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Ministry of Local Development
District Development Committee
Sankhuwasabha

DISTRICT TRANSPORT MASTER PLAN **Sankhuwasabha**

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संखुवासभा, खांदबारी



Foreword

It is my great pleasure to introduce this District Transport Master Plan (DTMP) of Sankhuwasabha district. I believe that this document will be helpful in backstopping to Rural Transport Infrastructure Sector Wide Approach (RTI SWAp) through sustainable planning, resources mobilization, implementation and monitoring of the rural road sub-sector development. The document is anticipated to generate substantial employment opportunities for rural people through increased and reliable accessibility in on-farm and off-farm livelihood diversification and commercialization and industrialization of agriculture sector. In this context, rural road sector will play a fundamental role to strengthen and promote overall economic growth of this district through established and improved year round transport services reinforcing intra and inter-district linkages .

Therefore, it is most crucial in expanding rural road networks in a planned way as per the District Transport Master Plan (DTMP) by considering the framework of available resources in DDC comprising both internal and external sources. Viewing these aspects, DDC Sankhuwasabha has prepared the DTMP by focusing most of the available resources into upgrading and maintenance of the existing road networks. This document is also been assumed to be helpful in lobbying and fascinating the donor agencies through government of Nepal towards generating resources through basket fund approach. Furthermore, this document will be supportive in avoiding duplication in allocation of resources.

I would like to express my gratitude to Mr. Bakhat Bahadur Shahi, Field Coordinator and Mrs. Nigma Tamrakar, Socio-Economist, for their continuous dedication, hard work and cooperation in bringing this DTMP document at this final stage successfully. I am also thankful with other technical experts of Helvetas Nepal who provided their valuable efforts in the process of producing this document.

I would like to thank to Mr. Sanjay Prasad Sah, District Engineer, Mr. Laxmi Prasad Niraula, Planning Officer, Mr. Subhash Chandra Kuikel, Program Officer, and other DDC and DTO staffs who directly and indirectly supported in the process of preparing this document. My special thank goes to all the representatives of political parties and other DTICC members who played central role in providing constructive and valuable supports in preparing this document.

Finally, I would like to express my heartfelt gratitude to Ministry of Local Development, Department of Local Infrastructure Development and Agriculture Roads and Helvetas Nepal for their valuable support to prepare DTMP.

Kartik, 2067

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The DTMP team of Helvetas Nepal – Mr. Bakhat Bahadur Shahi, Field Coordinator, Mrs. Nigma Tamrakar, Socio-economist and central team Mr. Adhir Sharma, the Deputy Country Programme Director, Mr. Hare Ram Shrestha, Team Leader, Mr. Umesh K. Shrestha, Socio-economist, Ms. Diva Malla, GIS Officer, Mr. Sophiya Shrestha/Ms. Bipana Sharma, Technical Officer has prepared this report after extensive documentary consultation/field work, road inventory study (using GPS) and interaction relevant line agencies of the district. I thank the team who worked very hard to bring this report at this stage for successfully completing the work.

We are grateful to all the local people and leaders who have rendered their valuable accompany to our team during execution of the works.

Shiva Aryal
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ABBREVIATION

AMSL	:	Above Mean Sea Level
CEA	:	Cost Efficient Analysis
DADO	:	District Agriculture Development Office
DDC	:	District Development Committee
DEO	:	District Education office
DIM	:	District Inventory Map
DoLIDAR	:	Department of Local Infrastructure Development and Agricultural Road
DoR	:	Department of Road
DTICC	:	District Transport Infrastructure Coordination Committee
DTMP	:	District Transport Master Plan
DTPP	:	District Transport Perspective Plan
DVO	:	District Veterinary Office
GIS	:	Geographical Information system
GPS	:	Global Positioning System
GoN	:	Government of Nepal
Ha	:	Hectare
ICIMOD	:	International Centre for Integrated Mountain Development
IDPM	:	Indicative Development Potential Map
Km	:	Kilometre
LGCDP	:	Local Governance and Community Development Programme
LEP	:	Labour based, Environment friendly and Participatory
MLD	:	Ministry of Local Development
NTC	:	Nepal Telecommunication Ltd
NTFP	:	Non-Timber Forest Product
PCO	:	Public Call Office
P-RRA	:	Participatory Rapid Rural Appraisal
TBSU	:	Trail Bridge Support Unit
TU	:	Traffic Unit
VDC	:	Village Development Committee
RCIW	:	Rural Community Infrastructure Works
RAP	:	Rural Access Programme
RTI	:	Rural Transport Infrastructure
SoR	:	Service of Roads
SWAp	:	Sector Wide Approach
RCC	:	Reinforce Cement Concrete
RRA	:	District Road Class A
RRB	:	District Road Class B
VR	:	Village Road
UR	:	Urban Road
Zol	:	Zone of Influence

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Executive Summary

Sankhuwasabha district is located in the high and mid-mountainous belt of Koshi zone at the Eastern Nepal. The district is bordered with Taplejung and Terathum district in the east, Solukhumbu and Bhojpur districts in the west, Dhankuta district in the south and Tibet the autonomous region of China in the north. The total area of the district is 3468.38 square kilometre. The district extends within latitude of 27° 06' to 27° 55' latitudes and longitude of 87° 57' to 87° 40' E. Climatically, the district has tremendous variation in accordance with the topographical setting and altitude, as this district holds the cool Alpine climate in the north to sub-tropical climate in the south. Topographically, the district has also tremendous variation, as the district deserves highest mountain peak of Mount Makalu (8463m) in the north part and lowest part of Kewabesi (250m) at the south. The district is endowed with historical base, tourism potential, mountainous topography and natural resources.

Khandbari bazaar is district head quarter located at mid-hill of the district. The district is divided into one municipality and 33 VDCs, 11 Illakas and two electoral constituencies for the administrative purpose. Total population of the district is 174,453 of which female is 89,142 (51.09%) and male is 85,310 (48.9%) residing in 33,713 households. Average household size is 6 and sex relation is 1:96. Population density is 50 per sq km. Marriage age of girls is 20.78 years and boys 23.5 years old. Majority of population are belonging to Janjati having their own living pattern and enjoy their native language. 62% of the population are janjati, followed by 27.25% Brahman and CHHsetri, 7.73% dalit and 2.24% others

The district is in 18th rank of overall development indicator, 7th in poverty and disadvantaged, 43th in social, economic and basic development indicator, 22nd in women empowerment, 50th in health and development indicator and 61st rank in basic development indicator

All the VDCs in the district are not equally covered with the basic infrastructure facilities, like water supply, electricity, communication, etc. Telephone facilities are extended up to 27 VDCs and one municipality covering 8.7% population and radio facilities reached to 61.3% population. Electricity facilities are access to 16 VDCs and 1 Municipality. About 10 VDCs have been connected by electricity from national grid benefiting covering 8% of the total HHs, similarly, 1.55% HHs has been benefited by Micro Hydro and 2.1% by peltric set. About 627 ICS have been installed and about 328 biogas plants were constructed. About 4,464 Solar TUKI were distributed in 2066 in all over the district by the Alternative Energy Promotion Centre and still more demand are coming from the mountain areas.

Improved drinking water facilities are enjoying by the 76.35% of the population and proper toilet is used up to 50.30% HHs of the district. Irrigation facilities are extended up to 51.78% of agricultural land i.e. 31,707 ha. The major crops are paddy, maize, millet, potato and wheat. Other cash crops are vegetable, cardamom, ginger and oranges. Major Livestocks are cow, buffalo, sheep, goat, duck, chicken and pig. Around 308 industries are operating under production, energy, agriculture, tourism, mineral, services and construction categories.

Major income sources of the district are cardamom, rudrakshya seed, chiraeto and khayer, etc from forest and other significant income source is tourism because of Makalu Barun National Park and other Himalayas in the district.

Basic infrastructures facilities like vehicle services, post office, drinking water, telephone, electricity, TV cable, higher education, agriculture and veterinary services as well as medical services are better managed in major market areas like Khandbari, Chainpur, Tumlingtar,

Pokhari, MudheSanischare, Manebhanjyang, Okharbote, Barahbise, Lingling, Bihibare bazaar, Mangalbare bazaar and in other potential market and growth centers as well.

In regard to existing transport accessibility situation, the district is getting better gradually in comparison to the past. Road transport service is a dominant in providing access to transport facilities in the district. The district is also equipped with air transport facility, which is limited in its service coverage. The Koshi highway has a central role in providing access to district with Terai regions through improved year round transport facility. However, the district headquarter is not linked with the all-weather transport services. Along with the intervention of Koshi highway, district and village roads have significant role in contributing to improved access to goods and services to markets. However, district and village roads are under poor condition requiring upgrading, rehabilitation and proper maintenance.

Transport is a backbone and pre-requisite in accelerating overall economic growth of the district through improved mobility in services and facilities between rural and urban territories of the district. It plays crucial role in providing linkages to different market and growth centres with district headquarter as well as outside regions through which overall development of the far and flung areas is promoted. More particularly, district road transport linkage has a fundamental role in promoting to agricultural and horticulture, tourism and commercial sector which is possible through well planned and managed sustainable rural road network development underpinning overall economic development of the district. In line with the facts, District Transport Master Plan (DTMP) has a fundamental role in equipping the district with the improved transport linkages. The DTMP document which is prepared based on the accessibility planning is a long-term perspective plan of district roads to be developed within the territories of the district. This DTMP is a reflection of transport infrastructure situation and future need in relation with the resources of the District.

The overall objective of the district Transport Master Plan (DTMP) is to develop roads in planned and sustainable manner by adopting the labour based, local resources oriented, environmental friendly technique in accordance with the decentralised participatory approach.

The scope of this plan consists of study of district roads including the socio-economic analysis and potentiality of various sectors as well as accessibility of the roads in the district.

The preparation process of DTMP is followed by several stages in its planning discourse. The secondary sources of information were collected from various line agencies. District level workshop was conducted to make aware and participation of political parties and local people in planning process of DTMP preparation. Cluster of *Illaka* level workshop was conducted to verify and validation of proposed network planning. The major tasks involves primary and secondary data/information collection, preparation of indicative development potential map, preparation of district inventory map, preparation of district network plan, preparation of district transport perspective plan, and preparation of district transport master plan and endorsement of the five year district transport investment master plan.

Study and analysis shows that total existing length of road in Sankhuwasabha district including strategy road is 542.76 km, out of which, about 425.18 km (78.34%) is occupied by district, urban and village roads. Total vehicle pliable length in the district is 425.18 km (78.34%), in which all-weather vehicle pliability takes place in 81.87 km (19.26%). Total length of strategy road network is 117.70 km, out which 49.50 km (42.06%) and 25.20 km (21.41%) is occupied by Ottaseal and gravel length. Of the total length in Sankhuwasabha district, the road length of blacktopped, gravel and earthen surface is 50.58 km (9.31%), 31.29 km (5.77%) and 460.89 km (84.92%) respectively. There are 10 numbers of district roads of class 'A' with length of 206.24 km, out of which 173.78 km (84.26%) is vehicle pliable. In class 'A' roads, 6.09 km (2.95%) and

200.15 km (97.05%) is gravelled and earthen surface respectively. There are 20 numbers of district roads of class 'B' of length of 161.78 km with all in earthen surface. There are 6 numbers of urban roads with total length 17.45 km out which 1.08 km (6.19%) is occupied by blacktopped section. There are 23 numbers of village roads (VR) which occupies 39.39 km in which no vehicle pliability is taking place. The overall scenario of road network in the district shows that construction quality is poor without adhering engineering norms and standards. So, it is necessary to employ fund into upgrading and maintenance, rather than in new construction, in providing improved access to people through all-weather serviceability provision.

14.73 % (511.18 Sq.km) of total area of the district is accessible based on all –weather serviceability. Similarly 25.03 % (868.48 sq.km) of total area falls under fair-weather accessibility. Out of 34 VDCs and 1 municipality, only 6 VDCs are fully access and 10 VDCs have access in partially access regarding all-weather serviceability. Likewise, 17 VDCs have fully access and 6 VDCs have access in partially access in fair-weather serviceability situation.

Study reveals that accessibility area can be categorized into accessible and partially accessible VDCs. 14.73 % (511.18 Sq.km) of total area are under accessible area based on serviceability of all weather road. Similarly 25.03 % (868.48 sq.km) of total area falls under accessible area based on serviceability of all fair weather read. Out of 34 VDCs and 1 municipality, only 6 VDCs have fully access and 10 VDCs have access in partially access in all weather serviceability situation. Likewise, 17 VDCs have fully access and 6 VDCs have access in partially access in fair-weather serviceability situation. Furthermore about 85.24 % (2,957.78 Sq.km) of total area are found inaccessible in the case of all weather serviceability of road. Similarly 74.94 % (2,600.48 sq.km) of total area is inaccessible for fair weather serviceability. Out of 34 VDCs, 17 VDCs are found under inaccessible area in all weather serviceability situations. Likewise, 11 VDCs are found under inaccessible area in fair-weather serviceability situation.

In the twenty years of DTPP period, eight new linkages of class 'A' roads (301.07 Km), sixteen new linkages of class B roads (174.44 Km) have been planned in construction process. Likewise ten existing class 'A' roads (199.14 KM) and twenty existing class B roads (161.78 Km) have been planned for rehabilitation/upgrading intervention in order to make them as all-weather serviceability condition for sustainable and better transport services.

The percentage of budget sharing for DTMP agreed in DTICC meeting is 20 %, 65 % and 15 % of total projected amount for new construction, upgrading and maintenance respectively. Total projected budget for 5 years is about Nrs. **416739,000** for district roads (class A and B) and Nrs. **54,229,250.00** for trail bridges.

Based on the expected available budget and sharing ratio, five new linkages of class 'A' roads (33 Km), two linkages of class B roads (8 Km) have been planned to construct. Likewise six existing class 'A' roads (62.00 KM) and three existing class B roads (18 Km) have been planned in upgrading for all-weather serviceability for sustainable and better transport services. Total of 902 Km of class 'A' roads, 486 Km of class 'B' roads for maintenance and 31 numbers of trail bridges and 5 numbers of trail bridges have been planned for new construction and maintenance work during the period of DTMP respectively.

However, problem lies in implementing the DTMP and construction approach. Existing practices show that more roads are undertaken than envisaged in DTMP. Similarly existing practice of construction does not follow the environment-friendly, labour based and participatory approach (LEP), except adopted by donor funded community based projects like RAP programme. Therefore it is recommended to follow the planned investment as envisaged in the DTMP by adopting the environment-friendly, labour based and participatory approach (LEP) for any sorts of interventions employed in roads.

CHAPTER I: INTRODUCTION

CHAPTER I: INTRODUCTION

1.1 Introduction

Sankhuwasabha district is a mountainous district at Koshi zone at Eastern Development Region of Nepal. The district is located in the high and mid-mountainous belt of Koshi zone at the Eastern Nepal. The district is bordered with Taplejung and Terahthum district in the east, Solukhumbu and Bhojpur districts in the west, Dhankuta district in the south and Tibet the autonomous region of China in the north. The total area of the district is 3468.38 square kilometre. The district extends within latitude of 27° 06' N to 27° 55' N and Longitude 87° 57' E to 87° 40' E. The climate of the district varies as per the topographical setting and altitude. The cool Alpine climate in the north to sub-tropical climate in the south shows the tremendous variation of the climate in the district. Different types of forest and vegetation are also found in the various parts of the district. The topographical setting of the district constitutes small hill, valley plain, river basin, rivers, high hill and mountain. The Mount Makalu (8463 m) Himalaya, which is fifth peak of the Nepal, is the highest mountain peak in the northern part and Kewa besi (250 m) is the lowest part in the southern part of the district. The high hill terrain constitutes more than 40° slope and mid hill and small hill terrain constitutes gentle slope and some plain area in river basin of the district.

The district headquarter is Khandbari bazaar located at mid-hill of the district at an elevation of 100 m from sea level. The district is divided into one municipality and 33 VDCs, 11 Illaka for the administrative purpose and two electoral constituencies. The district is endowed with historical base, tourism potential, mountainous topography and natural resources. The Makalu-Barun National park and Conservation Area has enhanced the potential of tourism development. The Arun River is one of the major hydro-power potential of Nepal. The promotion of tourism, agriculture, herbal and livestock sector development, the well planned and improved transport facility can play a vital role in the district.

The planning process of the district development was carried out for the planned development of the various services and infrastructures in order to provide the facilities to the people. After the promulgation of the Local Self Governance act, 2055 and the Regulation 2056, the planning process is provisioned to the DDC and VDC for their development programs. DDC and VDC will develop the annual plans and will be implemented in the district on various sector and sub-sectors. Accordingly, the act has provisioned to formulate the Periodic Plan of the district with the visions, mission and strategy of the district vis. a vis. integrated plan of the various sectors and sub-sector agencies. DDC has prepared the District Periodic Plan for the five year. The act has also provisioned for the development of the District Transport Master Plan (DTMP), District Agricultural Master Plan and other Plans. Sankhuwasabha district has developed the District Periodic Plan, District Agricultural Perspective Plan (APP) and District Transport Master Plans. The development of physical infrastructures is carried on based on the latest updated District Transport Master Plan of 2004.

Accessibility planning comprises with the access situation of the various sectors and sub-sectors with their respective interventions in order to improve the access situation of the services and facilities. Transport is one of the components to improve the access through the increase on the mobility of services and facilities to the settlements/communities where the linkage with the market centers, agricultural production pocket areas and other potentialities of the district. Considering the transport sector interventions and planning based on the accessibility planning perspective, District Transport Master Plan (DTMP) is long term perspective plan prepared for the planned development of the rural roads in the district.

The long term vision of the Government Plan for the road sector has formulated National Strategy, which emphasizes on "The development of basic rural infrastructure (with strong emphasis on district agricultural roads) country-wide in a planned and sustainable manner. In line with the poverty alleviation objectives, labour-based technology and environmental-friendly

approach, local resource-oriented construction methods have to be incorporated in rural infrastructure development process. The National Strategy emphasizes the consideration of these aspects and the decentralized concept while formulating the approach and guidelines for rural infrastructure development. Ministry of Local Development (MoLD) and various programs like Village Development Grant (VDC), District Development Committee (DDC) Development Grant, Local Development Construction Program, and Election Constituency Development Program has invested the substantial amount of fund annually for the development of rural roads in the district. All such investments seem to have been less impact to the local people that the access situation is still not improving.

In context of accessibility, Sankhuwasabha was a district with the access to road transport facility without any connection with national strategy road network. Such sort of internal set of transport system was able to provide services only between district headquarter and Tumlingtar airport. The development of Koshi highway from Basantpur to Tumlingtar broke up this barrier of isolation through improved access to Terai region as well as other parts of Nepal. Currently, the district has access to facilities of both the air and road transport facilities. Nevertheless, while referring to 'Nepal Transport Policy' of 4 hours standard for alweather transport facility for people living in hilly area, only one fourth of the population of this district has access to alweather road and air transport facility service has also not reliable service during rainy season. The district headquarter has yet not access to alweather road transport facility. In the recent years, road transport facility is gradually getting better through rapid increase in development of highway and other district road networks. Basically, Koshi highway has become a major catalyst for the overall development of district through improved access to goods and services of people to major market centers of neighbouring districts.

