records - Consultations	- locations of affected persons - locations of stakeholders	Documentation of (minutes of consultations, date/s, location/s, issue/s raised, photographs, etc.)	- During updating of IEE Report - During preparation of site- and activity-specific plans as per EMP - Prior to start of construction - During construction	included in updated IEE	already covered under PMU/PIU and PMC/DSC	PMU/PMC/DSC
2. Construction Phase							
Erosion hazards	Erosion control and re-	- Construction	Visual	- daily visual inspection	- no erosion	Contractor's	Contractor

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
	vegetation plan	zone - storage areas	inspection	by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- erosion control in place - measures in erosion control and re-vegetation plan implemented	cost	
Impacts on water quality	- Any construction related materials - visible seepage of paints, oils, silts, etc. from storage areas - complaints related to water quality	Adjacent bodies of water including drainages, canals/nallahs, etc.	Visual inspection	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- no visible change in pre-construction quality of adjacent bodies of water including drainages, canals/nallahs, etc. - no disposal and/or seepage to adjacent bodies of water including drainages, canals/nallahs, etc.	Contractor's cost	Contractor
Impacts on air quality	- water spraying on stockpiles - excessive dust emissions - vehicles "pollution under control" certificate from Himachal Pradesh SPCB - CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project - complaints related to air quality.	- Construction zone - Sensitive receptors site/s	Visual inspection	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- no excessive dust emissions - no complaints from sensitive receptors - Valid pollution under control certificate/s. CFE, and/or CFO	Contractor's cost	Contractor

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
Noise and vibrations impacts	- work schedule (limit to day time only in temple complexes and other important areas) - activities with the greatest potential to generate noise (conducted during periods of the day which will result in least disturbance) - vehicle silencers and noise-reducing mufflers - complaints related to noise and vibrations	- Construction zone - Sensitive receptors site/s - silence zone/s	Visual inspection	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- no complaints from sensitive receptors	Contractor's cost	Contractor
Impacts on flora and fauna	- site induction and environmental awareness - number of trees cut - number of trees replanted - survival rate of trees planted	- construction zone - sites approved by Forest Department for replanting, if any	Visual inspection	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- all contractor's employees have undertaken site induction and environmental awareness prior to mobilization - approved trees to be cut - approved tree species for replantation	Contractor's cost	Contractor
Impacts on physical and cultural resources	- damage to structures/properties adjacent to construction zone - sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints - number of workforce near the school/s and other sensitive receptor/s	- construction zone	Visual monitoring	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- no damage to structures/properties adjacent to construction zone - sign boards understandable by local people - sufficient number of workforce near the school/s and other sensitive receptor/s - wastes managed according to waste	Contractor's cost	Contractor

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
	- housekeeping practices, wastes around construction zones - toilet facilities for workers - transportation routes and schedule - chance find procedure				management plan - clean and usable toilet facilities for workers - transportation routes and schedule followed - no complaints from sensitive receptors - chance find procedures followed, as necessary		
Impact due to waste generation	- provisions of the waste management plan - quantity of excavated soils - quantity of used oil and lubricants - excess construction materials, and solid waste (removed concrete, wood, trees and plants, packaging materials, empty containers, oils, lubricants, and other similar items)	- construction zone	Visual monitoring	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- wastes managed according to waste management plan - no complaints from sensitive receptors	Contractor's cost	Contractor
Impacts on occupational health and safety	- IFC EHS Guidelines on Occupational Health and Safety - noise level and duration of exposure - PPEs, high visibility vests, hearing protection, etc. - conduct of H&S orientation training - qualified first aider and equipped first aid stations - medical insurance coverage for workers	- construction zone	- visual monitoring - checking of records	- daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) - random inspection by PMU, PIU, PMC and/or DSC	- conditions in H&S plan - all workers oriented on H&S plan - use of PPEs, etc at all times - max of 80 dBA and 8 hours exposure - visible first aid equipment and medical supplies - areas secured - trenches barricaded - adequate potable drinking water	Contractor's cost	Contractor

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
	- security in construction zone - potable drinking water supply - clean eating areas - conduct of visitor orientation - audible back-up alarms for vehicles - sign boards in the construction zone - site accident records				- clean eating areas away from hazardous or noxious substances - visible and understandable sign boards in construction zone		
Impacts on socio-economic activities	- % of locals in labor force - complaints/ grievances	- construction zone	checking of records	- random inspection by PMU, PIU, PMC and/or DSC - during complaints/ grievance redressal	- least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available - complaints/grievance addressed as per GRM	Contractor's cost	Contractor
3. Post-construction Phase							
Solid waste (debris, excavated soils, etc.)	- disturbed areas	- construction zone	visual inspection	upon completion of civil works prior to turn over to asset owner	- backfilled any excavation and trenches - reclaimed disturbed areas. - Re-established original grade and drainage pattern to the extent practicable. - stabilized all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees - restored access roads, staging areas, and temporary work areas. - restored roadside	Contractor's cost	Contractor

Potential Impact	Parameter to be monitored	Proposed Locations	Method of Monitoring	Frequency of monitoring	Indicator of Compliance	Cost	Source of Funds
					vegetation, if removed - removed all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. - demolished buildings/structures not required for O&M. - disposed in designated disposal sites. - success of re-vegetation and tree re-planting. Replaced all plants determined to be in an unhealthy condition. - documentation from PIU/DSC that construction zones have been restored.		