Transport is one of the major components to improve the access through the increase on the mobility to the settlement/community of services and facilities and also to provide linkage with market centers, agricultural production pocket areas and other potentialities of the district. Transport facility can help to develop the access of rural-urban linkages. Road accessibility can reduce isolation, stimulate crop production and marketing activities, encourage public services and help for transfer of technology. Road building arouses considerable enthusiasm because road access brings about visible changes in rural life and is dramatic sign of development. In the absence of rational guidelines and criteria, adhoc decisions on road construction are made, which lead to wastage of resources. Considering the transport sector interventions and planning based on the accessibility planning, District Transport Master Plan (DTMP) is long-term perspective plan prepared for the planned development of the rural roads in the district. District transport Master Plan (DTMP) provides the guideline and criteria for transparent decision making process.

District Transport Master Plan is a reflection of transport infrastructure situation and future need in relation with the resources of the District. DTMP basically cover the rural transport infrastructures (RTIs), which are funded, supported and implemented by DDCs. It strongly advocates for meaningful participation in the planning process to make DTMP more acceptable and creating ownership. The preparation process of DTMP pursues series of techno-political interface in the form of consultation workshops and interacting meetings to increase participation of all stakeholders such as District level workshop, DTICC meetings and cluster of *llaka* level workshops, formal/informal meeting and interaction, focus group discussions and transit walk, etc. In every stage, emphasis have to be given on their access and high level of participation of different actors of society (i.e. representatives from line agencies, major political parties, social leaders, women organizations, *Dalit* and *Janjati* coordination committee, differently able people, chamber of commerce, transportation association) and work toward consensus building. The DTMP serves as a negotiating document with potential donor agencies, line agencies and development partners working in the district. Many bileral and multilateral donor agencies are supporting to construct rural roads. DTMP is formal documents to obtain the grant and loan assistance from donor agencies. It facilitates project identification. Donors or funding agency within the country has set the DTMP as prerequisite for assistance.

The objective of DTMP is to prepare the District Transport Perspective Plan (DTPP) of the interventions identified on the accessibility planning and prioritize the intervention for the first year transport planning of the district. This comprises the development of the overall road network which will provide access to all the VDCs and various growth centers, service centers and connects with the district headquarter as well as strategic road network. DTPP is significant plan of district roads of the district for the long term planning to be implemented by the DDC.

1.2 Objective of the Study

The overall objective of the district Transport Master Plan (DTMP) is to develop roads in planned and sustainable manner by adopting the labour based, local resources oriented, environmental friendly technique in accordance with the decentralized participatory approach, and to facilitate accessibility to important centres and areas with resource potentiality; to guide the spatial arrangement of rural settlements, markets and services centers of the district.

Establishment of a single approach for the development of rural road network by local government and develop a sustainable road network that reduce the aggregate transportation cost and minimizes environmental impacts. Fundamental base for planning and implementing new construction, rehabilitation and improvement of existing roads and to maintain, repair and rehabilitate the existing infrastructure and to develop and connect the existing growth centres and potential growth centres through rural road development network is basic objectives of DTMP.

The specific objectives preparing DTMP are:

- Analyse the accessibility situation.
- Identify and prioritize the interventions based on the accessibility situation.
- Prepare Indicative Developmental Potential Map (IDPM)
- Prepare the District Inventory Map (DIM) of Rural Road networks.
- Prepare the Perspective Plan of transport services and facilities;
- Prepare/update the five year District Transport Master Plan (DTMP); and
- Prepare a realistic physical and financial implementation plan of prioritized roads for the DTMP period.

1.3 Scope of work

The scope of this plan consist the studies of the district roads including the socio-economic analysis and potentiality of various sectors as well as accessibility of the roads in the district. DTMP focus on the present transport situation, accessibility and socio-economic benefit which will draw the future scenario of the road development. Considering this aspect, perspective plan of twenty year range and five year DTMP is designed. The short term projects will be completed with in five –year period. This study is only concerned within district boundary but due consideration is given to the nearest road head and inter- district linkages as well. Participatory way of planning is an asset of the DDC, which makes consensus among the politicians of the different political parties. DTMP is the agreed document from DDC and District council for the road development, implementation, improvement and maintenance of transport sector of district.

1.4 Limitation of Study

DTMP is the valid and legal document approved by DDC council, in order to implement the plan; DDC plays the vital role and continue to follow the document in the future, even if DDC council is changed.

Socio-economic data are collected from secondary information sources during the preparation of DTMP and analysis of data is done based on this information. Prioritization criteria are presented in DTICC and get approved. Perspective plan and five years DTMP plans are prepared based on result of prioritization and financial source of DDC.

Appropriate estimate of the construction of the roads is prepared. The budget to be received for the implementation of road projects is prepared after analysing the past trend of budgets. But there may be some changes in allocation of budget for road sector in future as the estimated cost is indicative.

Cost estimate is calculated based on the experience gained in district roads in similar terrain.

CHAPTER II: APPROACH AND METHODOLOGY

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2.1 Approach

The methodology adopted for this study is basically different from the other conventional studies for transport planning. District Transport Master Plan is prepared based on participatory bottom- up approach. Techno-Political interface has been made in the planing process, where active participation from representatives of political parties, line agencies, DDC officials is crucial.

The DTICC has been constituted to provide the policy decision as authorized legislative body of DDC for DTMP planning process where all the political representatives from political parties are members.

2.2 Methodology

The preparation process of DTMP has to follow several stages in its planning excerice. The secondary sources of information were collected from various line agencies. District level workshop was conducted to make aware and involved political parties and local people in planning process of DTMP preparation. Cluster of Illaka level workshop was conducted to verify and validation of proposed network planning. The Major methodological steps are described below:

2.2.1 Task/Activities

The consultant carried out the related tasks and activities according to the work schedule and work plan as described in the inception report, which mentioned the activities to be carried out during the fieldwork. The major activities are as follows:

Task-1: Data/ Information collection

a) Collections and Review of Secondary Information

Secondary data were collected from annual report published by District Level offices and consultation with stakeholders (such as DADO, DVO, DDC, DEO, Small Cottage and Industries, local business man etc). The main objective of the secondary data is to verify the data collected from VDC level. Besides this, the socio-economic date (i.e Data/information regarding area, location and significance of development potential area such as extensive agriculture, extensive horticulture, livestock farming, high value cash crops, tourism, cottage and agro-based industries, center for business/commerce/markets, tourism area, hydropower and water mills, mining's, service centers e.g. hospital, health post, agri-sub-center etc) which can not be collected from VDC level have collected obtained from annual report, district profile, study report published by various offices such as DDC, DADO, District Education office etc.

The information on demographic data of district, maps, service flow pattern, various maps showing service centers or the location of SOR facilities, transport infrastructure inventory, past plans and sectoral study reports, sectoral standards and policy targets were collected from the secondary sources like DoLIDAR, DDC line agencies of DDC, Bureau of Statistics, Kathmandu, Topographical Survey Branch, Local NGOs. The details are given below

List of documents/information were collected and reviewed

- Previous reports of DTMP prepared by the DDC
- District periodic plan prepared by the DDC
- Annual report of Agriculture Development Office, District Veterinary Office, report of District Education office etc.
- Report on settlement pattern and market centres of the district
- Demographic Statistics and socio-economic feature of the district

Collection of Maps

- Topo maps the 1:25000 and 1:50000 scales, which has been used as base map.
- Digitised topographic maps of Department of Survey

- District administrative map of District
- District Trail Map, Helvetas
- Map of strategic road Networks of Nepal.

b) Primary Data collection

Primary information was taken from concerned community people, VDC officials, and school teachers about real accessibility situation of settlements in special format developed for this purpose.

Task-2: Indicative Development Potential Map (IDPM) Preparation

Indicative Development Potential Map (IDMP) was prepared in order to indicate the different areas with the existing and potentiality of agriculture, horticulture, livestock and existing/potential key growth centers and other developmental potential area. IDPM is developed according to the Approach manual for the development of Agriculture and Rural Roads. Based on Data collected from annual reports from line agencies and DDC level workshop, Development potential area of the district in agriculture, horticulture, livestock, cottage and small industries, other potentiality of the district have been identified.

Existing / potential areas defines as:

- Areas with extensive agriculture,
- Areas with extensive horticulture,
- Areas with extensive Livestock farming,
- Areas with extensive fisheries,
- Areas with extensive small cottage industries
- Potential Areas with tourism development,
- Existing/ Potential Areas with development of large industries like hydropower, mining develop,
- Market Suvey.

Market Survey was carried out to identify market and service centre. Data and information collected in the field is the main basis for determining the importance on relative importance of market/service centre and central places. All services existing in a particular centre were listed by the district line agencies and supplemented by more detailed field data such as economic population structure collected for the centre itself and its influence area, by means of P-RRA approach. For evaluation purpose, data from offices, Industry, Business & Commerce, Education, Health, Communication, Electricity Supply, Drinking Water Supply services are combined for the centre and its influence area. Assessment of economic facilities and services existing in the market/service centres and their catchments areas leads to the identification of the most important market/service centre. Centrality analysis of the market facilities and government services are carried out.

The Centrality Index is calculated using following formula

$$C_j = \sum_{i=1}^n (W_i X_{ij})$$

Where,

C_j = Centrality Index of the j th market centre

X_{ij} = value of the i th function (number of establishments or shops at the j th market centre)

W_i = Weightage of the j th function

The weight of each function was calculated by adopting the Median Threshold Population Technique. The Median Threshold Population Technique calculates the weight as:

$$W_i = \frac{\text{Median population of the } i\text{th function}}{\text{Lowest median population of the market centres where a function exists}}$$

- The collected informations were plotted on the base map indicating their geographical boundaries as accurately as possible.

- Base map on which all the development potential areas and sites have been plotted is the draft Indicative Development Potential Map (IDPM) of the district. Brief notes on each plotted area of development potential are prepared. The description should highlight the nature and size of the area.
- Presentation of IDPM in DTICC meeting to Finalize and approve IDPM

Task-3: Preparation of District Inventory Map (DIM)

DIM was prepared according to Approach for Development of Agricultural and Rural roads of DoLIDAR. The following steps were taken for preparation of DIM Report

- The inventory survey of the existing rural roads was carried out and required interventions; new construction, rehabilitation, periodic maintenance, regular maintenance are identified based on the field data. Earlier, spatial information of existing roads was taken on photocopy of topographical maps.
- The information/ data on existing rural infrastructures were taken by Global Positioning System (GPS) instruments including GPS tracking of existing roads and GPS way points of trail bridges conducted by TBSU. GPS tracking is the major work for DIM preparation, which takes considerable effort in field level.
- Information on surface type, traffic status, status of passability, status of construction, adequacy of bypasses, existing bridges and requirement, status of drainage and other improvement required are to be collected during inventory survey.
- The DIM was presented and discussed on the DTICC meeting and the required Interventions were finalised for rehabilitations, maintenance and upgrading of the existing rural roads. The required interventions were analysed based on accessibility situation.
- Presentation of DIM and IDPM was done in the one day meeting with DTICC. Thus this meeting will have two main agendas – finalisation of IDPM and DIM.

Task-4: Preparation of District Network Plan

- Preparation of GIS map of nodal centres (according to the grading of market centres)
- Market centre are graded based on centrality index; Market grade A (> 100), grade B (50-100), grade C (25-50), and potential (< 25).
- All the market centres based on their hierarchy lies core of the central place and plotted in GIS map.
- After plotting all market centrals, all the existing roads are overlaid on the GIS Map.
- Accessible area according to National Transport Policy of 2 hours and 4 hours is delineated.
- Accessibility situation on the basis of national transport policy is analysed using GIS model.
- Buffering along the left and right of the existing all weather road is done on the basis of walking distance of 2 hours in *terai* and 4 hours in hills. These delineated areas are considered as accessible area.
- The planning team proposed the road network for the inaccessible area delineated by the Zol analysis.
- Preliminary road network plan for inaccessible area is prepared based on the nodal points/market centres and national transport policy of 2 hour and 4 hours.
- Rural roads are categorised into two type of roads i.e. district roads and village road. District roads are classified as RRA and RRB according to the significance of the roads.
- Prior to disseminating information in cluster of Illaka level workshop, DTICC meeting was conducted and the proposed preliminary road network plan for inaccessible area was presented and discussed to verify and preliminary approval of the proposed road networks.
- All suggestions and feedbacks were collected from DTICC meeting and incorporated in preliminary proposed road network plan.

- Preliminary network plan is presented and discussed in cluster of Ilaka level workshop to collect their views and proposal for DTPP (on the basis of preliminary road network). Road network plan is finalised in the workshop.
- In the workshop, the DTMP study team presented and clarified the objective of the DTMP and process of its preparation,
- Plenary discussions were encouraged to verify their views on new demands as well as on the existing networks of the roads.

Task- 5: Preparation of District Transport Perspective Plan (DTPP)

Prioritization of Proposed New Roads

The following criteria has been used for prioritisation of new transport linkages.

Table 2.1: Scoring System for Prioritization of New Linkages

S.N.	Parameter	Scoring Unit	Score
I	Population per unit Cost	Population/investment Cost in 100,000	55
ii	Cultivated Land	Cultivated Land/km	15
iii	Population × Walking hour	Population × Walking hour /km	20
iv	Total Population of poor, <i>Dalits</i> and marginalized <i>Janjatis</i> .	Population /km	10

Prioritisation of Rural Roads Class A and Class B for Rehabilitation /Upgrading

The following criteria are proposed for prioritisation of District Road A and District Road A for rehabilitation /Upgrading.

Table 2.2: Scoring System for Prioritisation for Rehabilitation/Upgrading

S. No.	Criteria	Scoring Unit	Score
1	Traffic Unit	TU	70
2	Cost	Cost /km	20
3	Market /service centre	Centrality Index	10
Total			100

Calculation of Scores for Prioritization of New, Rehabilitation and Upgrading of Roads

The following formula is applied to each indicator of the area of investigation

(For high value ranking)

$$\text{Co.efficient} = \text{Value} / \text{Maximum Value of Row}$$

$$\text{Score} = \text{Higest weighted score} \times \text{co.efficient}$$

Where,

X= original indicator value

(For low value ranking)

Co.efficient = Lowest value of Row/ Value

Score= Highest weighted score X co.efficient

Where,

x= value of the Row

Prioritisation of Proposed Trail Bridge

The prioritization will be based on following formula derived on the basis of a simulation model using ICIMOD indices, related poverty, education, health etc. used by TBSU as follows:

Prioritization Formula for New Construction

SSTB	$\{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$
LSTB	$0.3 \times \{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$

Prioritization Formula for Major Maintenance

SSTB	$2 \times \{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$
LSTB	$1.2 \times \{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$

Prioritization Formula for Rehabilitation

SSTB	$1 \times \{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$
LSTB	$0.3 \times \{(2.041 P+2.856 MP)\times DG\} \times \{(12-RT)\times(1+RF/100)\}/12\}$

Where,

P = Population i.e. the beneficiaries population of the prospective bridge

MP= Marginalized population (total dalit + marginalized janajatis + total minority + total poor from other caste)

DG= Distance Gained

R= River Type (no. of months crossable without a bridge)

RF= Risk Factor (Percent of population that has died within the last five year.

On the basis of prioritization criteria, the transport linkages under the categories of new construction /Rehabilitation/upgrading for each class of roads are prioritized.

- After overlay all proposed transport linkages in the DIM, DTPP is prepared,
- Presentation of Draft District Transport Perspective Plan (DTPP) in DTICC and finalisation of DTPP.

Task-6: Preparation of Five Year District Transport Master Plan

- Considering the perspective plan of transport sector, the District Transport Master Plan was prepared.
- The financial resource of the district on transportation sector was assessed based on analysis of past trend of financing in this sector and allocation of budget by DDC and other line agencies for coming years. The tentative budget plan for coming five years was prepared in consultation with DDC.

- The required interventions and road linkage, purposed in perspective plan, were prioritized according to Approach for the Development of Agricultural and Rural Roads, DoLIDAR.
- Final workshop was organized in the DDC. The prioritization of road was approved by DDC.

Task-7: Endorsement of the Five year District Transport Master Plan of District RTI Network

- DDC should submit the final District Transport Master Plan to District Council for approval. DTICC with the support of planning team brief the Council on the entire process of preparation including scoring system for prioritization.
- The DTMP is finally approved by the District Council.

2.2.2 Executed key activities in the district:

In order to achieve set objectives and goals, different types of orientations, workshops and meetings were held at the district and Illak cluster level. Chronological order of key activities executed at the district level in the discourse of DTMP preparation is mentioned below:

- i. Selection of Technical Assistants (TA) and Research Associates (RA) for data collection: 5th to 10th February 2010,
- ii. Introductory workshop in DDC on 15th February 2010,
- iii. 1st DTICC meeting in DDC: 4th July 2010,
- iv. Cluster Ilaka level workshop in Manebhanjyang bazaar of Khandbari municipality: 10th July 2010,
- v. Cluster Illka level workshop in Chainpur bazaar: 12th July 2010.
- vi. 2nd DTICC meeting in DDC: 14th July 2010.

In addition to aforementioned key tasks, many other activities like bilateral dialogues, review and sharing of information were also performed with relevant stakeholders like key informants, NGOs, government, non-government and other private agencies located at district level were made with individuals, NGOs, different line agencies through which primary and secondary level information were collected.

CHAPTER III: INDICATIVE DEVELOPMENT POTENTIAL MAP (IDPM)

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3.1. Physical Location and Geographical Characteristics

Geographically, Sankhuwasabha district extends from 27° 06' to 27° 55' north latitude and from 86°57' to 87° 40' east, longitude. It covers total area of 3486 sq. km i.e. 2.18% of the nation area coverage. The elevation of the district ranges from 300 mt to 8463 mt asl. It lies between Taplejung and Tehrathum districts in east, Bhojpur and Solukhumbu districts in west, Dhankuta and Bhojpur in south and Tibet of china in Nort of the district.

Physiographically, the district is divided into 3 regions; Himal (snow cap), Hill (Pahad) and Tar (flat land). The southern part of the district is a Tar and northern side is Himalaya. The main mountains are Makalu (8463 mt), Kumbhakarna (5850 mt), Lumb Sumba (5000mt), Panchpokhari (5000 mt) and Jaljale (4832 mt). It has 5th tallest mountain Makalu (8463 mt) and lowest level Arun valley at 457 mt asl. Geophysically it has everwhite snow Cap Mountain, platue, curved mountain, valley, plain and river belt. The district experiences different climate as topical, sub topical, temperate, cool-temperate and alpine. Temperature is experience from 11 to 25 degree celcius.

Out of total district land, 40.31% forest, 27.38% snow cap mountain and water source, 12.66 Rocky Mountains, 11.37 pastures and 8.27 agrarian lands. Sankhuwasabha district lies in Koshi zone of eastern development region. The land use pattern of the district is as follows:

Table No 3.1: District land use pattern

S.N	Types of land use	Area (Sq. km)	Percentage
1	Aero field	0.36	0.01
2	Settlement	0.07	0.00
3	Snow and rock	6.31	0.18
4	Agricultural land	590.25	17.02
5	High slow land	5.81	0.17
6	Sandy area	13.44	0.39
7	Waste land (bajho area)	961.75	27.73
8	Bushes and jhadi	481.5	13.88
9	Forest	1280.2	36.91
10	Grass land	110.17	3.18
11	Water bodies	18.51	0.53
	Total	3468.4	100%

Source: DDC periodic plan, 059/60

District is known as prosperous for water resources. Major rivers are Arun, Barun, Sabha, Sankhuwa, Piluwa, Hewa, Epsuwa, Aapsuwa, Ekuwa, Kasuwa and Sisuwakhola. The major relegious and historical ponds are Sabhapokhari, Matsyapokhari, Dudhapokhari, Guphapokhari, Lampokhari, Siddhapokhari, Poptipokhai, Lalpokhari, Bandukpokhari, Kipupokhari, Felungapokhari, mulungpokhari, chawapokhari and Laxmi pokhari.