E. Capacity Building

108. The Environmental Specialist of the DSC will provide the basic training required for environmental awareness followed by specific aspects of infrastructure improvement Projects along with Environmental implications for projects. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Programme and the requirements of the project. The entire training will cover basic principles of environmental assessment and management; mitigation plans and programmes, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 11** below. This training program is intended for the entire destination and is not just specific to this package.

Table 11: Training Modules for Environmental Management (Common for Entire Project)

Program	Description	Participants	Form of Training	Duration/ Location	Training Conducting Agency
A. Pre-Construction Stage					
Sensitization Workshop	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Govt. of India and ADB	Tourism / Forest / Roads / Culture Department Officials, Project Director (PD) and Environmental Specialist (ES) of the PMU/PIU	Workshop	½ Working Day	Environmental Specialist of the PMC and DSC
B. Construction Stage					
Training Session 1	Roles and Responsibilities of officials / contractors / consultants towards protection of environment Implementation Arrangements	Engineers and staff of line depts. of GoHP, and PMU/PIU (including the ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC and DSC
Training Session 2	Monitoring and Reporting System	Engineers and staff of implementing agencies and PMU/ PIU (including ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC and DSC

F. EMP Implementation Cost

109. As part of good engineering practices in the project, there have been several measures as safety, signage, dust suppression, procurement of personal protective equipment, provision of drains, etc. and the costs for which will be included in the design costs of specific subprojects. Therefore, these items of costs have not been included in the IEE budget. Only those items not covered under budgets for construction are considered in the IEE budget.

110. This is a small construction project and it is not expected to cause much significant air, water and noise pollution. The main EMP cost will arise from monitoring of environmental parameters (air, water and noise) and training.

111. The costs of water sprinkling for dust suppression and providing personal protective equipment's to construction workers shall borne by contractor as part of conditions of contract. In addition the sources of funds for Mitigation measures during construction stage including

monitoring during construction stage are also to be borne by the contractor. These are deemed to be included as part of the contract price amount quoted by the contractor for the works. The costs of components for monitoring in operation stage and the capacity building costs are to be funded by the PMU. The EMP cost is given in the **Table 12** below.

Table 12: Indicative EMP Budget

S.N.	Particulars	Stages	Unit	Total number	Rate (INR)	Cost (INR)	Source of fund
A. Monitoring Measures							
1	Air quality monitoring- 24 hourly (RSPM, SO_2, NO_2) (Two Locations)	Prior to start of civil work	Per sample	6	10,000	60,000	PMU
		During-Construction					
		Post-Construction					
2	Noise Levels - Day time by noise meter (Two Locations)	Prior to start of civil work	Per sample	6	4,000	24,000	PMU
		During-Construction					
		Post-Construction					
	Transportation & sampling cost will be borne by HPPCB			Three times	L S	1,66,000	PMU
Sub- Total (A)						**2,50,000**	
Remark: Unit Rate is based on rate list provided by HPPCB and transportation & sampling charges will be given by them prior to start work							
B.	**Capacity Building – Training cost**						
1	Sensitization Workshop	Pre-Construction	L.S			1,50,000	PMU
2	Training Session I	Construction	L.S			1,50,000	PMU
3	Training Session II	Construction	L.S			1,50,000	PMU
Sub -Total (B)						**4,50,000**	
Total (A+B) INR						**7,00,000**	

IX. FINDINGS AND RECOMMENDATIONS

112. The proposed components as part of the package are in line with the sub-project selection criteria for the program. The subproject conforms to all GoI and ADB regulations, policies, and standards including all necessary government permits and clearances.

113. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the sub-project. The effective implementation of the measures proposed will be ensured through the building up of capacity towards environmental management within the PMU supplemented with the technical expertise of a Safeguards Specialist as part of the DSC Consultants. Further, the environmental monitoring plans provide adequate opportunity towards course correction to address any residual impacts during construction or operation stages.

X. CONCLUSIONS

114. The IEE carried out for the sub-project show that the proposed sub-components will result in net environmental benefits, and that any adverse environmental impact can be addressed through proper location, planning and design of the proposed sub-project; control of construction activity and mitigation measures. The EMP provides for mitigation of all identified impacts and the Contract clauses for the environmental provisions will be part of the

civil works contracts. Further, the proposed designs have been consulted with the stakeholders and no significant issues requiring redress in terms of environmental safeguards are known to exist at present.

115. Based on the findings of the IEE, there are no significant impacts and the classification of the subproject as Category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009).