District has subtropical evergreen forest to alpine forest representing almost all types of forest of Nepal. In northern part of the district, 47 types of orchids, 67 different types of MAPs (Medicinal Aromatic Plants), 19 types of bamboos and canes and 28 types of rhododendron species available (Dist. Profile 2003). Around 440 birds, 150 butterflies and wild faunas are host in this area.

There are four types of forests available in the area of 36.91% of land as shown below

Table no 3.2: Types of Forest

SN	Types of forest	Areas (Hectre)	Percentage
1	Sal Forest	2,199.4	2.86
2	Tropical mixed Hard Wood forest	34,420.66	44.6
3	Conifer forest	5,953.87	7.71
4	Decidious forest	34,591.66	44.83
	Total	77,165.59	100

The community based forest management system has been adopting in Nepal. Altogether 2,953.73 ha of forest patches handed over to 271 community forest users groups to the household of 24,524. One leasehold forest patche of 3.06 ha and 12 private forest of 15.62 ha and religeous forest of 11.30 ha are managing under public and private segments. Some area is under the management of Makalu Barun National Park. Forest condition is fairly good by the public, private and national management system.

In terms of road accessibility, it is moderately accessible by Dharan – Dhankuta road links to Chinpur up to Sabha khola by all weather roads and further linked to Khadbari through fair weather road. Tumlingtar of the district is linked by air. Airport is under construction for black top and all weather.

3.2 Socio-economic Characteristic

Administratively, it has 2 constitutional areas, one municipality, 33 VDCs and 11 Ilakas. Khadbari is a district head quarter. Khadbari is the municipality of the district. The name of VDCs, Ilaka and Constituency is shown below in table no 3.

Table no.3.3: Name of the VDCs, Ilaka and Constituency

S.N.	Name of VDCs	Ilaka	Contituency	S.N.	Name of VDCs	Illaka	Constituency
1	Keemathanka	1		20	Wana	7	
2	Hatiya			21	Syabun		
3	Chepuwa			22	Jaljala		

Chapter II: Indicative Development Potential Map (IDPM)

S.N.	Name of VDCs	Ilaka	Contituency	S.N.	Name of VDCs	Illaka	Constituency
4	Pawakhola		1	23	Siddhakali	8	2
5	Yafu	2		24	Siddha pokhari		
6	Makalu			25	Nundhaki		
7	Pathibhara			26	Chainpur	9	
8	Num			27	Madi rambeni		
9	Bala	3		28	Mawadin		
10	Siswakhola			29	Kharang	10	
11	Tamkhu			30	Baneswor		
12	Mangtewa			31	Ankhyibhui		
13	Diding	4		32	Mamling	11	
14	Sitalpati			33	Madi Mulkharka		
15	Matsya pokhari			34	Tamathok		
16	Sabhapokhari	5					
17	Barbise						
18	Dhupu						
19	Khadbari N. P	6					

The communication language for official and normal conversation is Nepali and followed by different local languages for their daily community and family conversation. Those are Bantawa, Tamang, Sherpa, Limbu, Yakkha, Kulung and Gurung, etc.

People follow different religion to live in harmony. Majority of people follow Hindu religion in the lower belt of the district and upper belt of people follow Buddhism. Islam, Kirat, Jain, Christian and Sikh are other religion people followed in this district. Some places are recorded as importance for religious, historical and tourism purposes.

Telephone facilities are extended up to 27 VDCs and one municipality covering 8.7% population and radio facilities reached to 61.3% population. Electricity facilities are access to 16 VDCs and 1 Municipality. About 10 VDCs have been connected by electricity from national grid benefiting covering 8% of the total hh, similarly, 1.55% hhs have been benefited by Micro Hydro and 2.1% by peltric set. About 627 ICS have been installed and about 328 biogas plants were constructed. About 4,464 Solar tuki were distributed in 2066 in all over

the district by the Alternative Energy Promotion Centre and still more demand are coming from the mountain areas.

Improved drinking water facilities are enjoying by the 76.35% of the population and proper toilet is used up to 50.30% hh of the district. Irrigation facilities are extended up to 51.78% of agricultural land ie 31,707 ha. The major crops are poddy, maize, millet, potato and wheat. Other cash crops are vegetable, cardamom, ginger and organges. Major Livestocks are cow, buffalo, sheep, goat, duck, chicken and pig. Around 308 industries are operating under production, energy, agriculture, tourism, mineral, services and construction categories.

Major income sources of the district are cardamom, rudrakshya seed, chiraeto and khayer, etc from forest and other significant income source is tourism because of Makalu Barun National Park and other Himalayas in the district.

The district is in 18th rank of overall development indicator, 7th in poverty and disadvantaged, 43th in social, economic and basic development indicator, 22nd in women empowerment, 50th in health and development indicator and 61st rank in basic development indicator. Poverty status of the district is as follows:

Table 3.4: Poverty and caloric intake

S.N.	Particulars	Percentage
1	Poverty incidence	48.7
2	Poverty Gap	15.1
3	Poverty Severity	6.4
4	Caloric intake prevalence	40.2
5	Caloric intake gap	8.4
6	Caloric intake severity	2.6

Source: Small area estimation of poverty, caloric intake and malnutrition in Nepal 2006.

3.2.1 Demographic Features

Total population of the district is 174,453 of which female is 89,142 (51.09%) and male is 85,310 (48.9%) residing in 33,713 hh as shown in table 4. Average household size is 6 and sex relation is .1:96. Population density is 50 per sq km. Marriage age of girls is 20.78 years and boys 23.5 years old.

Table.3.5: VDC's wise Demographic feature

S.N.	Name of VDC	HH Number	Population			Family Size
			Total	Male	Female	
1	Ankhyibhui	1620	8865	4199	4666	5.47
2	Barbise	697	3796	1913	1883	5.45
3	Bala	643	3294	1622	1672	5.12
4	Bana	1146	6175	3066	3109	5.39
5	Baneswor	877	4667	2276	2391	5.32
6	Chainpur	1285	6295	3058	3237	4.9
7	Chepuwa	445	2100	1050	1050	4.72
8	Dhupu	993	5109	2490	2619	5.15
9	Diding	663	3411	1703	1708	5.15
10	Hatiya	684	3393	1658	1735	4.96
11	Jaljala	1169	6299	3074	3225	5.39
12	Keemathanka	58	347	174	173	5.98
13	Khadbari N. P	5067	23876	11659	12217	4.71
14	Kharang	1189	6409	2986	3421	5.39
15	Madi Mulkharka	1348	7506	3648	3858	5.57
16	Madi rambeni	1147	5836	2815	3021	5.09
17	Makalu	842	4129	2100	2029	4.91
18	Mamling	884	4549	2206	2343	5.14
19	Mangtewa	465	2418	1208	1211	5.21
20	Matsya pokhari	861	4465	2164	2301	5.18
21	Mawadin	765	4145	2044	2102	5.42
22	Num	643	3464	1762	1702	5.39
23	Nundhaki	610	3189	1558	1631	5.22

S.N.	Name of VDC	HH Number	Population			Family Size
			Total	Male	Female	
24	Pathibhara	701	3452	1713	1739	4.92
25	Pawakhola	558	3388	1697	1691	6.07
26	Sabhapokhari	606	3402	1644	1759	5.61
27	Siddhakali	1146	6203	3039	3165	5.41
28	Siddha pokhari	763	4241	2080	2161	5.56
29	Siswakhola	617	3267	1635	1632	5.29
30	Sitalpati	1130	5443	2615	2828	4.82
31	Syabun	1300	7170	3490	3680	5.52
32	Tamathok	1561	7746	3766	3980	4.96
33	Tamkhu	633	3273	1610	1663	5.17
34	Yafu	594	2918	1383	1535	4.91
	Total	33713	174453	85310	89142	6

Source: Village development committee profile of Nepal, A Socio-economic database of Nepal, 2009, ISRC

Majority of population are belonging to Janjati having their own living pattern and enjoy their native language. 62% of the population are janjati, followed by 27.25% Brahman and Chhetri, 7.73% dalit and 2.24% others as shown in table 5.

Table 3.6: Ethnic Composition

Cast/ Ethnic	Population	Percentage
Brahmin/ Chetri	47538.44	27.25
Janjati (hill)	109539.00	62.79
Dalit (hill)	13485.21	7.73
Others	3907.75	2.24
Total	174453	100

Source: Nepal VDC Profile, 2009, ISRC.

3.2.2 Education Status

The district has good education record comparing to other mountain districts. Literacy rate is 61% of which women literacy rate is 58.2 and male is 74.5. Adult literacy above 15 years is 55.1%. There are 4 campuses operating by the community of which 3 campus conducting

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up to bachelor and one has one master's degree. There is 401 education institutions of which 75 are managed by communities and 20 by the institution. Those are 291 primary schools, 55 lower secondary, 43 secondary and 12 higher secondary schools operating to impart education to the people. The most of the educational institutions are located in southern belt of the district and only primary and lower secondary schools are in the northern belt. Hence, the education office is focusing to improve access and equity as well as improve quality of primary education, institutional strengthening extending outreach to all VDCs of the district.

Total of 108, 542 students are studying in 401 educational institutions of which boys are 54,574 and girls 53,968. The dalit students are 4,820 of which girls are 2,357. Janjati students are 53,777 of which girls are 36,934. Around 1,820 teachers are involving in the teaching profession in the school of which just 20% are female teachers. Teacher student ratio is 1:59.64 as shown in table 5. Some of teachers of 10 plus 2 schools teaches in the campus vice versa.

Table 3.7: Number of Education Institute

S.N.	Schools	Primary	Lower Secondary	Secondary	Higher Secondary	Total
A	Community mgmt	278	51	40	12	75
	Institutional	13	4	3		20
	Total	291	55	43	12	401
B	Number of Students					
	Boys	18634	6149	2504	27287	54574
	Girls	18357	5945	2682	26984	53968
	Total	36991	12094	5186	54271	108542
C	Number of Dalit Student					
	Boys	1882	432	149	2463	2463
	Girls	1743	428	186	2357	2357
	Total	3625	860	335	4820	4820
D	Number of Janajati Students					
	Boys	12743	4100	1520	18363	36726
	Girls	12729	4095	1643	18467	36934

S.N.	Schools	Primary	Lower Secondary	Secondary	Higher Secondary	Total
	Total	25472	8195	3163	36830	53777
E	Number of Teachers					
	Female	335	16	12	NA	363
	Male	867	328	262	NA	1457
	Total	1202	344	274	NA	1820

Source: District Education Office, Sankhuwasabha, 2065/66

Apart from schools, total of 190 preliminary schools / child growth centre are operating in the district of which 14 are communities based and 178 school based. Twenty one preprimary schools are operating of which 20 are School based under institutional and one private. Simultaneously, 15 SOP (Student Outreach Program) classes are operating.

There are 2 resource classes operating; one shusta mansthiti class for 15 children and another has 10 students. There are 2 community study centre in each constitution.

Students in all schools are not in average, very few students are in mountain area, and high student's occupancy in southern belt schools.

3.2.3 Economic active and inactive Population

Economically active population (above 10 yrs) is 136,946 i.e. 78.5% of which 68930 male (76.5%) and 68194 female (80.9%). (VDC profile 2009)

Table 3.8: Economic active and Inactive Population above 14 years

Status	Total	Male	Female
Economic active	136946	68930	68194
Percentage	78.5	80.8	76.5

Source: VDC Profile of Nepal, socio-economic database, 2009

3.2.4 Occupation Pattern

Subsistence agriculture is major occupation of the people, crop productivity are very low due to landscape and soil pattern. Hence, their economy is depended on the forest products like cardamom, rudrakshya, chiraeto and khayar. Tourism is another source of income because of Makalu Barun National Park in this district. Due to limited productivity and linking with Tibetan platue of China in northern part, most of people have adopted porter job to carry consumable goods like food, clothes and construction material from southern belt to norther area and from north to south, they carry forest products.

Total cultivated land including settlement and livestock shed is 31,707 ha i.e. 8% of total land. There are limited irrigation facilities like 16% of land is fully irrigated and 30% fed with seasonal rain and others are in pakho i. e. high land and sloppy suitable for potatoes only. There are some industries operating at village level.

Table 3.9: Land Use pattern

Land Use Pattern	Percentage	Area (Ha.)
Cultivated land (including Settlement and livestock sheds)	8.5%	31,707
A. Fully Irrigated land (12 months)	16%	5,132
B. Rain Fed Land	30%	9,432
C. Pakho (High Land)	54%	17,143

Source: District Agriculture Development Office, Sankhuwasabha, 2066

3.2.5 Agriculture Production

a) Crops

The major crops in the district are kodo, maize, wheat, paddy and mustard. In northern belt, the major crops are uwa, kodo, wheat, faper, millet and wheat. In southern belt, the major crops are kodo, maize, wheat, paddy and mustard. The details of crop pocket areas as follows:

Table no 3.10: existing and potential crop production pocket areas

S.N.	Crops type	VDCs/Settlement
1	Uwa	Keemathanka, Chepuwa, Hatiya, Pawakhola
2	Millet	All VDCs
3	Maize	All VDCs excluding Keemathanka
4	Faper	Hatiya, Yafu, Mangtewa, Tamkhu
5	Barley	Keemathanka, Chepuwa, Hatiya, Pawakhola, Yafu, Tamkhu, Pathibhara
6	wheat	Khadbari Mun, Bana, Syabun, Jaljala, Sidhakali, Sidhapokhari, Nundhaki, Chainpur, Mawadin, Barhabise, Matchepokhari, Sabhapokhari, Sitalpati, Madimulkharka, Dhupu, Madi rambeni, Kharang, Baneswor, Akhibhui, Mamling, Tamafok
7	Paddy	Yafu, Mangtewa, Pathibhara, Diding, Num, Bala, Tamku, Khadbari Mun, Wana, Syabun, Jaljala, Sidhapokhari, Sidhakali, Nundhaki, Chainpur, Mawadin, Barhabise, Matchepokhari, Sabhapokhari, Sitalpati, Dhupu, Madirambeni, Kharang, Baneswor, Akhibui, Mamling, Madimulkharka and Tamafok

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S.N.	Crops type	VDCs/Settlement
8	Musturd	Syabun, Jaljala, Sidhakali, Sidhapokhari, Nundhaki, Chainpur, Mawadin, Barhabise, Matchepokhari, Sabhapokhari, Sitalpati, Dhupu, Tamafok, Akhibhui, Mamling, Bana and Mangtewa.

The areas and quantity of production in metric tonnes are as follows:

S.N.	Crops	Area (Hectare)	Production MT
1	Paddy	16,320	31598
2	Maize	1565	28102
3	wheat	1400	2800
4	Faper	9975	9875.25

b) Cash crops

In subsidize the limited crops, they also produce cash crops, those are potato, cardamom, vegetable, tea, coffee and sugarcane. Existing and potential areas for cash crops are as follows:

Table 3.11: Existing and potential areas for Cash Crops

1	Potato	Chepuwa, Hatiya, Diding, Bala, Sisuwakhola, Tamku, Pawakhola, Makalu, Num, Matchepokhari, Sabhapokhari, jaljala, Sidhakali, Sidhapokhari, Nundhaki, Syabun, Madirambeni, Madimulkharka, Tamafok, Mamling
2	Cardamom	Madi mulkharka, Tamafok, Akhibui, Mamling, Syabun, Madirambeni, Jaljala, Sidhakali, Sidhapokhari, Nundhaki, Malaku, Barhabise, Sitalpati, Num, Matchepokhari, Pathibhara, Pawakhola, Sabhapokhari, Hatiya, Diding, Bala, Shishuwakhola, Tamku, Yafu, Mawadin, Wana
3	Vegetable	Madi mulkharka, Tamafok, Akhibui, Mamling, Mamling, Khadbari mun, Kharang, Baneswor, Wana, Syabun, Chainpur, Madirambeni, Jaljala, Sidhakali, Sidhapokhari, Sitalpati
4	Tea	Madi mulkharka, Tamafok, Mamling, Matchepokhari, Diding
5	Coffee	Wana, Chainpur, Kharang, Baneswor
6	Sugarcane	Khadbari mun, Kharang, Baneswor, Wana

The areas and production quantity in the district is as follows:

S.N.	Crops	Area (Hectare)	Production MT
1	Cardomom	3228	949
2	Coffee	250	NA
3	Vegetable seed production	100	NA
	Fresh vegetable	540	5994
	off-season Vegetable	650	7540
4	Potato winter	635	6,032.5
5	Potato summer	2543	25,430

Source: District Agriculture Development Office, 2066

3.2.6 Horticulture

The major horticulture in the district is citrous fruits like orange, pears, plum and lemon. Mango, kathar, Lichi and pineapple are cultivated in southern part of the district. The orange is cultivated in 578 ha and production is 1801 MT per year. The potential and existing pocket areas for the different types of fruits are as follows:

Table no 3.12: Existing and Potential pocket areas for fruits

Sn	Fruits	Potential and Existing VDC
1	Orange	Sitalpatim Mangtewa, Wana, Diding, Sidhipokhari, Khadbari Mun, Baneswor, Madirambeni, Kharang, Tamafok, Mamling, Barhabise, Chainpur
2	Pears and Plum	Yafu, Tamku, Bala, Makalu, Diding, Baneswor, Khadbari Mun, Jaljala, Sidhakali, Sidhapokhari, Nundhakil, Madirambeni, Madimulkharka, Tamafok, Akhibhui, Mamling, Mangtewa
3	mango, Kathar, Lichhi	Wana, Baneswor, Khadbari Mun, Chainpur, Kharang, Sidhakali, Syabunm Akhibhui, Mamling, Sitalpati, Dhupu
4	Lemon	Diding, Yafu, Tamku, Bala, Num, Pathibhara, Sitalpati, Mangtewa, Wana, Syabun, Baneswor, Khadbari Mun, Jaljala, Sidhakali, Sidhapokhari, Madirambeni, Mawadin, Kharang, Madimulkharka, Tamafok, Sabhapokhari, Dhupu, Akhibhui, Mamling
5	Banana	Diding, Yafu, Tamku, Bala, Num, Wana, Syabun, Baneswor, Jaljala, Sabhapokhari, Dhupu, Tamafok, Madimulkharka, Madirambeni, Khadbari Mun, Sitalpati, Mangtewa, Sidhakali, Sidhapokhari, Mawadin, Kharang, Akhibhui, Mamling

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Sn	Fruits	Potential and Existing VDC
6	Bhuikatahar	Kharang, Khadbari Mun

3.2.7 Livestock Production

The physiological feature of the district is suitable for livestock farming; one of the occupations is livestock farming. All households hold more than one and multi types of livestock as their culture and ritual. Those are cattle, buffalo, sheep, goat, pig, chicken and horses, most of them are local. The population of cattle is as follows:

Table 13: Population of Livestock

S.N.	Livestock	Total
1	Cattle	94920
2	He/She Buffaloes	36383
3	Sheep	15039
	Goat	154790
4	Pig/Boar	33987
5	Chicken	327030
6	Horse	1179

Source: District Veterinary Office, 2066

Existing and potential areas of livestock pocket areas are as follows:

S.N.	Livestock's	Potential and Existing VDC
1	Sheep	Hatiya, Chepuwa, Pawakhola, Yafu, Makalu, Pathibhara, Num, Bala, Sisuswakhola, Diding, Matchepokhari, Khadbari mun, Jaljala, Barhabise, Sidhakali, Sidhapokhari, Nun dhaki, Sabhapokhari, Madimulkharka, Mawadin
2	Yak/ Chauri	Keemathanka, Hatiya, Chepuwa, Pawakhola, Malaku, Sabhapokhari, Nun dhaki,
3	Changra	Keemathanka, Chepuwa
4	Cow & buffalo	All the VDCs and municipaly excluding Keemathanka but pocket area is along the road
5	Pig	All the VDCs and municipaly excluding Keemathanka but pocket area is along the road

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S.N.	Livestock's	Potential and Existing VDC
6	Goat	Bala, tamku, Diding, Matchepokhari, Dhupu, Wana, Jaljala, Barhabise, Madirambeni, Banewor, Akhibhui, Mamling, Madimulkharka, Kharang, Syabun, Tamafok - available in all VDCs
7	Chicken	Diding, Sitalpati, Matchepokhari, Dhupu, Khadbari mun, Wana, Jaljala, Barhabise, Chainpur, Madirambeni, Mawadin, Banewor, Sidhakali, Sidhapokhari, Nun dhaki, Kharang- available in VDCs.

Though the whole VDCs are mentioned as pocket area, the pocket areas have been developing as along the road and its networks.

The annual production and market price are as follows:

S.N	Livestock's Products	Unit	Price /unit in Rs.	Annual Production (MT)
1	Milk	Litre	60/lit x1000	11304
2	Meat	MT	300/kg x1000	2419
3	Egg (hen)	Thousand	12/pc x 1000	5641
4	Wool	MT	1000	11260
5	fish	Kg	350/kg	1750

Source: District Veterinary Office, 2065/66

3.3. Service canters and facilities

3.3.1 Post Services

There are 42 postal offices to extend postal services to the district. District post office is situated in khadbari and llaka post offices are in llakas and additional post offices are in the remote VDCs as shown below:

Table 3.14: Types of Post offices

S.N.	Type of Post office	Number
1	District Post Office	1
2	Illaka Post Office	13
3	Additional Post Office	28

Source: District Post Office

3.3.2 Telecommunication Services

Telecommunication is the fast and reliable communication to the outer and inner district. MART/ VHF/ITI facilities are available in 15 VDCs. C. Dot system is available in municipality and chainpur VDC as shown in the table no 14. The remaining 18 VDCs are deprived from these telecommunication services.

Table 3.15: Types of Telephone Facilities and Access VDCs

Sn	VDCs	No. of Telephone	System
1	Khadbari 250 lines, chainpur 140 lines	390	C. Dot system
2	Num, Tamku, Sitalpati, Wana, Jaljala, Sidhakali, Sidhapokhari, Madi Rambedi, kharang, Akhibhui, madi Mulkharge, mamling, Tamafok	23, 11, 1	MART's/V HF/ITI

Source: NTC, 2066

3.3.3 Financial institutions

There is 5 banks; Rastriya Baniya Bank, Agricultural Development Bank, Khadbari Commercial Bank, Nabil Bank Ltd and Nepal bank Ltd. There is about 90 cooperatives aiming for different purpose likes agriculture, electricity, multipurpose, and saving and credit.

3.3.4 Health Service Organisations

There is one public health office, one hospital, 3 ayurvedik ausadhyalay in the district. There is 2 primary health care centres, 11 health post, 25 sub health post and 45 women health workers are serving in the village as shown in below table no 14.

Other organizations working in health are Makalu Community Health Centre (CAN), Gramin Jankalyan Health centre- Khadbari-9, Astha poly clinic- Khadbari -1, Manakamana poly clinic- khadbari-13, Khenpalung poly clinic –Yapu 3, Eco Himal – Bala and Sishuwa, BNMT and RRN support to district public health office.

Table 16: Health Services Centre

S.N.	Type of Health service	Number	Places
1	District Public Health Office	1	Khadbari
2	District Hospital	1	Khadbari
3	District Ayurvedik Ausadhalaya	3	Wana, Akhibhui,
4	Primary Healthcare Centre	2	Chainpur, Tamkhu- Sukrabare
5	Health Post	11	Kimathanka, Hatiya, Makalu, Shitalpati, Matchepokhari, Khadbari, Wala, Kharang, Nunthaki, Madi, mamling
6	Sub-Health Post	25	Chepuwa, pawakhola, pathibhara, num, Yapu, mantewa, Bala, sishuwa, Diding. Dhipu, Barhabise, Sabhapokhari, Khadbari (Panma, malta, Mankamana, syabun –4), Jaljala, Bana, Baneswor, sidhakali, sidhapokhari, Mawadin, Mulkharga,

S.N.	Type of Health service	Number	Places
			Aakhibhui, Tamafok,
9	Women health worker	45	45

Source: District Health Office, 2066

3.3.5 Community led organizations:

People have owned and lead different organizations to substantiate the social services to the people. Total of 541 people's organization working in the name of mother's groups, agricultural groups, community forest user's groups, livestock groups, production and marketing cooperatives and VDP community organizations. The details are as follows:

Table 3.17: Community based people's organization

S.N.	Types of groups	Unit
1	Women's group	540
2	Agricultural group	199
3	CFUG	219
4	Livestock group	86
5	Cooperatives	47
6	VDP community organizations	402
	Total	1541

3.4 Existing / Potential Development Area

3.4.1 Community Based Forest Management and its products

Community managed forestry programme is highly successful in Nepal for the protection and promotion of forest. Altogether 219 community forestry users groups have been managing 26197.01 hectare of land (2008/9). Total of 54220 male and 55549 female belonging 20891 households are the members of forest users groups. There are six private forests. The stauts of the community forest in the district is quite encouraging and as follows:

Table no 3.18: Community based Forestry groups

S.N.	Particulars	Nos in 2008/9
1	Area of community forest	26197.01hectare
2	No of Community Forest Group	219
3	Population of community forest	109779
4	Male	54220
5	Female	55549

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S.N.	Particulars	Nos in 2008/9
6	Household of community forest	20891
7	Ave. holding of forest per group	120.64 ha
8	Group fund	Rs. 1563898
9	Saving mobilistion group	74

There are huge possibilities of NTFP in 26 VDCs but recorded only limited items and collected revenues in an export, those are chiraeto, Bish root, majhitho, jhau, yarsagumba, Lokta and Argeli. The total amount collected from NTFP in 2064/65 was Rs. 757,165.

Existing and potential pocket ares for Non-forest products (NTFP) in the districts are as follows:

Table no 3.19: Existing and Potential Pocket areas for NTFP

S.N.	Product	Existing and Potential VDCs
1	chiraeto	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Makalu, Yafu, Bala, Tamku, Sisuwakhola, Barhabise, Sabhapokhari, Pathibhara, Syabunm Sidhapokhari, Tamafok
2	yarsagumba	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Makalu, Tamku, Bala, Sisuwakhola, Barahbise, Sabakhola, Jaljala
3	Rudraksya	Wana, Sidhakali, Sidhapokhari, Akhibhui, Dhupu, Baneswor, Karang, Mangtewa, Khadbari mun, Syabun, Jaljala
4	MAP	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Makalu, Barhabise, Sabhapokhari, Jaljala, Tamafok, Mawadin, Madi mulkharka
5	Bikhamba	Keemathanka, Hatiya, Chepuwa
6	Padamchal	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Barhabise, Sabhapokhari, Sidhapokhari, Nun dhaki
7	Panchaule	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Makalu, Bala, Sisuwakhola, Tamku, Yafu, Barhabise, Sabhapokhari, Jaljala, Nundhaki
8	Big Okhat	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Barhabise, Sabhpokhari
9	Harro, Barro & Amala	Syabun, Wana, Akhibhui, Kharang, Baneswor, Madirambeni, Khadbari mun
10	Allo	Bala, Sisuwakhola, Tamku, Num, Yafu
11	Lod Salla	Keemathanka, Hatiya, Chepuwa, Pawakhola, Num, Barhabise, Sabhpokhari, Madimulkharka, Tamafok, Nundhaki

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S.N.	Product	Existing and Potential VDCs
12	Amriso	Jaljala, Syabun, Wana, Sidhakali, Chainpur, Banewor, Kharang, Mamling, Akhibhui, Barhabise, Dhupu
13	Lokta	Sisuwakhola, Bala, Tamku, Malaku, Num, Pathibhara, Sabhapokhari, Sidhakali, Sidhaapokhari, Jalajala, Madimulkharka, Madirambeni, Mawadin, Tamafok
13	Rhododendron	Keemathanka, Hatiya, Chepuwa, Pawakhola, Makalu, Num, Wala, Sisuwakhola, Tamku, Barhabise, Mawadin, Madimulkharka, Sabhapokhari, Jaljala, Nundhaki, Pathibhara, Diding, Yafu
14	Kurilo	Diding, Matchepokhari, Banewor, Kharang, Sidhapokhari, Sidhakali, Syabun, Dhupu
15	Khayar	Syabun, Akhibui, Banewor, Kharang, Chainpur, Wana, Dhupu, Sabhapokhari, Mamling, Madirambeni
16	Shikakai	Syabun

3.4.2 Mines and minerals

The rapid feasibility survey was conducted to identify the availability of mines and mineral, but not yet conducted detail survey to excavate the resources. The potential and existing identified mines and mineral pockets areas are as follows:

Table no 3.20: Potential and Existing pocket area for mine and minerals

S.N.	Potential and Existing VDCs	Mine
1	Tamafok, Num, Ramite (Barhabise), Hatiya, Arun and Sabha river bank	Copper
2	Barhabise (Sunamla, Hyakule, Mangsima	Ruby
3	Hokse, Lohakot, Pathibhara	Iron
4	Piluwakhola and Sabha khola river bank	Lime Stone
5	Hatiya, Simma jor khola, Khadbari Mun.	Marble
6	Fakuwa, Ithum dada	Aquomarine
7	Panchpokhari	Ruby
8	Hyakule area	Tourmaline
9	Pakribas, Barhabise, Jaljala, Hedangna and Bhusune	Quarch
10	Arun River bank	Black silajit
11	Mangsima, Chainpur, Akhibhui, Kharang, Banewor	Abhrakha, Limestone

4.3.3 Religious and historical places

There are many places which are popular for religious, historical and tourism purpose, these places can be promote for external and internal tourism. The places are as follows:

Table 3.21: Religious, Historical and Tourism significance places

S.N	VDC	Description	Significance
1	Hatiya	Baruneswor Mahadev, Monastery, Hotwater stream	Tourism & Religious
2	Chepuwa	Simpoke Himalaya, Monastery	Tourism & Religious
3	Yafu	Khempalung cave and Himalaya	Historical & Religious
4	Makalu	Mt Makalu, Manastry, Khempalung Shivdhara	Tourism
5	Num	Mahadev Gumba, Katuwal gau,	Historical and Religious
6	Bala	Trekking route	Tourism
7	Tamku	Mewahang palace, Trekking rout	Tourism & Religious
8	Mangtewa	Lampokhari & Nilgupha	Tourism
9	Sitalpati	Trekking route and Harelo dada	Tourism
10	Sabhapokhari	Sabhapokhari	Religious
11	KhandbariN.P.	Manakamana, other temples and Manastry	Religious
12	Diding	Kirateswor Mahadev	Religious
13	Bana	Siddheshwor Mahadev	Religious
14	Syabun	Gupteswor Mahadev	Religious
15	Jaljala	Jalpadevi, Jaljala himal	Religious
16	Siddhakali	Siddhakali temple	Religious
17	Siddhapokhari	Riverside ritual place	Religious
18	Nundhaki	Gupha pokhari, Menchyamthap, Bhimsen stone	Religious

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S.N	VDC	Description	Significance
19	Chainpur	Bhimeswor temple	Religious
20	MadiRambeni	Ram mandir	Religious
21	Mawadin	Lampokhari	Religious
22	Kharang	Kharang bazar	Tourism
23	Baneswor	Shivaling Baneswor Mahadev temple	Religious
24	Ankhibhui	Shiva temple	Religious
25	Mamling	Shivalaya	Religious
26	MadiMulkharka	Lampokhari, Monastary, Hangthung dado	Religious
27	Tamafok	Okhre (religious place)	Religious
28	Dhupu	Nageswor Cave	Religious
29	Pathibhara	Gurase, Mane dada, Kali mandir	Tourism & Religious
30	Madimulkharka and Nundhaki	Tinjure Milke Jaljale and Rhododendron	Tourism

3.5 Existing and Potential Market centre (Key Growth Center)

Random selection of market centres in line with the road allignment was taken. Total of 34 market centres were surveyed and analysed their grades as per their services rendering to the people, number of business centres, service providers and potentialilty of agriculture, horticulture, livestocks and other local resources as well as historical and tourism importance of the centre. The market centrality index are calculated with standard format and graded. The market grades are as follows:

Table no 3.22: Existing and potential market centre, centrality Index, rank with grade

S.N.	VDC	Market centre	Centrality Index	Rank	Grade
1	KhandbariN.P.	Khandbari	340	1	A
2	Chainpur	Chainpur	289	2	A
3	KhandbariN.P.	Mane bhanjyang	142	3	A
4	KhandbariN.P.	Tumlingtar	120	4	A
5	Siddhakali	Pokhari	112	5	A

Chapter II: Indicative Development Potential Map (IDPM)

S.N.	VDC	Market centre	Centrality Index	Rank	Grade
6	Tamafok	Mude Sanishchare	86	6	A
7	Barhabise	Barhabise	84	7	A
8	Kharang	Kharang	66	8	B
9	Ankhibhui	Kuwapani	66	9	B
10	MadiRambeni	Okharbote	63	10	B
11	Akhibui	Bihabare	62	11	B
12	Mamling	Bhanjyang	56	12	B
13	Num	Num	54	13	B
14	MadiMulkharka	Buddhbare bazar	53	14	B
15	Wana	Wana	52	15	B
16	Pathibhara	Gadhidanda	46	16	C
17	Nun dhaki	Gufa Pokhari	40	17	C
18	Jaljala	Bihibare	39	18	C
19	Sitalpati	Sukrabare	37	19	C
20	Tamku	Sukrabare	29	20	C
21	Matsyapokhari	Chichila	29	21	C
22	MadiMulkharka	Mangalbare	28	22	C
23	Dhupu	Dake Bhanjang	27	23	C
24	Bala	Budhabare	25	24	Potential
25	Chepuwa	Chepuwa	20	25	Potential
26	Hatiya	Syaksila gola	20	26	Potential
27	Hatiya	Hongong	20	27	Potential
28	Bana	Lingling	19	28	Potential
29	Hatiya	Hatiya	19	29	Potential
30	MadiMulkharka	Chauki	17	30	Potential

S.N.	VDC	Market centre	Centrality Index	Rank	Grade
31	Pathibhara	Simma	11	31	Potential
32	Sitalpati	Heluwabesi	9	32	Potential
33	Chepuwa	Chyamtang	9	33	Potential
34	Keemathanka	Keemathanka	8	34	Potential

3.6 Description of Market centre

1. Khandbari:

Khadbari is the district head quarter. All district offices and municipality offices except legal justice office (Court) are in Khadbari and rendering services to all VDCs and Municipality area. Pokhari is the old market area and all the offices are around the market. Long distance bus services also start from tudikhel of this area. It is most important place and market centre for all people of the sankhuwasabha. Khandbari Municipality office is also in this area. There is district hospitals and 2 campuses. There are 5 banks, 7 cooperatives and more than 20 non government organisations working for the development.

2. Chainpur:

This is old market centre and previous district head quarter. The area is famous for metal craft and carried many historical importances and temples. There are all types of development infrastructures and educational institutions. The area is linked with all weather road from Basantpur terahthum distict, hence this is growing market centre of this district. This market is the shopping centre for the habitants of all VDCs of constitutional no 2, Khadbari ward no 13 and few places of terahthum districts.

3. Manebhanjang:

This is northern corner of Khadbari Municipality and foothill of northern belt hilly areas. This is one of the big markets of Sankhuwasabha district. This is the main market centre for all VDCs in northern belt. This is the transportation junction and buspark for the vehicle moving towards northern belt and southern belt. Hence it is important market centre for buying consumable goods and selling their local products likes NTFP, agro products, horticulture and livestock.

4. Tumlingtar market:

This is the market extended by the airfield and air services. This area is the middle part of the districts and along the high way to Chainpur Basantapur/ Terahthum and Leguwaghat Hile/ Dhankuta in the South and connecting place to Koshi Keemathanka highway in the north. The area is popular for the clay product and trading centre. This area is near to Bhojpur, hence it has unique important for the people of Sankhuwasabha and Dingla, Kharang, Ramche, Dhungedara, Dobhan, Nepalada, Jhyaupokhari, Satal and Kurlung of Bhojpur district. This area has its important for prompt communication and fast travel to other districts.

5. Pokhari/ Siddhakali:

The habitants of Pokhrang, Malbase, Dhane, Bhaluthok, Chaurikharka, Bihibare, Fabing, Badha, Mawadin, Changting villages and most of the north east VDCs are come for selling their products and buying the consumable good their daily lives. The place is situated in the

river bank. It has carried uniqueness of siddhakali temple. There is health post, veterinary office, post office, cooperatives and NGOs working in this area. There are many hotels, tea stall, groceries shops, hardware shop, medical shops, stationary shop and cloth shops, etc. There is rice mill forest based industries and agro based industry are operating.

6. Mude Sanishchare/ Tamafok:

This market area has all weather road link to basantpur of Terahthum and chainpur. The area is the market centre for the habitant of Namfu, Banpale, Newar gaun, Bhanjyang, Chitre, Orlang, Ahale, Mehele, Hanglafok, Fudung and Budhabare. There is schools, many shaopes, rice mill, forest based industry and mechanical workshops.

7. Barhabise:

This market centre is location in between Sabhapokhari and Barhabise VDCs and river bank of Sabha khola. It has beautiful landscape and developed as trade centre. This area is religious holly place and ventage point for the mountain pond (4200 mt). All the offices are located in this area, so it carries important for the habitants of Barhabise, Sabhakhola, Jaljala and Syabun, Matchepokhari, Wana VDCs and Khadbari Municipality. The local products of north east belts sell and buy their consumable goods from this market. Hence it has importance and comparatively big market. They have identified quarch mine and copper mine (Ramite) and ruby mine (Sunamla, Hyakule and Mangsima areas).

8. Kharang:

This is tourism place and market place for the habitant of Pipaltare, Hokse, Lingling, Archle, Lumlintar and Baneswor VDC. This area is in adjoining to the leguwa tumlingtar high way. Peoples from Pipaltare, Hokse, Lingling, archle, Lumlintar and baneswor visit for buying consumable good and selling their local products. Hence it has more significant growth potential even in future. There is highschool, many shops, agro based industries, veterinary service centre, post office, electricity office, cooperative and local NGO working in this area.