Annexure-1

Rapid Environmental Assessment (REA) Checklist

Instructions:
(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation and (d) gender checklists.
(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject: Restoration of Shimla Mall Road Extension
Country/Project Title: India/Infrastructure development Investment program (IDIPT-HP)
Sector Division: Urban Development.

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area…			
▪ Densely populated?	✓		The project area comprises the town centre and its vicinity which is the hub of business, education, entertainment and tourist activity.
▪ Heavy with development activities?		✓	Development activities on the extended stretches are restricted
▪ Adjacent to or within any environmentally sensitive areas?		✓	The sub-project area is not adjacent to or within any environmentally sensitive areas.
• Cultural heritage site	✓		The project area is city-level Heritage Core Zone of Mall Road, under MC, Shimla Notification dated 22-Aug-2002 and as per Zoning Regulations of TCP notification No. TCP-F(5)-5/2010 dated 28-02-2011 implemented by MC Shimla. In this context work covers the entire stretch of roads & the building facades. In addition, the whole town and its surroundings are interspersed with designated protected or reserved forests which have an associated eco-system value that plays a vital role in lending Shimla its unique natural heritage.
• Protected Area	✓		Regulated heritage area under MC, Shimla Notification dated 22-Aug-2002 and as per Zoning Regulations of TCP notification No. TCP-F(5)-5/2010 dated 28-02-2011 implemented by MC Shimla.
• Wetland		✓	The building structures are in existence at site and no wet land near the subproject site.
• Mangrove		✓	The areas are totally developed with building structures and no mangrove nearby the site.
• Estuarine		✓	No estuarine nearby.
• Buffer zone of protected area		✓	None. The project sites do not fall under any buffer zone.
• Special area for protecting biodiversity		✓	None. The project sites do not fall under any special area for protection biodiversity.
• Bay		✓	The sites are on hilly area.
B. Potential Environmental Impacts Will the Project cause…			

Screening Questions	Yes	No	Remarks
▪ impact on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.		✓	Temporary minor impact is anticipated during construction & renovation of existing public toilets for which adequate measures will be taken. If required, mobile toilets shall be installed for intermediary use during such time.
▪ deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?		✓	Only improvement to the existing facilities are proposed and no rapid urban growth is anticipated due to this activity as is it saturated for any further growths.
▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		✓	The project area has been selected for up-gradation of existing facilities to enhance the cultural value and facilitate residents and tourists alike. Since the nature of works and areas are all pre- existing, no such impact is envisaged.
▪ dislocation or involuntary resettlement of people?		✓	Not required as no land acquisition involved
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group?		✓	No such impacts are anticipated. The sub project will generate the employment opportunity to such groups.
▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?		✓	On completion of the subproject the cultural heritage value will enhance and thereby influx of tourists will increase and revenue increase.
▪ occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		✓	No such cases noticed as the site is a restricted area and more over the project has no pollutive industrial activities.
▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters?	✓		The project area is located in the core area of the town which experiences water shortages especially during summer months. Some water resource problem may emerge due to the volume of construction activity and its duration. Adequate alternative provisions to meet the increased water demand for construction may be made through rain water collection and waste water recycling with proper inclusion in the contract documents and briefing the Contractor. The project includes considerable road lengths with adjoining surface drains that can be utilized for this purpose.
▪ air pollution due to urban emission?		✓	Though not directly, but during the construction phase anticipated if any, will be addressed properly in the EMP
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation?	✓		Some risk pertaining to occupational safety remains due to construction work to be carried out in the hilly terrain warranting adoption of safety measures such as use of personal protective gear, cautionary signage and proper material storage.

Screening Questions	Yes	No	Remarks
▪ road blocking and temporary flooding due to land excavation during rainy season?	✓		Temporary road blockage for construction work is envisaged, however not due to land excavation. The same can be remedied by implementing works in a phased manner - opening alternative routes or bifurcating existing roads. Vehicular access is currently minimal on the proposed roads. However caution shall need to be exercised for taking up construction activity during extreme weather conditions (like rain or snow) to avoid accidents and injury either to the general public or workers on site.
▪ noise and dust from construction activities?	✓		Minor increase in noise levels and dust generation from construction activities is anticipated but shall be temporary in nature coinciding only with the duration of construction activities and will be of site specific. This shall be minimized by adopting suitable mitigation measures during implementation.
▪ traffic disturbances due to construction material transport and wastes?		✓	The area has minimal vehicular movement due to roads being 'restricted' or 'sealed' hence not much disturbance to traffic is envisaged. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances
▪ temporary silt runoff due to construction?	✓		Temporary silt run off possible, coinciding with rainy season. Majority works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drain during rainy seasons, silt barrier will be provided at the sides of the drains. Appropriate material storage will help mitigate temporary silt run-off. Other project components such as landscaping shall also help minimize silt run-off in the long term.
▪ hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		✓	Not foreseen due to the nature of works involved.
▪ water depletion and/or degradation?		✓	No water bodies involved.
▪ overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		✓	Water for construction will be made through transportation from external sources.
▪ contamination of surface and ground waters due to improper waste disposal?	✓		Contamination of surface and ground water is possible from improper material handling and storage such as for bitumen, paints and fuels. Appropriate material storage and handling practice can help mitigate this risk for which instructions shall be passed to the Contractor.
▪ pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		✓	No receiving waters in the nearby area.
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Negligible quantum only which can be addressed in the EMP
▪ social conflicts if workers from other regions or countries are hired?		✓	Not applicable as the demand for labour category is much high.

Screening Questions	Yes	No	Remarks
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?		✓	The construction activity needs to be well planned & executed in a phased manner so as to minimize community health and safety risks especially with respect to seasonal challenges, mobility issues and impact on local businesses.
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	✓		The subproject is located in seismic zone IV. Due to the natural topography of hilly terrain landslides are a common phenomenon. In addition, the project site is located in the core area of the town that is heavily congested and a major public access in the town connecting almost all commercial, residential and office areas. Safety risks due to accidents and natural causes cannot be ruled out and can become a major hazard if the project execution is not carried out in a well planned phased manner. The most vulnerable among the proposed activities is the area of the Ridge and those that are located north of it.

PRELIMINARY CLIMATE RISK SCREENING CHECKLIST FOR SAMPLE SUBPROJECT TOWNS

Screening Questions		Score	Remarks[6]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	1	Extreme cold conditions is experienced in Shimla during winters and Shimla is also prone to landslides, though the proposed sites are not affected from landslides
	Will the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	No such issue may affect the project
Materials and Maintenance	Will weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity, and hydro-meteorological parameters) affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	No such issue may affect the project
	Will weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	0	No problem is envisaged in future which likely affect the maintenance
Performance of project outputs	Will weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	No problem will envisaged in future which likely affect the performance of project output

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[6] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): Low

Other Comments: None

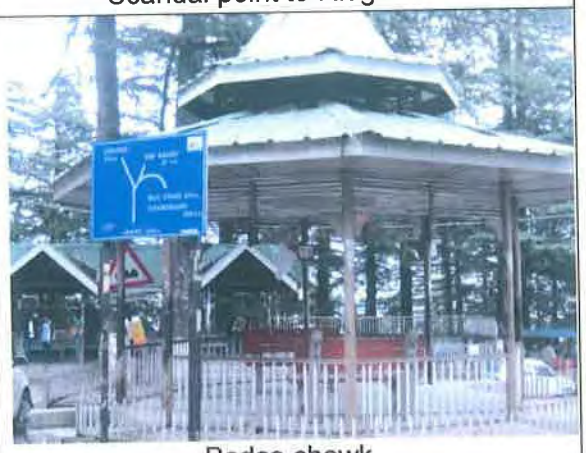
Annexure-2

Photo Illustration

Scandal Point

Scandal point to Ridge road

Oak over to Bedes Chowk Road



Bedes chowk

Ram Chandra Chowk to U.S. Club road

Religious trust at Ram Chandra Chowk

Ridge to Sanjauli Road

Ridge to Sanjauli Road

Ridge to Chalet Day School via U.S. Club

Blocked & uneven drains beside the road to Ridge to Chalet Day School

Road leading to Peter Hoff and Advanced Studies.

Ambedkar Chowk

Annexure-3

Sample Outline of Spoil Management Plan (SMP)

1.0 Purpose and application:

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works in accordance with the spoil management hierarchy outlined in this document.

2.0 Objectives of SMP:

The objectives of SMP are:

- To minimize spoil generation where possible
- Maximize beneficial reuse of spoil from construction works in accordance with spoil management hierarchy
- Mange onsite spoil handling to minimize environmental impacts on resident and other receivers
- Minimize any further site contamination of land, water, soil
- Manage the transportation of spoil with consideration of traffic impacts and transport related emissions

3.0 Structure of SMP:

Section 1: Introduction of SMP
Section 2: Legal and other requirements
Section 3: Roles and responsibilities
Section 4: Identification and assessment of spoil aspects and impacts
Section 5: Spoil volumes, characteristics and minimization
Section 6: Spoil reuses opportunities, identification and assessment
Section 7: On site spoil management approach
Section 8: Spoil transportation methodology
Section 9: Monitoring, Reporting, Review, and Improvements

4.0 Aspects and Potential Impacts

The key aspects of potential impacts in relation to SMP are listed in table below

Aspects	Potential Impacts
Air Quality	Potential for high winds generating airborne dust from the stock piles
Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads
Surface and Groundwater	Contamination of water (surface and ground water)
Noise	Associated with spoil handling and haulage and storage
Traffic	Impacts associated with spoil haulage
Land Use	Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal
Design specifications	Limitations on opportunities to minimize spoil generation
Sustainability	Limited sites for storage, reuse opportunities

5.0 Spoil volumes, characteristics and minimization

5.1 Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites.

5.2 Characterization of spoil: Based on the type of spoil; characterization is done (sand stone, mud mix materials, reusable materials

5.3 Adopt Spoil Reduce, Reuse Opportunities

An overview of the assessment methodology to be used is mentioned below.