9. Kuwapani / Akhibhui:

This is the market place for the habitant of Lyatang, Kewa Baireni, Bihibare, Khalte, Tallo belt Chanuwa. It has alweather road link with Dhankutta district via leguwa ghat. The area has high potential for agricultural products and hence it has highly growth oriented place. The shiv temple is fomous for religious people in this area.

10. Okharbote/ Madi Rambeni:

This is the market centre for Hanglung, Purano Chainpur, Ghorle, Khamlaling, Trishul, Kharang, Ratamate, Tikhidunga, Salle, Tirtire, Tellok, Mahahbir habitants. There is one campus and other service rendering offices. It has huge potential for market expansion. It carries historical and religeous values, hence it has values of marketing of the local products and centre place in buying consumable goods for the local habitants. Ram mandir is fomous temple for inter district religious people.

11. Bihibare/ Akhibhue:

The market centre is the shoping centre for the habitant of Lyating, khaho, sattare; khamlaling; all wards, Sanischare, katlang, Chitre, Gairigoun, dadagoun, banskharka, nunthala, Magar, newar, gown, jhilimile dadakharka, Jarayotar, ranitar; all wards of Akhibhue. There are schools, many shops, one rice mill, electricity office and cooperative. There is NGOs working in this area. The area is low land and fertile for agricultural products. There is road linked with Leguwaghat Hille Dankuta Road.

12. Bhanjyang / Mamling:

The area is potential and near to leguwaghat highway and market centre for the habitants of Dhode, Faksi and near by villages. It has high potential of agricultural products. Shivalaya is the religious place. There are schools, health post, agricultural service centre, veterinary, post office and cooperative. There are rice mill, forest based industry and many shops.

13. Num:

This is the main market place for Pathibhara, Malta, Deurali, Num, Makalu, Matchepokhari and Dididng. It is situated in the valley of Arun River, foothill of Makalu Barun National Park and way to Arun III hydro power. It carries historical memory Num is known as katuwal gau (tax collector's village) and popular for manastry and Mahadev temple. Cooper mine has been identified in this area. There is high school and many shops to render services to the visitors from northern belt of the district.

14. Madi Mulkharka:

This is the market place of the habitant of Rambeni, Tamafok, Nundhaki, Mawadin, Morang and Sirjung. This area is popular for sugarcane and other agro products. Gumba and lampokhari is the religious place in this area. There is one campus, healthpost, agricultural service centre, veterinary service centre and postal service centre. There are many shops and hotels rendering services the travellers.

15. Wana:

There is highschools, health post, agriculture, veterinary and other offices in the area. This market is on the way to chainpur Khadbari highway. The habitant of Barhabise, Dhupu, Sabhapokhari, Syabun, Matchepokhari, Wana and Khadbari visit for buying and selling their products in the market, hence it has high potential for expansion in future. There is religious temple like siddhewor temple. This area has high potential for agriculture, horticulture and NTFFPs.

16. Gadi Danda/ Pathibhara:

This is the historical place and market centre for Seduwa, Dumkimara and Gola. The market centre is connected with the proposed high way Num to Keemathanka. There is high school, health post, veterinary office and post office. Hence it has unique value and prospective for future growth.

17. Gufapokhari/ Nundhaki:

This market centre is the junction of Mulkharka, Nundhaki, Mawadin, Girihastim Morahang, Terahtum-Jirikhimti, Pouthak, Khamlalung, Taplejung-Samdhu, Sadhu, Change, Hampang, Dhungesanghu, Dobhan, Khoglung, Hangdowa and Mewakhola. The habitant of these areas walked up to 6 hours for buying and selling their products. The place is popular for Gupha pokhari, Menchangdhyap, bhimsen stone. There is many shops and hotel to render services for the travellers. There is one micro hydro.

18. Bihibare/ Jaljala:

The habitant of Bana, Jaljala, Syabun, Sidhapokhari and Chainpur visit to buy and sell products in this market. This area is popular for Jalpadevi temple and unique view of Jaljala Himalaya; hence, it has huge potential for religious and tourism. There is a quarch mine. There is high potentiality of MAs. There is one high school, one rice mill, forest based industries, handicrafts, cooperatives, NGOs are working for the development. There are many shops and hotels in this area to vendor their services to the travellers.

19. Shukrabare/ Sitalpati

This is the ancient Friday market place for the habitant of Heluwabeshi, Angla, Simle, Chandanpur, Kurlung, Bala and Sisuwa. It was village level established market for the local and neighbouring VDCs. This area is linked with the seasonal road network. There is highschool, health post, agricultural office and postal service. there is one high school and many shops for consumable goods.

20. Shukrabare/ Tamkhu:

The name itself describes as Friday mobile market. This market is the place for selling their products and buying consumable good for the habitant of Tamkhu, Bala, Mantewa and Yafu. This place carries the historical memory of Mewahang palace and trekking route to Himalaya. Citrous fruits are available in this area. There is educational institutions, health post, veterinary office, post office and many consumable goods shops.

21. Chichila:

This market place is the selling and buying activities of habitants of Diding, Thadagaun, Matchepokhari, Kagate, Kharmile, Dadagaun, Pokharigaun, Barkhe and Chansute. This area is the crossing point to Khadbari Num highway and near to Khadbari. There is high school, health post, many consumable goods shops and other service vendors. It is popular for the recreation centre for the people from Khadbari. Hence it has unique importance for marketing and market centre.

23. Dake Bhanjang/ Dhupu:

The market place is near to Khadbari municipality and small village market areas of the Dhupu VDC. Habitant of Syabun, Dhupu, Padho, Bhayum and Okten come for daily consumable goods and supply their local products via this market centre to Khadbari. There is high school, Health post, veterinary office and post office services. This area is popular for Nageswor cave. It has potential growth in future.

24. Budhabare/ Bala:

The budhabare is the ancient movable market place for Thursday. The habitants of Bala, Sishuwakhola, Tamkhu and Kurlung of Bhojpur district visit for selling their own products and buying consumable goods for their daily family needs. This is trekking route to Mount Makalu Himalaya. This area is popular for MAPs (Medicinal and Aromatic plants), NTFP and Rudrakshya seeds.

25. Chepuwa:

The habitants of Lingam, Gumba, Kukma, Chyamtang, Hatiya and Hunggung visit for buying consumable goods and selling their local products like NTFP, livestock and agro products. It has linked with the proposed highway Num to Keemathanka. There is high school and post office in this area. This area is popular for the ventage point for Simpoke himal and monaster; hence it is potential for future market growth.

26. Syaksila Gola:

Syaksila gola is the central place for gathering people and discuss for their development, now this place has been developed as market centre. This area is the centre part of the northern belt of the district, so it is the market place for the habitants of Tungkhaling, Lungsung, Siprung, Saksha/ Dibha, Namase, Linggum, Bhankim, Shyaksila and Simbhung/ The people come to market centre for buying consumable goods for their daily livelihoods and sell local products as NTFP, livestock and agricultural products. The area is link with the proposed highway Num to Keemathanka; hence it has high potential in future.

27. Honggong /Hatiya:

This is village level market in the northern belt, where most of the northern belt habitants visit for buying consumable goods and selling their product. In most of the cases their dealing is in either exchange or barter system. And, this is resting place while trekking to keemathanka. This area is connected with Num to Keemathanka highway, hence it has potential market. The people from Hatiya, Chepuwa and Gola visit to this market for buying consumers' goods and selling local products.

28. Lingling /Wana:

This is the local market for the habitants of Wana, Khaptuwa and Khamare. There is school, health post and cooperatives. The area is near to Tumlingtar airport. The market place is connected with Tumlingtar chainpur highway; hence it has growth potential in future.

29. Hatiya:

The name Hatiya, itself describes the mobile market in local name. The place, where people from neighbouring villages come and sell together oftenly for their daily needs. This place is popular for monastery, hot water stream and Baruneswor Mahadev as well as junction to Barun River. It has copper mine and marble. There is huge potential for NTFP. This area is linked with the proposed Num to keemathanka high way, hence this is potential market centre.

30. Chauki/Mangalbare:

This area is the centre point to the trekking rout of Tinjure Milke Jaljale, popular for the rhododendron. Around 28 varieties of rhododendron is available in Tinjure Milke Jaljale area. The market is the centre point for the habitant of Nundhaki, Mawadin, Madi rambeni, Mulkharka, Tamafok, Terahthbum -Morang, Srijung, Pouthak, Ambung, Dhunbu, Fakumba, Dhunge sagu, Chage, Hampang. It is near to the basantpur market of Terahthum distric. Hence, it has great opportunity for expansion in future.

31. Simma/ Pathibhara:

This area is connected with the proposed high way Num to Keemathanka. This market area is place for buying and selling of the habitant of Karmarang/ Kawakhola, Pathibhara and Gola. There is one high school, few shops and hotels. It has iron mine. This place is popular for the Kali temple, mane dada as ventage point for the Mount Makalu. Hence, it is potential for future growth.

32. Heluwabesi:

This market is the centre for the habitants of Kurlung, Bhojpur district and Sitalpati VDCs as a whole. The seasonal road network is connected to Manebhanjang and Khadbari municipality. There is one high school, rice mill and shops. This area is a trekking rout to nortnen belt and popular for Darelo dada. It has growth potential.

33. Chyamtang/ Chepuwa:

This area is the market centre for the habitants of Chumsur, Chepuwa, Hatiya and Hunggung. There is one primary school, rice mill and few shops. This area is linked with Num to Keemathanka highway. This is the most remote small market area in nortnen belt. This area is popular for ventage point to Simpoke Himal and Monastrey. This area is potential for growth in future.

34. Keemthanka market:

This is extrem northern side local market linked with Tibetan platue of China. This is historical trek and exit point of Nepal for trade with Tibetan. The area is very small but having great historical importants linking with Tibetan. Nepal government is planning to broaden this trail by constructing Koshi Keemathanka highway. Hence, it has great potential for future market point in trading with Tibetan. It has carried ancient cultural history of living together with harmony. There is potentaility to promote eco tourism. The people from Dedang, Chkumshur, Chyantang, Chepuwa, Lingum, Hatiya and Hunggung come for buying consumers goods and selling their local resources likes NTFP, ago products, furits and livestock.

3.12. Conclusion

Road is the backbone and basic infrastructre for the holistic development of the people of this district. The road contributes them to speed up their mobility, enhance information and knowledges. Vehicle movements in the road help them to reduce their work drudgery in carrying goods.

The primary sources of household income are Agriculture, NTFP, business, service, wage, occupational work and remittance. Unemployment and under employment are the serious problems in this area. This district is water resource prosperous district which has serious problem of energy, electricity, fuel wood and transportation. People's knowledge on external world and regular cash income generation are the problem in northern belt. There is huge potential of forest resources and eco tourism but due to road network, low educational level and limited development infrastructure have dragged out from development mainstream. This has led a large number of youth's travel to foreign countries in search of job and better life. While most of the middle class youths attempt for gulf countries including Korea and Malaysia. Poor and ultra poor migrate to India in search of unskilled low pay job. Nearly 3000 to 4000 youths, mostly male leave this district under seasonal migration. (DDC record)

Eco tourism is one of the prosperous sources for income and incentives living in remote and hilly region. Malaku Barun National Park has been contributing to local people in some level but development pace of the community is very low.

Major problem and constraint of this district is the transportation facilities like all weather road and vehicle services in all villages, so that they are able to enhance their capability in marketing of their local products like agricultural crops, cash crops, livestock, NTFP and Maps. They also easily get consumable goods at their door step as their needs and demand.

CHAPTER IV: DISTRICT INVENTORY MAP OF RURAL ROAD NETWORK

CHAPTER IV: DISTRICT INVENTORY MAP OF RURAL ROAD

4.1 Existing Transport Situation

Historically, Sankhuwasabha was a district with the access to road transport facility without connection with any national strategy road network. Such sort of internal set of transport system was able to provide services only between district headquarter and Tumlingtar airport. The development of Koshi highway from Basantpur to Tumlingtar broke up this barrier of isolation through improved access to Terai region as well as other parts of Nepal. Currently, the district has access to facilities of both the air and road transport facilities. Nevertheless, while referring to 'Nepal Transport Policy' of 4 hours standard for all weather transport facility for people living in hilly area, only one fourth of the population of this district has access to all weather road and air transport facility service has also not reliable service during rainy season. The district headquarter has yet not access to all-weather road transport facility. In the recent years, road transport facility is gradually getting better through rapid increase in development of highway and other district road networks. Basically, Koshi highway has become a major catalyst for the overall development of district through improved access to goods and services of people to major market centers of neighbouring districts. The existing district road network which comprises of strategic and district roads is given below:

4.2 Brief on National Highway:

Koshi Highway, linking Sunsari to Dhankuta and Sankhuwasabha districts, passes through 7 VDCs and 1 Municipality of this district, viz., Tamaphok, Mamling, Baneshwor, Chainpur, Ankhibhuin, Khandbari, Diding and Matschepokhari. The Department of Road (DoR) has already set up its strategy as well as action plan to extend this highway upto Kimathanka VDC, which is an international border VDC of this district with Tibetan region of China. The extended section of highway is aimed to pass through Num, Pathivara, Hatiya and Kimathanka VDCs serving most of the northern isolated VDCs of this district. Of the total length, about 121.90 km length from Basantpur to Kuwapani bazaar of Diding VDC lies within this district under the vehicle pliable condition (Table - 4.1). It has an Ottaseal surface upto Chainpur VDC and has been gravelled upto Sabhakhola of Ankhibhuin VDC, upto which it provides all-weather transport facility. While remaining earthen section of highway upto Kuwapani bazar with fair-weather facility, was constructed under the joint effort of DDC, GTZ and DFID.

Table - 4.1: List of National Highway:

S. N.	Name of Road	Length(Km)			Total length	Remark
		Ottaseal	Gravel	Earthen		
1	Koshi Highway	49.50	25.20	43.00	117.70	

4.3 Brief Description of Proposed Feeder Road:

Sabhakhola-Kewabesi-Leguowaghat district road (RRA), which is under the transitional stage of its development, as it is proposed as a feeder road for the purpose of connecting this district with Leguowaghat and Hile major market centres of Dhankuta district. The length of this road from Sabhakhola, a cross point with highway, to Leguowaghat, a major market center of Dhankuta district, is around 25 km, out of which 18.05 km length lies within this district upto Kewakhola (Table – 4.2). The total length of this road is earthen with fair-weather serviceability. It passes along the left bank of Arun River by connecting Kharang and Ankhibhuin VDCs of Sankhuwasabha district with Leguowaghat and Hile bazar of Dhankuta district. This route is assumed to be one of the most shortest route in connecting district headquarter with

neighbouring district of Dhankuta or Terai region. This road can be another major catalyst for the rapid economic as well as other development of this district. So, this road has been put in a highest priority for its all-weather condition and the DDC of Sankhuwasabha is ready to handover it to DoR. While on the other hand, DoR is under the process of taking over this road under its jurisdiction. The DoR has already taken some initiations in upgrading this road within the section of this district through construction of RCC bridges over Piluwa and Kewa River. Nonetheless, the DDC has decided to incorporate this road in the evaluation process of the District Transport Master Plan under the sector wide approach programme (SWAp).

Table - 4.2: List of Feeder Road:

S. N.	Name of Road	Length(Km)			Total length	Remark
		Black Topped	Gravel	Earthen		
1.	Sabhakhola-Kewabesi-Leguwachhat	-	-	18.05	18.05	

4.4 Brief Description of District Roads

Brief description of district road network, particularly district roads class 'A' (RRA) and class 'B' (RRB) are described below:

4.4.1 Briefs of district Roads Class "A"

Study and analysis shows that there are currently 11 district roads of class 'A', out of which almost all roads provide fair-weather transportation services. Moreover, the construction quality of these roads is poor in engineering aspects, as about 30% of the total length needs to be rehabilitated and upgraded to meet the design standards and proper transportation services. In order to boost up economic growth of people, it needs to have an improved transport system throughout the year. This is only possible through the upgrade of all these district roads which is directly governed by the availability of resources. While evaluating the annual budget of DDC allocated for physical development from all possible sources, it is insufficient to fulfil all necessary interventions which can be viewed in the summary table - 4.3. The individual district roads are described in brief as follows:

Khandbari-Badareni-Lingling-Chainpur District Road (09A001R)

This road starts from Koshi highway at Khandbari municipality. It mostly follows ascending and descending terrains until it reaches Chainpur VDC. It passes through different settlements and market centers like Khandbari, Pathakgoan/Ratmate, Badareni, Makuwa, Khaptuwa, Phapung, Lingling, Archale, Khamare, Bhanjyangkhark, Chainpur of Khandbari Municipality, and Syabun, Wana, and Chainpur VDCs respectively. The total target length of this road is about 27.83 km, out of which 23.62 km is already completed and remaining about 4.21 km around Khamare settlement in Wana VDC is under the construction process. Regarding serviceability, it is fair-weather within a length of 23.62 km up to Khamare settlement from both sides. The geometric standard of this road is not properly maintained in some sections in accordance of engineering design. In the case of cross drainage structures, it needs to construct 2 nos. of new RCC bridges over Sabhakhola and Hewakhola, and 8 nos. of new causeways over small natural drainages. Since this road is connecting the second top market centre of Chainpur bazaar with the district headquarter, it is considered to be a very important network for the overall development of the district, as it is considerably shorter than Chainpur-Tumlingtar-Khandbari section of highway. So,

this road is one of the most prioritized district roads to boost up economic growth of the district as a whole.

Sabhakhola-Kewabesi-Leguowaghat District Road (09A002R)

Though this road is proposed a feeder road concept in linking district headquarter shortly with major market center of Leguwabazar of Dhankuta district, it is yet not been taken over fully by DoR. The length of this road passing within this district from Sabhakhola, a cross point with highway, to Kewabesi is 18.05 km earthen section with fair-weather condition. It passes along the left bank of Arun River with steep terrain connecting Kharang and Ankhobhuin VDCs of Sankhuwasabha district with Leguwaghat and Hile bazar of Dhankuta district. Since it passes through some of the steep rocky sections, it took long time to be completed by this district. Very essential natural cross drainages structures have yet not been completed in most of the sections. It stays on with poor geometric standards in most of the area. In order to attain a regular transportation, it has to be properly maintained as well as upgraded. With the condition, it can really be supportive as a most important catalyst for the rapid economic development of this district. So, this road has been put in a highest priority for its all-weather condition and the DDC of Sankhuwasabha is ready to handover it to DoR. While on the other hand, DoR is under the process of taking over this road under its jurisdiction. The DoR has already taken some initiations in upgrading this road within the section of this district through construction of RCC bridges over Puluwa and Kewa River. With this background, the DDC has decided to again incorporate this road in the evaluation process of the District Transport Master Plan under the sector wide approach programme (SWAp).