- Consideration of likely spoil characteristics
- Identification of possible reuse sites
- Screening of possible reuse opportunities

5.4 Identification of possible safe disposal sites for spoil: Those spoils which can't be reuse shall be properly disposed in designated areas, such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior cliental approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if required permission should be obtained from them.

5.5 Storage and stock piling

5.6 Transportation and haulage route

6.0 Based on the above, the contractor will prepare a SMP as an integral part of EMP and submit it to the PIU/DSC for their review and approval.

Annexure-4

Sample Traffic Management Plan (TMP)

A. Principles

1. One of the prime objectives of this TMP is to ensure the safety of all the road users along the work zone, and to address the following issues:

(i) the safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
(ii) protection of work crews from hazards associated with moving traffic;
(iii) mitigation of the adverse impact on road capacity and delays to the road users;
(iv) maintenance of access to adjoining properties
(v) Avoid hazards in
(vi) addressing issues that may delay the project.

B. Operating Policies for TMP

2. The following principles will help promote safe and efficient movement for all road users (motorists, bicyclists, and pedestrians, including persons with disabilities) through and around work zones while reasonably protecting workers and equipment.

(i) Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
(ii) Inhibit traffic movement as little as possible.
(iii) Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
(iv) Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
(v) Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
(vi) Train all persons that select, place, and maintain temporary traffic control devices.
(vii) Keep the public well informed.
(viii) Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

C. Analyze the impact due to street closure, if required

3. Apart from the capacity analysis, a final decision to close a particular street and divert the traffic should involve the following steps:

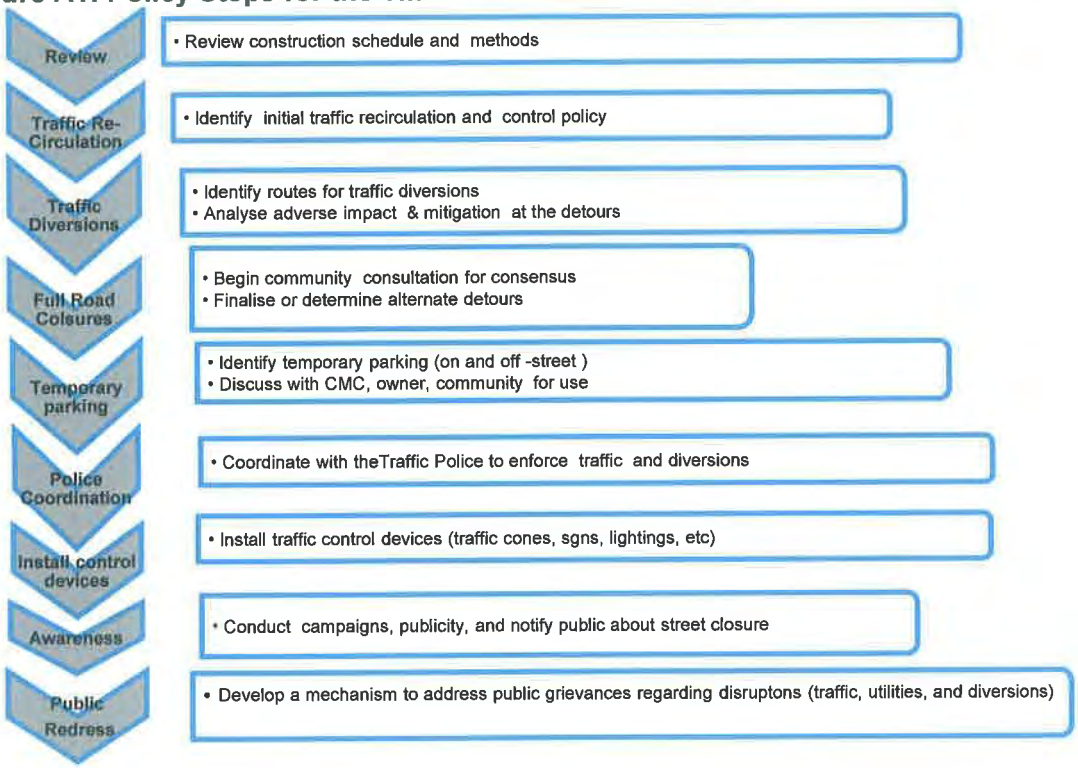
(i) approval from the PIU, local administration to use the local streets as detours;
(ii) consultation with businesses, community members, traffic police, PWD, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;
(iii) determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;
(iv) determining if additional traffic control or temporary improvements are needed along the detour route;
(v) considering how access will be provided to the worksite;

(vi) contacting emergency service, school officials, and transit authorities to determine if there are impacts to their operations; and

(vii) developing a notification program to the public so that the closure is not a surprise. As part of this program, the public should be advised of alternate routes that commuters can take or will have to take as result of the traffic diversion.

4. If full road-closure of certain streets within the area is not feasible due to inadequate capacity of the Detour Street or public opposition, the full closure can be restricted to weekends with the construction commencing on Saturday night and ending on Monday morning prior to the morning peak period.