Chainpur-Nundhaki-Gufapokhari District Road (09A003R)

This road starts from Khandbari-Badreni-Lingling-Chainpur district road at Chainpur bazar passing through different settlements and market centers like Chainpur, Pokharibazar, Tanglewa, Mayum, Chitlang, Bihibare Hatbazar, Tatopani, Dandagoan, Libungtar Goan, Sahidgoan, Singring of Chainpur, Siddakali, Siddapokhari and Nundhaki VDCs respectively. It follows partly ascending and descending and partly ridge path until it reaches to nearby Singring of Nundhaki. It connects major market centers of Chainpur and Pokhari bazar and in future, it will connect Gufapokhari bazar which is one of the most famous tourism market centers of this district. It has a total target length of 43.15 km upto Gufapokhari, out of which 25.88 km is already constructed upto Singring of Nundhaki VDC and the remaining 17.27 km length between Singring to Gufapokhari is under construction process. About 17 km length upto Bihibare bazar of Nundhaki is under the stage of vehicle pliability with fair-weather serviceability. The construction of this road is undertaken by RAP-II. The alignment of this road follows geometric standards in accordance with the engineering design. Within the constructed section, about 36 nos. of stone causeways are already completed, while one no. of bridge needs to be constructed over Puluwa River. It has an importance for historical, horticulture, non-timber, religious and tourism aspects for the entire population of Illaka 8. This road is very important which trigger different possible options of economic growth of the area, so it has to be completed new section as well as upgrading process in attaining all-weather transport facility.

Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari) District Road (09A004A)

This road starts from Koshi highway at Khandbari bazar. It follows mostly ascending and descending path passing through different settlements and market centers like Ramche, Pangtha, Dake, Deurali, Dhupusera, Phakchuwa, Barahbise of Khandbari municipality, and Dhupu and Barahbise VDCs respectively. It connects Barahbise bazaar with district headquarter of Khandbari, serving fair-weather services. The total target length of this road is about 48.83 km, out of which 23.83 km upto Barahbise bazaar is already completed and remaining about 25 km upto Phakuwa of Sabhapokhari VDC is planned to be extended in the near future. The geometric

standard of this road is not properly maintained in accordance of engineering design in most of the sections. So, it needs to improve some geometrics in some critical sections in attaining proper transportation services. At the same time, there is equally important to construct new drainage structures like 3 nos. of new bridges and 16 nos. of causeways to improve its serviceability. Provision of upgrade has become very necessary for its all-weather serviceability. This road has been important in providing transportation services for the entire population of Illaka no. 5 and partly population of Illka no. 6. Basically, it has been considered to have its contribution into promotion of horticulture, non-timber, mining, tourism and livestock. So, this road has to be given major priority for its upgrade in boosting up economic growth of the area.

Chainpur-Barahbise District Road (09A005R)

This road starts from Chainpur-Nundhaki-Gufapokhari district road near Chainpur bazar. It mostly follows ascending and descending path passing through different settlements and market centers, like Chainpur bazaar, Dangigoan, Dangsimara, Sunkhani, Kalleri, Bihibare bazaar, Bhirgoan, Phachyang, Aitabare, Kusuwa, Khare, Chaudandi, Okten, Khokrang and Barahbise bazaar of different VDCs like Chainpur, Siddapokhari, Jaljala, Wana, Syabun and Sabhapokhari respectively. The total length of this road is about 36.20 km, out of which 15.69 km length is vehicle pliable up to Bihibare bazar of Jaljala VDC and remaining length is about to finishing stage undertaken by RAP-II programme. The geometric standard of this road is maintained in accordance of engineering design. Regarding drainage structures, about 29 numbers of causeways are constructed over small drainages, while about 6 nos. of new bridges need to be constructed over different major natural drainages to attain its all-weather serviceability. Since this road is connecting Barahbise and Bihibare bazaars with major market center of Chainpur as well as Koshi highway, it is considered as one of the most important district roads in the district, as it serves entire population of Illaka no. 5 and 7 and partly for population of Illaka no. 9 of this district. So, this road needs to be focused as a major priority for its upgrade in boosting up economic growth of the area.

Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Cheskam (Solukhombubu) District Road (09A006R)

This road starts from Koshi highway at Manebhanjyang of Khandbari Municipality. The constructed section of this road follows mostly ascending and descending path until it reaches Heluwabesi. The new section to be extended upto Chheskam follows all types of terrains lying in both the Bhojpur and Sankuwasabha districts. The constructed section passes through different settlements and markets like Manebhanjyang bazaar, Chandanpur and Heluwabesi of Khandbari municipality and Sitalpati VDC. The total target length of this road is about 103.30 km, out of which 13.30 km upto Heluwabesi bazaar of Sitalpati VDC is already completed and remaining section of about 90 km upto Chheskam is the under the long term planning process of construction. Regarding serviceability, it is fair-weather within a length of 13.30 km with earthen surface upto Heluwabesi bazaar. The geometric standard of this road is not properly maintained in few sections in accordance with engineering design and since it has followed ascending and descending path, it needs to construct 13 numbers of new causeways over the small natural drainages. The existing earthen section of the road needs to be upgraded as soon as possible to provide all-weather transportation facility. Basically, improved road condition has been considered to have its valuable contribution in the promotion of commercial high valued crops, horticulture, livestock, non-timber, mining and religious, and tourism sectors through which overall development of the area will be promoted.

Tute Deurali-Mangalbare Chauki-Gufapokhari District road (09A007R)

This road starts from Koshi highway at Tute Deurali of Tamaphok VDC, which is a major point through which import and export of goods is done. It mostly follows ridge path until it reaches Gufapokhari of Nundhaki VDC, which is one of the most famous tourism places of this district. It passes through different settlements and market centers like Tutedeurali, Milkejaljale bazaar, Pachpokhari, Tinjurephedigoan and ChaukiMangalbare bazaar of Tamaphok, Madimulkharka, Mawadin and Nundhaki VDCs respectively. The total target length of this road is about 22.54 km, out of which 15.64 km upto Sirimane settlement is already completed and remaining section of about 7 km upto Gufapokhari is under the construction process. Regarding serviceability, it is all-weather within a length of 6.09 km upto Panchpokhari while within the remaining 9.45 km earthen section, it provides fair-weather services. In overall, it maintains geometric standards, except few sections. Since it almost follows ridge path, it needs not to construct natural cross drainage works as a major structures. Since it links the district with both the major market of Bansantpur of Dhankuta district and with Terathum district as well, this road has most important role in providing benefit to this district through promotion of commercial cropping, horticulture, livestock, non-timber, and religious, and tourism sectors. So, this road has to be given major priority for its upgrade in boosting up economic growth of the area.

Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa (09A008R)

This road starts from Koshi highway at Kitingdanda of Mamling VDC and ends to Kewa settlement of Dhankuta district. It follows mostly ascending and descending path until it reaches Kewa. The alignment passes through different settlements and markets like Kitingdanda, Halakedanda, Devithan, Mamlingbesi, Magarvira, Dharmadevi, Malbase, Bihibare, Mulgoan and Kewa of Mamling and Ankhibhuin VDCs of Sankhuwasabha and Chanuwa VDC of Dhankuta respectively. It is considered as a strategic road joining Koshi highway from Kitingdanda with Leguwaghat and Hile major market centres of Dhankuta district. In future, it can be a shortest route in connecting most of the VDCs of constituency number 2 of this district with Terai region of Nepal. The total target length of this road is about 16.70 km, out of which 11.90 km upto Mulgoan of Ankhibhuin VDC is already completed and remaining about 4.80 km is planned to extend upto Kewa. It serves fair-weather services with its earthen completed section upto Bihibare bazaar of Ankhibhuin VDC. It attains normal geometrics in most of the sections. Regarding drainage structures, it needs to be constructed 2 numbers of slab culverts and 6 numbers of causeways over the natural drainages passing across it.

Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari (09A009R)

This road starts from Koshi highway at Vaidyaguan (Tumlingtar) and ends at Sabhapokhari, which is one of the very renowned natural landscapes popular for the tourism aspect. The constructed section of this road follows valley as well as ascending and descending path until it reaches Lingling bazaar of Wana VDC. The constructed section passes through different settlements and markets like Vaidyaguan (Tumlingtar), Baralgoan, Hokse, Timurebhanjyang, Lingling of Khandbari Municipality and Wana VDC respectively. The total target length of this road is about 97.56 km, out of which 12.56 km is already constructed upto Lingling bazaar within which fair-weather vehicle pliability is taking place. Remaining about 85 km is planned to be extended upto Sabhapokhari. For the proper service delivery of transportation facility, it has to be attempted efforts in constructing one bridge over Sabhakhola as well as upgrade process. With its improved condition, it can contribute in providing better access to large population of its catchment area in the promotion of commercial high valued crops, horticulture, livestock, non-timber, mining and religious, and tourism sectors through established linkage with major market centers of this district (like Tumlingtar bazaar) as well as of other districts (like Leguwa and Hile bazaars).

Rammandir-Okharbote-Bagha-Nundhaki (09A010R)

This road starts from Koshi highway at Rammandir of Mamling VDC. At the beginning, it passes along the Piluwakhola and then it follows an ascending path until it reaches Bagha settlement of Mawadin VDC. It passes through different settlements and market centers like Piluwadovan, Rammandir, Pulung, Gausara, Okharbote, Chyangring, Bagha of Mamling, Madirambeni, and Mawabin VDCs respectively. The total target length of this road is about 30.26 km, out of which 18.26 km is already completed upto Bagha settlement and remaining about 12 km upto Bihibare bazaar of Nundhaki is under the construction plan. Regarding serviceability, it is fair-weather within a length of 18.26 km upto Bagha settlement of Mawadin VDC. The geometric standard of this road is not properly maintained in some sections in accordance of engineering design and the beginning section of this road needs to be shifted out of the existing followed path. Regarding cross drainage structures, it needs to construct a new bridge over Mayakhola and 32 numbers of new causeways over small natural cross drainages. Basically, improved road condition has been considered to have its contribution in the promotion of high valued crops, horticulture, livestock, non-timber, and religious, sectors. So, this road has a potentiality of contributing into promotion of economic growth of the area

Table - 4.3: Summary of District Roads (Class “A”)

S. N.	Road code	Road Name	Total length (KM)	Total Existing Length (KM)	Total Vehicle Pliable Length (KM)	Road status(earthen/gravel/blacktopped/under construction)	Surface condition (good/fair/poor)	Serviceability (all weather/fair weather)	Required intervention(KM)		
									Upgrading	under construction	New construction
1	09A001R	Khandbari-Badareni-Lingling-Chainpur	27.83	27.83	27.83	Earthen	Poor	FW	23.62	0.00	0.00
2	09A002R	Sabhakhola-Kewabesi-Leguwachhat	18.05	18.05	18.05	Earthen	Poor	FW	18.05	0.00	0.00
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	17.00	Earthen	Fair	FW	25.88	0.00	17.27
4	09A004R	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	23.83	Earthen	Poor	FW	23.83	0.00	25.00
5	09A005R	Chainpur-Barahbise Road	36.20	36.20	15.69	Earthen	Fair	FW	36.20	0.00	0.00
6	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	16.50	16.50	Earthen	Poor	FW	13.30	0.00	90.00
7	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	6.09	6.09	Gravel	Fair	AW	0.00	0.00	0.00
			0.00	9.45	9.45	Earthen	Fair	FW	9.45	0.00	7.00
8	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	8.73	Earthen	Fair	FW	11.90	0.00	4.80
9	09A009R	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	12.56	Earthen	Poor	FW	12.56	0.00	85.00
10	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	18.26	Earthen	Poor	FW	18.26	0.00	12.00
		Total	444.42	206.55	173.78				193.05	0.00	241.07

4.4.2 Briefs of District Roads Class B

Khandbari-Lebrang-Dake (Dhupu) District Road (09B001R)

This road starts from Koshi highway at Khandbari bazaar and ends at Dake of Dhupu VDC, where it meets Khandbari-Dake-Barahbise-Phakuwa (Sabhapokhari) district road. The alignment mostly follows an ascending and descending path. It passes through Tundikhel, Ramche, Sunkhanigoan, Lebrang, Dandagoan and Dake of Khandbari municipality and Dhupu VDC respectively. The total length of this road is about 15.05 km within which fair-weather transport facility is obtained. This earthen road is fair in surface condition and it needs to construct one new bridge over Padma khola in Lebrang. More importantly, this road has vital role in providing access to a large population of Dhupu, Barahbise and Sabhapokhari VDCs to district headquarter. In future, it can comparatively shorter route to provide linkage of Barahbise bazar with district headquarter. So, it needs to focus input in upgrading this alignment for the overall development of people living in those areas.

Kewabesi-Bihibare-Buddachowk District Road (09B002R)

This road starts from proposed feeder road at Kewabesi of Ankhibhuin VDC and meets Koshi highway by its end point at Buddachowk of Mamling VDC. It mostly traverses ascending and descending terrains, passing through Kewabesi, Narayantar, Chisapani, Jarigoan, Kiting Jimigoan, Kuwapani, Phakling, Gadekodhunga, Bihibare, Bhaludhunga, Magargoan, and Buddachowk of Ankhibhuin and Mamling VDCs respectively. The total length of this road is about 21.98 km within which seasonal vehicle pliability takes place. It is poor in surface condition as well as geometric. It has to be constructed 25 numbers of new causeways over small natural drainages. In attaining proper all-weather transport service, regular maintenance and upgrading as well has become very important. This road is found to be potential for the promotion of high valued crops, horticulture, livestock, non-timber and mining sectors of the area.

Tumlingtar-Chewabesi-Heluwabesi District Road (09B003R)

This road starts from Koshi highway at Tumlingtar bazaar and targeted upto Heluwabesi bazaar of Sitalpati VDC. The alignment passing almost along the right bank of Arun River passes through Tumlingtar bazaar, Giddhe, Beteni, Chewabesi, and ultimately Heluwabesi of Khandbari municipality and Sitalpati VDC respectively. The total target length of this road is about 17.98 km out of which about 9.98 km length upto Chewabesi of Sitalpati VDC has already been constructed and remaining 8 km new section is planned to construct upto Heluwabesi. One no. of new bridge over Betenikhola and 4 nos. of new causeways need to be constructed. The fair-weather transport facility is being operated upto Chewabesi. This earthen road section is fair in surface condition as well as geometric. This road is very much important in providing access to large population of Illaka no. 2 and 3 as a whole and 4 and 6 partially with Tumlingtar bazaar as well as Terai regions. In addition, it is equally important in connecting many VDCs of Bhojpur district with major market center of Sankhuwasabha and Dhankuta districts.

Badareni-Maksuwa-Katahare-Okten-Barahbise District Road (09B004R)

This is an alignment passing almost along the right bank of Sabhakhola, and starts from Khandbari-Badareni-Lingling-Chainpur district road at Badareni of Khandbari Municipality and ends near Barahbise bazaar. It passes through Badareni, Maksuwa, Katahare, Okten, Khekrang, Barahbise of Khandbari municipality, Syabun and Sabhapokhari VDCs. The total length of this road is about 18.34 km out of which transport operation has taken place within a length of 8.34 km upto Okten. It is fair in surface condition and geometric and 8 nos. of new causeways have to be constructed. It is very important in providing access to the population of Illaka no. 5 by

connecting Tumlingtar and Lingling bazaar with Barahbise bazaar. So, It is very much essential to provide upgrade intervention.

Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare District Road (09B005R)

The alignment of this road mostly follows ascending and descending path and starts from highway at Mudhe bazaar of Tamaphok VDC and targeted to meet Tute Deurali-Mangalbare Chauki-Gufapokhari district road at Mangalbare bazaar. The existing section of this road passes through Mudhesansichare, Majhuwagoan, Lunkhumalang, and Tellok (Churidanda) of Tamaphok VDC and it is planned to connect Madimulkharka VDC in near future. The total target length of this road is about 29.38 km out of which about 14.38 km has already been constructed upto Tamaphok (Churidanda). The remaining about 15 km is planned as a new section to be extended upto Mangalbare bazaar. The fair-weather transport facility is being provided with the earthen section of 8.18 km upto zero point. This earthen road is fair in surface condition and has somehow good in geometric and one new bridge over Hattikharka Khola and 16 nos. of new causeways have to be constructed. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka District Road (09B006R)

This road starts from Pokhari bazar and targeted upto Pyankot of Siddapokhari VDC and ultimately it will meet Bihibare-Chungkhurung-Malbase-Chaunrikharka road at Chaunrikharka of Jaljala VDC. This road is constructed upto Koksa of Siddapokhari VDC. The total target length of this road is about 15 km out of which about 2.53 km length is already constructed upto Koksa and remaining 12.47 km is proposed as a new section to construct upto Chaunrikharka. It is fair in surface condition. About 7 nos. of new causeways have to be constructed within a constructed section. The transport service is operable within a length of 2 km near Koksa settlement. In future, it has potentiality to be a ring road by connecting Bihibare bazaar of Jaljala VDC.

Chainpur-Siddakali temple District Road (09B007R)

This road starts at Chainpur bazaar and reaches upto Siddakali temple with smooth grade. The total length of this road is about 3.11 km within which vehicle pliability takes place during dry season. It is fair in surface condition and geometric. Basically this road has a great potentiality for the promotion of religious and cultural values.

Chichila-Devitar-Barahbise District Road (09B0008R)

This road starts from highway at Chichila bazaar and targeted to reach Barahbise bazaar. The alignment passes almost ascending and descending path until it reaches Barahbise bazaar. The total length of this road is about 22.05 km out of which 7.05 km is already constructed upto Matschegoan of Matschepokhari VDC, and remaining 15 km has been proposed to meet Barahbise bazaar. It is poor in surface condition and geometric, as it has to be improved loops and grade in many sections. Further, 2 nos. of culverts and 13 nos. of causeways have to be constructed as new cross drainage structures in improving transportation facility.

Chainpur-Ratamate-Tikhedhunga District Road (09B009R)

This road starts at Chainpur bazaar and it has been targeted upto Chitlang, where it will meet Chainpur-Nudhaki-Gufapokhari road. The constructed section passes through Chainpur bazar and Ratamate settlement. The total target length of this road is about 9.03 km out of which about 6.03 km length is already constructed and remaining 3 km new section is planned to construct upto Chitlang. Geometrically, it is fair in surface condition and geometric as well. About 14 nos. of new causeways have to be constructed within a constructed section. The transport service has been operated within a length of 5 km upto Ratamate settlement.

Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor) District Road (09B010R)

This road starts from Koshi highway at Arunthan of Chainpur VDC and it is targeted to reach in Khamling of Baneshwor VDC. It passes through Arunthan, Thaldanda and Khamling settlements. The total target length of this road is about 7 km out of which 5 km is already constructed upto Thaldanda and remaining new section of length 2 km is under construction. The vehicles are operable within a length of 5 km upto Thaldanda. It is fair in surface condition and geometric. About 12 nos. of new causeways have to be constructed within a constructed section.

Bhyangkhol - Harelo-Deurali (Diding) - Pakhuwa District Road (09B011R)

This road starts from highway at Bhyangkhol and targeted to reach Pakhuwa of Diding VDC. The alignment passes almost ascending and descending path until it reaches target point. The alignment has been constructed upto Deurali of Diding VDC. The total target length of this road is about 23.38 km out of which 3.38 km is already constructed within which vehicle pliability takes place during the dry season. About 20 km from Deurali to Pakhuwa is planned to extend as a new section. The constructed section is poor in surface condition and geometric as well, as it has to be improved loops and grade in many sections. Further, 4 nos. of causeways have to be constructed as new cross drainage structures in improving transportation facility.