Figure A1: Policy Steps for the TMP



D. Public awareness and notifications

5. As per discussions in the previous sections, there will be travel delays during the constructions, as is the case with most construction projects, albeit on a reduced scale if utilities and traffic management are properly coordinated. There are additional grounds for travel delays in the area, as most of the streets lack sufficient capacity to accommodate additional traffic from diverted traffic as a result of street closures to accommodate the works.

6. The awareness campaign and the prior notification for the public will be a continuous activity which the project will carry out to compensate for the above delays and minimize public claims as result of these problems. These activities will take place sufficiently in advance of the time when the roadblocks or traffic diversions take place at the particular streets. The reason for this is to allow sufficient time for the public and residents to understand the changes to their travel plans. The project will notify the public about the

roadblocks and traffic diversion through public notices, ward level meetings and city level meeting with the elected representatives.

7. The PIU will also conduct an awareness campaign to educate the public about the following issues:

(i) traffic control devices in place at the work zones (signs, traffic cones, barriers, etc.);
(ii) defensive driving behaviour along the work zones; and
(iii) reduced speeds enforced at the work zones and traffic diversions.

8. It may be necessary to conduct the awareness programs/campaigns on road safety during construction.

9. The campaign will cater to all types of target groups i.e. children, adults, and drivers. Therefore, these campaigns will be conducted in schools and community cum tourist reception centers. In addition, the project will publish a brochure for public information. These brochures will be widely circulated around the area and will also be available at the PIU, and the contractor's site office. The text of the brochure should be concise to be effective, with a lot of graphics. It will serve the following purpose:

(i) explain why the brochure was prepared, along with a brief description of the project;
(ii) advise the public to expect the unexpected;
(iii) educate the public about the various traffic control devices and safety measures adopted at the work zones;
(iv) educate the public about the safe road user behaviour to emulate at the work zones;
(v) tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and
(vi) indicate the office hours of relevant offices.

E. Vehicle Maintenance and Safety

10. A vehicle maintenance and safety program shall be implemented by the construction contractor. The contractor should ensure that all the vehicles are in proper running condition and it comply with roadworthy and meet certification standards of GOI. All vehicles to be used at STWSSP shall be in perfect condition meeting pollution standards of GOI. The vehicle operator requires a pre state of shift checklist. Additional safety precautions will include the requirement for:

- Driver will follow the special code of conduct and road safety rules of Government of India.
- Drivers to ensure that all loads are covered and secured drivers to ensure operation equipment can't leak materials hauled
- Vehicles will be cleaned and maintained in designed places.

F. Install traffic control devices at the work zones and traffic diversion routes

10. The purpose of installing traffic control devices at the work zones is to delineate these areas to warn, inform, and direct the road users about a hazard ahead, and to protect them as well as the workers. As proper delineation is a key to achieve the above objective, it is important to install good traffic signs at the work zones. The following traffic control devices are used in work zones:

- Signs
- Pavement Markings
- Channelizing Devices
- Arrow Panels
- Warning Lights

11. Procedures for installing traffic control devices at any work zone vary, depending on road configuration, location of the work, construction activity, duration, traffic speed and volume, and pedestrian traffic. Work will take place along major roads, and the minor internal roads. As such, the traffic volume and road geometry vary. The main roads carry considerable traffic; internal roads in the new city areas are wide but in old city roads very narrow and carry considerable traffic. However, regardless of where the construction takes place, all the work zones should be cordoned off, and traffic shifted away at least with traffic cones, barricades, and temporary signs (temporary "STOP" and "GO").

12. The work zone should take into consideration the space required for a buffer zone between the workers and the traffic (lateral and longitudinal) and the transition space required for delineation, as applicable. For the works, a 30 cm clearance between the traffic and the temporary STOP and GO signs should be provided. In addition, at least 60 cm is necessary to install the temporary traffic signs and cones.

13. Traffic police should regulate traffic away from the work zone and enforce the traffic diversion result from full street closure in certain areas during construction. Flaggers/ personnel should be equipped with reflective jackets at all times and have traffic control batons (preferably the LED type) for regulating the traffic during night time.

14 In addition to the delineation devices, all the construction workers should wear fluorescent safety vests and helmets in order to be visible to the motorists at all times. There should be provision for lighting beacons and street light for night constructions.

15. The PIU and contractor will coordinate with the local administration and traffic police regarding the traffic signs, detour, and any other matters related to traffic. The contractor will prepare the traffic management plan in detail and submit it along with the EMP for the final approval.

Annexure-5

Public Consultations

Place of Consultations: Different stretches of Shimla Mall Road Extensions
Date of Consultations: 23.07.2014

S.No.	Name of the person and place	Topics discussed	Outcomes
1.	Mr. Amit Gupta, Vijay General Store, near Ritz Cinema, Ridge to Chalet Day School Road	Sanitation conditions, Solid waste management, requirement of other facilities	Sanitation conditions are good, Solid waste is collected regularly by Municipal Corporation, very few dust bins are there at roads, solar lights are required, railing are damaged at places and needs to be repaired.
2.	Mr. Dharam Pal, D.P. Refreshments, near Ritz Cinema	Sanitation conditions, Solid waste management, requirement of other facilities	Sanitation and solid waste collection is proper, rain shelters are required as there are no arrangement for tourists to get shelter during rains, solar lights are required as there is insufficient lighting during night
3.	Mr. Sanchit Kaushal, Rajendra Kawal, visitors and students of Himachal University (near Christ Church)	Environmental issues in Shimla, visitor facilities required at Mall roads, sanitation and solid waste conditions, road conditions	Solid waste collection and sanitation conditions are adequate at Mall road, road conditions needs improvement, dust bins and rain shelters are required at different places, retaining wall is damaged in some places and needs to be repaired
4.	Mr. Stalk and Ms. Tamin, Israel tourist at Shimla	Environmental issues in Shimla, visitor facilities required at Mall roads, sanitation and solid waste conditions, road conditions	Environmental conditions in Shimla are good enough. Roads need strengthening and tourism information boards needs to be displayed at prominent locations.
5.	Mr. Vishal Thakur, sewadar, Radhaswamy Satsang Vyas, Ram Chandra Chowk	Issues of required facilities at this road, conditions of road and requirement of strengthening, landslides in the area	Road is being used for morning and evening walks by tourists and locals, road side rain shelters are required, parking space is required, landslides occurs during rainy season due to poor retaining walls, which needs to be strengthen.

Public consultation at Ram Chandra Chowk

Consultations at Ridge, near Cathedral Church

Consultations on Extended Stretches

This stretch pertains to following roads connecting to the focus stretch of the Mall:

i. Road from Scandal Point to Kali Bari
ii. Road from Ridge to Sanjauli via Lakkar Bazaar
iii. Road from Ritz Cinema to Chalet Day School via U.S. Club
iv. Road from Mother Choice to Ritz and Rani Jhansi Park
v. Road from Telegraph Office to Advanced Studies
vi. Road from Shimla Club to Chhota Shimla
vii. Road from Oakover to Bede's Chowk via Forest Road
viii. Road from Raj Bhavan to U.S. Club gate via Forest road and Ram Chandra Chowk
ix. Road from Shimla Club to High Court (junction near Clark's Hotel)

Most of these stretches, connecting the Mall are isolated and lonely during most part of the day and used by local citizens. Tourists mostly pass through these stretches in vehicles to reach to the Mall. Only a few stretches like road from Ridge to Sanjauli via Lakkar Bazaar and Shimla Club to Chhota Shimla are having some shops and few vendors. So, naturally, the proposed development on these stretches are mainly related to street lights, benches, drinking water spots, toilets and such that we make tourism related services both to the residents and tourists as well.

Like the focus stretch of the Mall, this stretch also comes under category C for involuntary resettlement and category C for indigenous peoples too. The subproject does not result in any physical or economic displacement due to involuntary acquisition of land, or involuntary restrictions on land use and similarly does not affect indigenous peoples. This came out from this stakeholders consultation process too.

The process of stakeholders' consultation was same as undertaken for focus stretch of the Mall. In fact, the representatives of business communities and shopkeepers consulted during focus stretch had given their views from the perspectives of all shopkeepers including those operating on this extended stretch.

The consultation with various other stakeholders has been summarised as below:

1. Consultation with Women Students on Indira Gandhi Medical College Road

This consultation focussed mainly on the road connecting the Ridge to Sanjauli which is used my many students who reside here for their studies related to medical, pharmacy and para-medical. It has numerous shops catering to the needs of tourists as well as residents including students.

The five women students who participated in the consultation were studying pharmacy and were originally from Chandigarh. They were using the concerned road to come to the Mall almost every weekend. Views expressed by them can be put as under:

- Road from the Ridge to Sanjauli is not safe for women in nights. Though there is no untoward incidence, but those coming from outside the Himachal fill unsafe while walking on this road.
- Condition of road is poor in comparison to other roads in the vicinity. It is welcome if it can be reconstructed.
- Unsafe feeling is mostly due to lack of lights/ lamp posts on the roads. There should be lights around the places like Kamla Nehru Hospital, Marina Hotel and Shimla Club.

- There is hardly any toilet on Lakkar Bazaar which can be used by women. So, attempt should be made to construct such toilets on this road. It will be useful to local citizen and tourists who enjoy marketing on this road.
- There should be signages with messages requesting citizens and tourists not to spit on roads and follow certain basics to cleanliness and sanitation.

2. Consultation with Citizens near Shimla Club Stand

There is a stand near Shimla Club from where shared taxis are available for Chhota Shimla and Sanjauli. One can find the commuters here who live in Shimla and use almost all the roads in this stretch from time to time. So, a consultation here, mostly individually and in groups of two-three persons, was quite informative.