Okharbote-Mangalbare District Road (09B012R)

The alignment mostly passes through ridge terrain and it starts from Rammandir-Okharbote-Bagha-Nundhaki district road at Okharbote of Madirambeni VDC and targeted to reach Mangalbare bazaar of MadiMulkharka VDC, where it meets Tute Deurali-Mangalbare Chauki-Gufapokhari district road. The existing section of this road passes through Okharbote, Karkigoan, Ghimiregoan, Madimulkharka bazaar, Gurunggoan, Majhkharka and Ahale of Madirambeni and Madimulkharka VDCs. The total target length of this road is about 19.71 km out of which about 8.83 km has already been constructed upto Dhanus khola of Ahalegaira of Madimulkharka. The remaining about 10.88 km is planned as a new section. The fair-weather transport facility has been provided within a length of 6.83 km upto Majhkharka. This earthen road is fair in surface condition and has somehow good in geometric. One new bridge over Dhanuskhola and 16 nos. of new causeways need to be constructed, while 13 nos. of causeways area already constructed. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

Piluwa Dovan-Hitisundhe-Kharang District Road (90B013R)

This road starts from proposed feeder road at Piluwa Dovan and meets highway at Kharang bazaar by its end point. The alignment passes almost ascending and descending path until it reaches Kharang bazaar. It passes through Kewadovan, Dumkatta, Kalleri, Hattisundhe, Majhuwa, Bijuwapani, Patighar, Kharang bazaar of Kharang VDC. The total length of this road is about 8.34 km within which fair-weather transport operation taking place. It is poor in surface condition and geometric, as it needs to improve loops and grade in many sections. With the intervention of new structures like one slab culvert and 4 numbers of causeways will support for its transport serviceability.

Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari) District Road (09B014R)

This road starts from Koshi highway at Laving hill near Naya bazaar of Khandbari Municipality and meets to Chichila-Devitar-Barahbise road at Balaute settlement of Matschepokhari VDC. The road is constructed upto Malta. The total target length of this road is about 10.84 km out of which 2.84 km is already constructed and remaining 8 km length is proposed as a new extension

section. The vehicles are operable within a length of 2.84 km upto Malta. It is fair in surface condition and geometric.

Okharbote-Dandakharka-Chhahare District Road (Mawadin) (09B015R)

This road starts from Rammandir-Okharbote-Bagha-Nundhaki at Okharbote of Mawadin VDC. It passes through Okharbote, Dandagoan, Sirjung and Dandakharka of Mawadin VDC. The total length of this road is about 6.39 km with fair-weather serviceability. Geometrically, it is poor in surface condition and geometric. About 11 nos. of new causeways have to be constructed within a constructed section. For the proper operation of transport service, it is necessary to improve geometric standards.

Dake-Matschepokhari-Chichila District Road (09B016R)

This road starts from Khandbari-Dake-Barahbise district road at Dake settlement of Dhupu VDC. It follows almost ascending and descending path until it reaches Chichila bazaar. The total target length of this road is about 9 km out of which 4 km is already constructed and remaining 5 km length is proposed as a new extension section. The vehicles are operable within a length of 4 km upto Bitlab settlement. It is poor in surface condition, however, with the proper maintenance, vehicle pliability will take place upto Bitlab settlement.

Bhandarichowk (Chainpur)-Chapabhuin-Kingring (Kharang) District Road (09B017R)

This road starts from Koshi highway at Bhandarichowk of Chainpur VDC and is targeted upto Kingring of Kharang VDC, where it again meets to Koshi highway. The constructed section passes through Arunthan, Bhandarigoan, Dangaligoan and Chapabhuin settlements. The total target length of this road is about 5.90 km out of which 2.81 km is already constructed upto Chapabhuin settlement and remaining 3.09 km length is under construction as a new section. The vehicles are operable within a length of 2.81 km upto Chapabhuin. It is fair in surface condition and geometric as well. About 6 nos. of causeways have already been constructed and it is not found any necessity to construct any other new cross drainage structures.

Sibuwa (Syabun)-Phachyang-Nagi District road (09B018R)

The alignment of this road follows a ascending and descending course and it starts from Badareni-Maksuwa-Katahare-Okten-Barahbise district road at Maksuwa settlement of Syabun VDC and target upto Nagi. It passes through Maksuwa, Sibuwa, Phachyang and Nagi settlements of Syabun and Jaljala VDCs. The total target length of this road is about 16 km out of which about 11 km has already been constructed Sibuwa and remaining 3 km new section is planned to reach Nagi. The fair-weather transport facility has been provided within a length of 8 km upto Sibuwa. This earthen road is poor in surface condition and it is fair in geometric standard. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

Bhibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka District Road (09B019R)

This road starts from Bhibare bazaar of Jaljala VDC and targeted upto Chaunrikharka within this VDC. The constructed alignment passes through Bhibare, Chungkhurung, Pokhrang and Malbase of this VDC. The total target length of this road is about 16.74 km out of which about 9.74 km length is already constructed upto Malbase. Geometrically as well as in surface condition

it is too poor. About 19 nos. of new causeways have to be constructed within a constructed section. The transport service has yet not operated.

Arunthan-Angla-Tambebesi-Yaphu District Road (09B020R)

This road starts from highway at Aruthan bazaar of Khandbari Municipality and it is targeted for Yaphu VDC. The total target length of this road is about 21 km out of which only 1 km is constructed. The alignment follows partially ascending and descending path, and partially valley path as well.

Table - 4.4: Summary of District Roads ("B")

S.N.	Road code	Road Name	Total length (KM)	Total Existing Length (KM)	Total Vehicle Pliable Length (KM)	Road status(earthen/gravel/blacktopped)	Surface condition (good/fair/poor)	Serviceability (all weather/fair weather)	Required intervention(KM)		
									Upgrading	under construction	New construction
1	09B001R	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	15.05	Earthen	Fair	FW	15.05	0.00	0.00
2	09B002R	Kewabesi-Bihibare-Buddachowk	21.98	21.98	15.00	Earthen	Poor	FW	15.00	0.00	0.00
3	09B003R	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	9.98	Earthen	Fair	FW	9.98	0.00	8.00
4	09B004R	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	8.34	Earthen	Fair	FW	8.34	0.00	0.00
5	09B005R	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	8.18	Earthen	Fair	FW	8.18	0.00	15.00
6	09B006R	Pokhari-Pyankot-Chaurinkharka	15.00	2.53	2.00	Earthen	Fair	FW	2.00	0.00	12.47
7	09B007R	Chainpur-Siddakali temple	3.11	3.11	3.11	Earthen	Fair	FW	3.11	0.00	0.00
8	09B008R	Chichila-Devitar-Barahbise	22.05	7.05	5.00	Earthen	Poor	FW	5.00	0.00	15.00
9	09B009R	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	5.00	Earthen	Fair	FW	5.00	0.00	3.00
10	09B010R	Arunthan (Chainpur)-Thaldanda-Khamling	7.00	5.00	5.00	Earthen	Fair	FW	5.00	0.00	2.00
11	09B011R	Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	3.38	Earthen	Poor	FW	3.38	0.00	20.00
12	09B012R	Okharbote-Mangalbare	19.71	8.83	6.83	Earthen	Fair	FW	6.83	0.00	10.88
13	09B013R	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	8.34	Earthen	Poor	FW	8.34	0.00	0.00
14	09B014R	Lavinghill-Tallomalata-Thaldanda-Balaute	10.84	2.84	2.84	Earthen	Fair	FW	2.84	0.00	8.00
15	09B015R	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	6.39	Earthen	Poor	FW	6.39	0.00	0.00
16	09B016R	Dake-Matschepokhari-Chichila	9.00	4.00	0.00	Earthen	Poor	FW	4.00	0.00	5.00
17	09B017R	Bhandarichowk (chainpur)-Chapabhuin-Kingring	5.90	2.81	2.81	Earthen	Fair	FW	2.81	0.00	3.09
18	09B018R	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	8.00	Earthen	Poor	FW	8.00	0.00	5.00
19	09B019R	Bihibare-Chungkhurung-Malbase-Chaunrikharka	16.74	9.74	0.00	Earthen	Poor	FW	0.00	0.00	7.00
20	09B020R	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	1.00	Earthen	Poor	FW	1.00	0.00	20.00
		Total	296.22	161.78	116.25				120.25	0.00	134.44

4.5 Summary of Urban Roads

Roads that are constructed by the municipality under its jurisdiction are not considered in 'District Transport Master Plan' by the district development committee (DDC). However, details of some very important urban roads are listed below:

Table - 4.5: Summary of Urban Roads

S.N.	Name of Road	Total Constructed Length (KM)	Type of Surface			Surface Condition			Serviceability	
			Earthen	Gravel	Blacktop	Good	Fair	Poor	All-Weather	Fair-Weather
1	Gidde-Manakamana	3.44	3.44				3.44			3.44
2	Manebhanjyang-Chewabesi	7.78	7.78				7.78			7.78
3	Manebhanjyang-Mathillo-Malta	2.65	2.65				2.65			2.65
4	Bhanuchowk-District Post Office, Link road	0.18			0.18	0.18			0.18	
5	Pokhari bazar-Kabita hotel-Municipality Office	0.35			0.35	0.35			0.35	
6	Sumanchowk-Pokhari bazar-DDC-Tundikhel	3.05	2.50		0.55	0.55	2.50		0.55	2.50
Total (KM)		17.45	16.37		1.08	1.08	16.37		1.08	16.37

4.6 Summary of Village Roads (VR)

Roads which are basically focused for the purpose of a particular VDC or settlements are considered as village roads. Some of the village roads were obtained from Illaka workshops of this district. These roads are not considered in evaluation purpose into 'District Transport Master Plan (DTMP)' referring to the 'DTMP Interim guidelines' approved by DoLIDAR. The details of these existing village roads for the purpose of future reference are listed below:

Table - 4.6: List of Village Roads

S.N.	Name of Road	Total Constructed Length (KM)	Type of Surface			Surface Condition			Serviceability	
			Earthen	Gravel	Blacktop	Good	Fair	Poor	All-Weather	Fair Weather
1	Jaljala-Melbase-Hewakhola Dovan	4.77	4.77					4.77		
2	Siddakali-Siddipur-Kalopan	3.19	3.19				3.19			
3	Chhyangkuti-Diding-Ahale	2.77	2.77					2.77		
4	Toribari (Mawadin)-Padamdanda	2.04	2.04				2.04			

S.N.	Name of Road	Total Constructed Length (KM)	Type of Surface			Surface Condition			Serviceability	
			Earthen	Gravel	Blacktop	Good	Fair	Poor	All-Weather	Fair Weather
5	Zero point-Tamaphok	1.99	1.99				1.99			
6	Tallo Chautara-Phalante (Highway point)	1.97	1.97				1.97			
7	Topakhani-Saunedanda	1.97	1.97					1.97		
8	Kaldhara-Siddipur	1.79	1.79				1.79			
9	Mamling-Dhode	1.51	1.51				1.51			
10	Chainpur-Pipaldanda	1.46	1.46					1.46		
11	Phalante-Waleswor	1.38	1.38					1.38		
12	Siddikali-Kalopani	0.99	0.99				0.99			
13	Chainpur Market area	1.74	1.74				1.74			
14	Hospital-Agriculture Bank (Chainpur)	0.30	0.30				0.30			
15	Phalante Ring road (Mamling)	0.45	0.45				0.45			
16	Phalante-Khadka goan	1.63	1.63				1.63			
17	Mamling-Kuntang	1.00	1.00				1.00			
18	Pokhari-Tripane	0.20	0.20					0.20		
19	Paudelgoan-Okharbote	0.54	0.54					0.54		
20	Chhele-Sirjung	0.94	0.94					0.94		
21	Khamare-Babung	0.96	0.96					0.96		
22	Kalodandi-Chaure-Hokse	2.00	2.00				2.00			
23	Dake-Bitlab-Barabise	4.00	4.00				4.00			
	Total (KM)	39.59	39.59				24.6	14.99		

4.7 Summary of Main Trails (MT)

Main trails are playing very important role in providing access to people to nearby villages or other kinds of road network in acquiring different types of services and facilities. Basically main trails are useful particularly to the people which can not afford fare of road transportation facility. Even today, main trails not only are being used for the domestic purposes but also used for official purposes like Hulaki Sadak, which are known as main strategic trails. These trails serve the inter-district and regional linkage. In many areas, even today Main trails serve and connect all parts of the district and over to the neighbouring districts. One of the examples of strategic main trails can be taken as 'Leguwaghat-Tumlingtar-Khandbari-Kimathanka', which has vital role in linking remote parts of this district with district headquarters. After the revolution in motorable road construction campaigning, many main trails are going to be disappeared day after day. So it has become compulsorily responsibility of relevant stakeholders in preparing action plan of periodic maintenance for the sustainability of existing main trails. Some of the existing main trails of this district are listed below:

Table 4.7: List of Main Trails

S.N	Name of Main Trails	Length (KM)	Intervention
1	Leguwaghat-Tumlingtar-Khandbari-Kimathanka	190	Periodic Maintenance
2	Tumlingtar-Dingla bazaar-Bhojpur	95	Periodic Maintenance
3	Tumlingtar-Chainpur-Gufapokhari	65	Periodic Maintenance
4	Tumlingtar-Makalu Base Camp	105	Periodic Maintenance
5	Chainpur-Barahbise	30	Periodic Maintenance
6	Khandbari-Barahbise	25	Periodic Maintenance
7	Chainpur-Okharbote-Mangalbare	24	Periodic Maintenance
8	Chainpur-Mamling-Mudhe Sanischare-Basantpur	35	Periodic Maintenance
9	Mamling-Kewabesi	12	Periodic Maintenance
10	Basantpur-Gufapokhari	24	Periodic Maintenance
11	Basantpur-Madi Mulkharka	18	Periodic Maintenance
12	Manebhanjyang-Chandanpur	11	Periodic Maintenance
13	Bumling-Mangtewa-Chhoyaan (Yaphu)	45	Periodic Maintenance
14	Bumling-Tamku	12	Periodic Maintenance
15	Khandbari-Kattikeghat-Sisuwa	30	Periodic Maintenance
16	Chainpur-Khandbari	20	Periodic Maintenance
17	Chyantani (Chepuwa)-Tingla Bhanjyang -Tapplejung	125	Periodic Maintenance
18	Thudam (Chepuwa)-Umbak Bhanjyang	35	Periodic Maintenance
19	Ridak-Hagla Bhanjyang	30	Periodic Maintenance
20	Gufapokhari-Barahbise	55	Periodic Maintenance
21	Barun bazaar (Hatiya)-Makalu National Park	35	Periodic Maintenance
22	Barahbise-Matschepokhari-Num	20	Periodic Maintenance

4.8 Major Historical Trails

In addition to the above existing main trails, there are important historical main trails which are listed as follows:

Table - 4.8: List of Historical Trails

S.N.	Name of Historical Trails	Length (KM)	Intervention
1	Khandbari-Kimathanka	120	Periodic Maintenance
2	Chainpur-Gufapokhari	35	Periodic Maintenance
3	Khandbari-Makalu Base Camp	105	Periodic Maintenance
4	Khandbari-Barahbise-Sabhapokhari	60	Periodic Maintenance and New construction
5	Basantpur-Gufapokhari	24	Periodic Maintenance
6	Bumling-Mangtewa-Chhoyaan (Yaphu)	45	Periodic Maintenance
7	Chainpur-Sabhapokhari	55	New and Periodic Maintenance
8	Barun bazaar (Hatiya)-Makalu National Park	35	Periodic Maintenance
9	Tumlingtar-Manakamana temple (Arun Bank)	3	Periodic Maintenance

4.9 Summary of All Weather Roads

In this district, mainly Koshi highway can be taken as a reliable means of transportation upto Sabhakhola. Among district roads, Tute Deurali-Mangalbare Chauki-Gufapokhari road has been gravelled for a small length in which all-weather transportation facility is taking place. The features of highway and district road mentioned below reveals all-weather transportation service scenario:

Table – 4.9: Summary of All Weather Roads

S. N.	Name of Road	Types of Road	Length(KM)			Total length (KM)
			Ottaseal/ Blacktopped	Gravel	Earthen	
1	Koshi Highway	Highway	49.5	25.2		74.7
2	Tute Deurali-Mangalbare Chauki-Gufapokhari	RRA		6.09		6.09
3	Bhanuchowk-District Post Office, Link road	Urban	0.18			0.18
4	Pokhari bazar-Kabita hotel-Municipality Office	Urban	0.35			0.35
5	Sumanchowk-Pokhari bazar-DDC-Tundikhel	Urban	0.55			0.55
	Total		50.58	31.29		81.87

4.10 Summary of Existing Trail Bridges

Trail bridges are providing the services to the people for the transport of goods and services to market centers and communities. The existing trail bridges in this district are listed below (Table 4.8):

Table 4.10: List of existing Trail Bridges

SN	Bridge Number	Bridge Name	River Name	Span	Type	Bank		Coordinates	
						Right Bank	Left Bank	Northing	Easting
Existing Trail Bridges with GPS Data									
1	09 5 002 18 06 1	Bhalu I	Bhalu Khola	60	SD	Sitalpati	Sitalpati	27.34306	87.22000
2	09 5 002 18 06 2	Bhalu Khola II	Bhalu Khola	67.5	SD	Sitalpati	Sitalpati	27.45283	87.15569
3	09 5 002 18 06 3	Dibdong	Dibdong Khola	28	ST	Sitalpati	Sitalpati	27.45194	87.16083
4	09 5 001 18 06 1	Dema	Dema Khola		SD	Diding	Diding	27.47861	87.21811
5	09 5 017 18 06 1	Balai Puchhar	Langkhuwa Khola	43.5	SD	Matsyapokhari	Bharabishebaz aar	27.47861	87.21822
6	09 5 008 18 06 2	Noom I	Noom	48.5	SD	Num	Num	27.56408	87.27517
7	09 5 008 18 06 4	Noom II	Noom	65.5	SD	Num	Num	27.40253	87.28756
8	09 5 008 18 06 1	Dharme Khola Dovan	Simali Khola	65.8	SD	Num	Num	27.69322	87.36583
9	09 5 008 18 06 3	Khokda	Khokda Khola	62.5	SD	Num	Num	27.36442	87.39019
10	09 5 008 18 06 5	Pepuwa	Arun	80	SD	Num	Pathibhara	27.50433	87.30531
11	09 5 009 18 06 1	Sirutar	Arun	77	SD	Pathibhara	Pawakhola	27.59825	87.34864
12	09 5 009 18 06 2	Ikwa Khola	Ikwa Khola	25.9	ST	Pathibhara	Pathibhara	27.62275	87.34842
13	61 09 01 02	Wang Khola	Wang Khola	87	SD	Hatiya	Hatiya	27.65983	87.35836
14	09 5 014 18 06 2	Chhokrang	Arun	80	SD	Hatiya	Hatiya	27.66517	87.36056
15	09 5 012 18 06 3	Barun	Barun	34	SD	Hatiya	Hatiya	27.69311	87.36578
16	09 5 014 18 06 1	Tanki Limbotar	Leksuwa	69	SD	Pawakhola	Pawakhola	27.66911	87.36578
17	09 5 011 18 06 5	Rukuma	Arun	124.1	SD	Cheapuwa	Cheapuwa	27.74128	87.40881
18	09 5 011 18 06 2	Chamtang	Arun	115.3	SD	Cheapuwa	Cheapuwa	27.42644	87.39164
19	09 5 001 18 06 4	Tisang	Arun	115.3	SD	Cheapuwa	Cheapuwa	27.42661	87.77381
20	09 5 004 18 06 3	Sissuwa Khola	Sissuwa Khola	68	SD	Mangtewa	Mangtewa	27.33494	87.03719
21	09 5 010 18 06 1	Apsuwa	Arun	57.4	SD	Makalu	Makalu	27.54228	87.23272
22	09 5 007 18 06 2	Ipsuwa	Ipsuwa Khola	76.6	SD	Makalu	Makalu	27.54233	87.23303
23	09 5 003 18 06 1	Tamme	Baguwa Khola	58.5	SD	Sishubakhola	Sishubakhola	27.48339	87.16197
24	09 5 003 18 06 2	Chanduwa Dobhan	Chanduwa Khola	42.5	SD	Mangtewa	Mangtewa	27.47447	87.15436