What emerged from consultations at this place can be put as under:

- Road going towards Chhota Shimla needs light posts and benches at regular intervals.
- Condition of road linking Ridge, Medical College and Sanjauli is very bad. Drainage system is dilapidated. Corrective measures should be undertaken as early as possible.
- There are no proper toilets on the above mentioned road, though the road has a high number of commuters and tourists.
- From street light/ lamp post point of view, the most lacking spots are areas around Rahat Hotel, Roots School and the Navbahar. Proper arrangements should be made now.
- The road stretch from U.S. Club towards Machchhi Kothi is so steep that commuters and tourist, particularly of old age, get very tired in covering even that small distance. Space should be identified at appropriate place and a bench or two should be placed.

- Similarly, on the stretch between U.S. Club and Ramchandra Chowk requires arrangements for drinking water and sitting benches.

3. Consultation with Citizens near Navbahar circle/ Bede's Chowk

Citizen and commuters were quite vocal when it was informed to them that there was all possibility to provide basic tourism related services on this road connecting to the Mall. Navbahar was the point which was discussed the most and lights in the night were most desired. The place remains dark and isolated even during day time as the road is forested.

This consultation pertains mostly regarding the road from Oakover to Bede's Chowk via Forest Road. This is a relatively long stretch with heavy forest cover. Those who participated in the consultation here were mostly the women. Facility of drinking water and provision of benches were not of much concern for them. They found it adequate at present.
The most desired need was that of road lights all along the stretch as this road was used by a number of families living in the town as well as tourists. Toilets too were a concern. They wanted to have one or two such toilet facility on this road which is cleanly maintained.

4. Consultation with Tourists near Hotel Rahat

This is also concerning the same road mentioned above. Here some persons from the management of Rahat Hotel and some of the tourists available there, participated in a relatively short discussion.
Some of the views emanating from this discussion can be put as under:

- Starting from Hotel Rahat to Oakover, there is no proper road lighting. Tourists felt, they preferred to remain in the hotel during night. In case of proper road lights, they would have taken small walks and seen the area.

- Lights are required even towards the road leading to Raj Bhavan.
- Benches are required on this road as this stretch is full of beauty and peace. Tourists also felt that they could think of spending time in open on this road if they could fine nice benches at appropriate places with signages showing important and historic locations.
- Location can be identified to develop a small park between Hotel Rahat and the Oakover.

Overall, this process of stakeholders' consultation was interesting, participatory and informative from the point of view of designing this subproject along the focus stretch of the Mall Road and adjoining extended areas. The stakeholders were open, vocal and supportive in vending their ideas and views on the proposed development work under this subproject. The outcome of this process would help in finalising the design for restoration of the Mall and extended areas.

Annexure-6

Sample Grievance Redress Form

(To be available in Local Language and English)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		**Place of registration**			
Contact Information/Personal Details					
Name		**Gender**	* Male * Female	**Age**	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

Annexure-7

Sample Semi-Annual Environmental Monitoring Report Template

This template must be included as an Annex in the EIA/IEE that will be prepared for the project. It can be adapted to the specific project as necessary.

INTRODUCTION

- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Constructio n	Constructio n	Operational		
		☐	☐	☐	☐		
		☐	☐	☐	☐		
		☐	☐	☐	☐		

COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

No.	Sub-Project Name	Statutory Environmental Requirements	Status of Compliance	Action Required

COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There should be Reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual Report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
  - What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
  - If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
  - adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;

- Are their designated areas for concrete works, and refuelling;
- Are their spill kits on site and if there are site procedure for handling emergencies;
- Is there any chemical stored on site and what is the storage condition?
- Is there any dewatering activities if yes, where is the water being discharged;
- How are the stockpiles being managed;
- How is solid and liquid waste being handled on site;
- Review of the complaint management system;
- Checking if there are any activities being under taken out of working hours and how that is being managed.

Annexure-8

Summary Monitoring Table

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

Overall Compliance with CEMP/EMP

No.	Sub-Project Name	EMP/CEMP Part of Contract Documents (Y/N)	CEMP/EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed & Additional Measures Required

APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

- Brief description on the approach and methodology used for environmental monitoring of each sub-project

MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

- Brief discussion on the basis for monitoring
- Indicate type and location of environmental parameters to be monitored
- Indicate the method of monitoring and equipment to be used
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

As a minimum the results should be presented as per the tables below.

Air Quality Results

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Water Quality Results

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Noise Quality Results

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

- Summary of follow up time-bound actions to be taken within a set timeframe.

Annexes

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection Report
- Other

Annexure-9

SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name
Contract Number

NAME: _____ DATE: _____
TITLE: _____ DMA: _____
LOCATION: _____ GROUP:

WEATHER CONDITION:

INITIAL SITE CONDITION:

CONCLUDING SITE CONDITION:

Satisfactory _____ Unsatisfactory _____ Incident _____ Resolved _____ Unresolved _____

INCIDENT:
Nature of incident:

Intervention Steps:

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

Inspection

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition Yes No

Signature

Sign off

Name Name
Position Position