SN	Bridge Number	Bridge Name	River Name	Span	Type	Bank		Coordinates	
						Right Bank	Left Bank	Northing	Easting
25	09 5 006 18 06 4	Shankhuwa Khola	Shankhuwa Khola	42	LN	Bala	Mangtewa	27.45600	87.12914
26	09 5 004 18 06 4	Dangbuwa Dobhan	Sissuwa Khola	68	SD	Sishubakhola	Sishubakhola	27.49531	87.02517
27	09 5 007 18 06 1	Kasuwa	Kasuwa Khola	50	SD	Makalu	Pathibhara	27.56469	87.25575
28	09 5 006 18 06 1	Bajipa	Shankhuwa Khola	36.5	SD	Bala	Tamphu	27.48939	87.08817
29	09 5 006 18 06 4	Chahateema	Shankhuwa Khola	83.8	SD	Sishubakhola	Sishubakhola	27.49444	87.02628
30	09 5 006 18 06 1	Shankhuwa Khola Niring	Shankhuwa Khola	36.5	SD	Bala	Tamphu	27.52367	87.15514
31		Chhepchepuwa	Sissuwa Khola	94.3	SD	Sishubakhola	Sishubakhola	27.47994	87.05056
32	09 5 022 18 06 3	Sampati	Sampati	50.1	SD	Shyaboon	Shyaboon	27.38403	87.33858
33	09 5 004 18 06 5	Tiwatar	Tiwa Khola	59.2	SD	Sishubakhola	Tamphu	27.46744	87.05714
34	09 5 004 18 06 2	Sissuwa Khola	Sissuwa Khola	51.3	SD	Sishubakhola	Sishubakhola	27.46583	87.10103
35	09 5 007 18 06 3	Dhand Gaun	Ipsuwa Khola	24.3	SD	Makalu	Makalu	27.50903	87.16531
36	09 5 026 18 06 3	Tanglewa Dobhan	Tanglewa	62	SD	Siddhakali	Siddhakali	27.26419	87.43014
37	09 5 016 18 06 3	Oraing Dobhan	Orang	36.6	SD	Dhupu	Matsyapokhari	27.27225	87.43764
38		Birase	Maya			Tamapokh	Mawadin	27.23733	87.49086
39	09 3 001 18 06 1	Sabha Khola	Shabha	115	SN	Khandbari-1	Kharang	27.27994	87.21428
40	09 5 025 18 06 2	Khekwa	Khekwa Khola	53	SD	Siddhapokhari	Siddhapokhari	27.52133	87.40103
41	09 5 027 18 06 1	Chokchibung	Maya Khola	76.5	SD	Madi Mukharka	Tamapokh	27.40811	87.32486
42	09 5 027 18 06 2	Kolbote Puchhar	Maya Khola	84.1	SD	Madi Mukharka	Tamapokh	27.54506	87.64525
43	7109.11.03	Ranitar	Hewa Khola	67.2		Kharang	Wana	27.30586	87.35625
44		Nagaiswary		95	SD	Madi Mukharka	Mamling	27.29039	87.25761
45	09 5 020 18 06 2	Jangare Phedi	Hewa Khola	57.3	SD	Wana	Baneshwor	27.37117	87.60319
46	09 5 024 18 06 1	Betini Dobhan	Betini	40.9	SD	Noondhaki-8	Mawadin-8	27.29500	87.36922

SN	Bridge Number	Bridge Name	River Name	Span	Type	Bank		Coordinates	
						Right Bank	Left Bank	Northing	Easting
			Nidhuwa						
47	09 5 024 18 06 5	Sekuwa Khola(N)	Sekuwa Khola	52	SN	Noondhaki	Noondhaki	27.30558	87.35433
48	09 5 024 18 06 3	Sekuwa Khola	Sekuwa Khola	86	SD	Noondhaki	Noondhaki	27.29578	87.44672
49		Badine	Shabha			Wana	Khandbari	27.32378	87.37208
50	09 5 026 18 06 2	Tupuwa Khola	Tupuwa	51.7	SD	Siddhakali-9	Noondhaki-3	27.30383	87.43831
51		Maya	Maya			Madirambeni	Mamling	27.37386	87.33728
52		Satighat	Arun			Bhojpur, Bhojpur	Khandbari	27.37094	87.32375
53	09 5 022 18 06 1	Muhane Simle	kuruwa	46	SD	Shyaboon	Shyaboon	27.26175	87.37089
54	09 5 019 18 06 3	Chatekma	Sisuwa	83.8	SD	Jaljala	Chainpur	27.31175	87.42097
55	09 5 022 18 06 4	Hangduwa Dobhan	Kusuwa Khola	72.9	SD	Shyaboon	Shyaboon	27.21072	87.40339
56	09 5 022 18 06 2	Kusuwa	Kusuwa Khola	46.5	SD	Shyaboon	Shyaboon	27.27278	87.35389
57	09 5 019 18 06 1	Chanautepati	Hewa Khola	71	SD	Jaljala	Siddhakali	27.32867	87.35150
58	09 5 025 18 06 1	Burkhumbhir	Hewa Khola	36.5	SD	Siddhapokhari	Siddhapokhari	27.22144	87.30456
59	09 5 015 18 06 1	Katuseni Puchhar	Yaksuwa Khola	87.6	SD	Bharabishebaz aar	Bharabishebaz aar	27.25714	87.36769
60	09 5 032 18 06 1	Piluwa Ghatte Dobhan	Piluwa Khola	96.9	SD	Chainpur	Mamling	27.25700	87.33453
61	09 5 032 18 06 2	Piluwa Khola	Piluwa Khola	45.6	LN	Chainpur	Mamling	27.30181	87.37006
62	09 5 015 18 06 1	Khamling Phedi	Piluwa Khola	53	SD	Baneshwor	Aakhibhuie	27.53953	87.40794
63	09 5 026 18 06 1	Ratmate Puchhar	Piluwa Khola	67	SD	Siddhakali	Madirambeni	27.27492	87.46561
64	09 5 026 18 06 5	Piluwa Khola (Tanglewa)	Piluwa Khola	79	SD	Siddhakali-7	Mawadin-2	27.29953	87.40589
65	09 5 026 18 06 4	Chyanghari Dobhan	Piluwa Khola	97.5	SD	Siddhakali	Mawadin	27.30000	87.42314
66	09 5 020 18 06 1	Hewa Khola	Hewa Khola	35	SD	Wana	Chainpur	27.32367	87.36839
67	09 5 018 18 06 1	Odare	Dingla Khola	58.4	SD	Shavapokhari	Shavapokhari	27.51228	87.40839
68	09 5 016 18 06 4	Hansdaha	Hansdaha	53	SD	Dhupu	Dhupu	27.40258	87.28056

SN	Bridge Number	Bridge Name	River Name	Span	Type	Bank		Coordinates	
						Right Bank	Left Bank	Northing	Easting
			Khola						
69	09 3 001 18 06 4	Gangate	Pangtha Khola	94.5	SD	Khandbari Municipality	Dhupu	27.40450	87.25719
70	09 5 016 18 06 1	Sabaya(Shikri)	Sabaya	101.5	SD	Dhupu	Shyaboon	27.48783	87.25842
71	09 5 018 18 06 2	Dahabari	Larkhuwa	71	SD	Dhupu	Bharabishebaz aar	27.42789	87.30908
72	09 3 001 18 06 5	Jangare Malta	Malta Khola	67	SD	Khandbari Municipality	Khandbari Municipality	27.39553	87.22647
73	09 5 021 18 06 1	Kewa	Kewa Khola	24.1	ST	Aakhibhuie	Cheapuwa	27.18011	87.26578
74		Sari	Maya			Madi Mulkharka	Madi Mulkharka	27.35589	87.42006
75		Hanuman Badi		90	SD	Jaljala	Siddhapokhari	27.37208	87.33828
76		Umling	Maya			Madi Mulkharka	Madi Mulkharka	27.35542	87.48781
77	09 5 025 18 06 3	Amliseni Bhir	Khekwa Khola	38	SD	Siddhapokhari	Siddhapokhari	27.52133	87.40103
78		Chure	Sabha Khola	71.3	SD	Khandbari Municipality	Wana	27.34306	87.22033
79	09 3 001 18 06 3	Lamiduwali	Shabha Khola	71.1	SD	Khandbari Municipality	Wana	27.33408	87.20717
80	09 3 001 18 06 2	Pangma Pangtha	Pangma Khola	71.5	SD	Dhupu	Khandbari Municipality	27.33819	87.27394
81	09 5 039 18 06 1	Piluwa Ghat	Piluwa Khola	142	LN	Kharang	Aakhibhuie	27.29153	87.21111
82		Piluwa Sativir	Piluwa Khola			Tamaphok	Mawadin	27.44039	87.45506
83		Barabhise Bazaar	Shabha			Shavapokhari	Bharabishebaz aar	27.22200	87.37181
84		Maya Chainpur	Maya			Mamling	Chainpur	27.42256	87.43700
85		Piluwa	Piluwa Khola			Siddhakali	Mawadin	27.23750	87.32283
86	71.09.10.02	Lampate	Piluwa Khola	72.1		Mamling	Madi Mulkharka	27.33644	87.40558
87	09 5 019 18 06 2	Hiunwa	Hiunwa	87	SD	Jaljala	Siddhakali	27.34353	87.37011
88	09 5 024 18 06 4	Kamphe	Piluwa Khola	65.5	SD	Noondhaki	Noondhaki	27.27456	87.52806
89	09 5 024 18 06 2	Bihibare Bazaar	Piluwa Khola	40.6	SD	Noondhaki	Noondhaki	27.30350	87.43942

SN	Bridge Number	Bridge Name	River Name	Span	Type	Bank		Coordinates	
						Right Bank	Left Bank	Northing	Easting
90		Buda Sativir	Maya			Tamaphok	Mawadin	27.30539	87.44089
91		Turke	Arun	145	SD	Bhojpur, Bhojpur	Khandbari Municipality	27.24197	87.29067
Existing Trail Bridges without GPS Data									
92	09.04.900	Bumlingtar	Arun River	107.00		Kulung (Bhoj)	Sitalpati		
93	09 5 004 18 062	Sankhuwakhola	Sankhuwakhola	72.00		Tamku	Sisuwa		
94	09 5 005 18 061	Bandrebhir	Khanglukhola	39.00		Tamku	Tamku		
95	09 5 006 18 063	Khanglu Dovan	Sankhuwakhola	80.40		Bala	Tamku		
96	09 5 011 18 061	Chhakang	Chhakangkhola	27.80		Chepuwa	Kimathanka		
97	09 5 011 18 062	Kimsing Tiran	Arun River	69.00		Chepuwa	Kimathanka		
98	09 5 012 18 061	Hangda Khola	Hangda Khola	32.00		Hatiya	Hatiya		
99	09.26.2802	Sankhuwakhola Dovan	Sankhuwakhola			Kulung (Bhoj)	Mangtewa		
100		Piluwa Jangare	Piluwa Khola	44.90		Chainpur	Madirambeni		
101		Maya Khola (Dhusuin)	Mayakhola	66.00		Madimulkharka	Mamling		
102		Malta	Malta Khola	35.00		Khandbari	Khandbari		
103		Chhoyang Phedi	Arun	119		Yaphu	Num		
104		Tokesing	Langkhuwa Khola			Dhupu	Barahbise		
105		Phyaksinda Dovan	Arun River	120.00		Pathibhara	Num		
106	71.09.11.03	Changuwa Phedi	Mayakhola	68.40		Madimulkharka	Tamapokh		
107		Sankhuwa Khola	Sankhuwakhola			Kulung (Bhoj)	Tamku		

4.11 District Inventory Map of Rural Road Network

The District Inventory Map of Rural Road Network is prepared to show existing rural transport linkages under different categories like upgrading.

CHAPTER V: DISTRICT ROAD NETWORK PLANNING

CHAPTER V: DISTRICT ROAD NETWORK PLANNING

Rural transportation mainly deals with providing accessibility abutting people, mechanizing and commercializing the agriculture, promoting the non-farm sector and providing the extension and administrative services to the local people. In the context of Nepal, A fixed point system model is adopted for networking where junctions are confined to a finite set of location (market, historical location).

5.1 Accessibility Situation

Accessibility comprises use or consumption of the services of available infrastructures as per the affordability of people. The access gained through improving physical infrastructure development and complementary activities can bring positive changes on the lifestyles of rural people. Accessibility has three major elements namely; a) location of individuals, b) location of supplies of services or infrastructures to which individuals need access and c) the link to bring the two together. Thus, accessibility implies majority (of users) and proximity (to services).

The GPS based field data of existing district roads were transferred into GIS form. Based on this GIS based data, Accessibility Modelling was done through GIS programme. In the case of this district, Accessibility Modelling by considering 4 hours and 6 hours average walking distance of people to reach the all-weather roadhead, because this district covers two types of topography like hill and mountainous area. The study reveals that almost all the existing district roads are fair-weather in serviceability.

5.2 Zone of Influence Area

The zone of influence (ZOI) area of each road has been considered the area within 4 hours average walk distance for hilly area and 6 hour's walk distance for mountainous area, on either sides of road alignment.

5.3 Delineation of Accessible Area

By using the Modeling in GIS map, area within 4 hour's walk distance for hilly area and 6 hour's average walk distance for mountainous area from right and left sides of existing road had been delineated as an accessibility area.

5.4 Accessible Area, Coverage and Population

Accessibility situation of the Sankhuwasabha district has been assessed for both the all-weather and fair-weather roads based on serviceability of the transport linkage. In this district, except strategic road, almost all are fair weather roads. Study reveals that accessibility area can be categorized into accessible and partially accessible VDCs. Table 5.1 shows that about 14.73 % (511.18 Sq.km) of total area are under accessible area based on serviceability of all weather road. Similarly 25.03 % (868.48 sq.km) of total area falls under accessible area based on serviceability of all fair weather road. out of 34 VDC and 1 municipality, only 6 VDCs have fully access and 10 VDCs have access in partially access in all weather serviceability situation. Likewise, 17 VDCs have fully access and 6 VDCs have access in partially access in fairweather serviceability situation. The following table shows the accessibility area, coverage and population.

Table 5.1: Accessible Area, Coverage and Population

SN	Serviciability	Population	Accessible area (sq.km)	Percentage %	Accessible VDCs	Partially accessible VDCs
1	All weather	108658	511.18	14.73	Khandbari N.P., Sitalpati, Kharang, Baneswor, Chainpur, Mamling, Tamafok	Diding, Matsyapokhari, Dhupu, Bana, Siddhapokhari, Siddhakali, Madi Rambeni, Ankhibhui,

SN	Serviciability	Population	Accessible area (sq.km)	Percentage %	Accessible VDCs	Partially accessible VDCs
						MadiMulkharka, Num
2	Fair weather	159879	868.48	25.03	KhandbariN.P., Sitalpati, Kharang, Baneswor, Chainpur, Mamling, Tamafok, Diding, Matsyapokhari, Dhupu, Syabun, Bana, MadiRambeni, Mawadin, MadiMulkharka, Ankhibhui, Siddhakali	Num, Siddhapokhari, Jaljala, Sabhapokhari, Bahrabise, Nundhaki

5.5 Delineation of inaccessible Area

After delineating the accessible areas, the un-served areas which are beyond the Zol (as per national transport policy) is taken as inaccessible area. The planning team proposes the road network for the inaccessible area delineated by the Zol analysis.

5.6 Inaccessible Area, Coverage and Population

Table 5.2 shows that about 85.24 % (2,957.78 Sq.km) of total area are found inaccessible in the case of all weather serviceability of road. Similarly 74.94 % (2,600.48 sq.km) of total area inaccessible for fair weather serviceability of road. Out of 34 VDC and 17 VDCs are found under inaccessible area in all weather serviceability situations. Likewise, 11 VDCs are found under inaccessible area in fairweather serviceability situation. The following table shows the inaccessibility area, coverage and population.

Table 5.2: Inaccessible Area and Coverage

SN	Serviciability	Inaccessible area (sq.km)	Percentage	Inaccessible VDCs
1	All weather	2,957.78	85.24	Mawadin, Nundhaki, Jaljala, Syabun, Sabhapokhari, Bahrabise, Pawakhola, Pathibhara., Makalu, Yafu, Mangtewa, Tamku, Bala, Sisuwakhola, Hatiya, Chepuwa, Keemathanka
2	Fair weather	2,600.48	74.94	Pawakhola, Pathibhara., Makalu, Yafu, Mangtewa, Tamku, Bala, Sisuwakhola, Hatiya, Chepuwa, Keemathanka

5.7 Network planning in inaccessible area

After delineating inaccessibility area, preliminary road networks have been prepared based on the nodal points/market centres and national transport policy of 4 hours i.e. from each settlement,

people should reach to the road head of all weather road within 4 hours walk. The preliminary road networks have been presented in DTICC meeting and Cluster of Illaka level workshop and indepth discussion were made and finalized the road networks for those inaccessible areas.

**CHAPTER VI: DISTRICT TRANSPORT PERSPECTIVE
PLAN (DTPP)**

CHAPTER VI : DISTRICT TRANSPORT PERSPECTIVE PLAN (DTPP)

6. Perspective Plan of District Rural Road Networks

The DTPP has a perspective of 20 years. The DTPP is revised every five years when a new DTMP is being prepared according to the rolling plan system.

6.1 Scoring system for Prioritization of Proposed New Roads

A network consists of several links. It is not possible to construct all roads at a time due to resources gap, time constraint and limited management capacity. Therefore each link in a network should be prioritized. After developing a district level network, a road engineer prepares the cost estimate of the road and benefit of each link in the network. Cost Efficiency Analysis (CEA) is used to prioritise new transport linkage. Criteria such as per capita cost and special social consideration (of inclusiveness) receive weights (points) relative to their perceived importance. Each road link is then allocated with the number of points corresponding to the fulfilment of the particular criteria. The aggregate number of points that each intervention receives is computed by simply adding the points allocated per indicator. The result of this process leads to a ranking of the investment options. The following criteria are used for prioritization of new transport linkages.

Table 6.1: Scoring System for Prioritization of New Linkages

S.N.	Parameter	Scoring Unit	Score
I	Population per unit Cost	Population/investment Cost in 100000	55
ii	Cultivated Land	Cultivated Land/km	15
iii	Inaccessibility	Population × Walking hour /km	20
iv	Population of poor, Dalits and marginalized Janjatis.	Population /km	10

PARAMETERS FOR PRIORITIZATION FOR NEW LINKAGE

Population per unit Cost

Population per unit cost has been taken as an important parameter for prioritization of linkage. Considering its importance, it has been given high score (55). Population within the zone of influence (ZOI) area i.e. left and right of the road link within 4 hours in walking time has been taken as the beneficiaries of a proposed road. After locating the Zol, the household (within that Zol) have been counted in GIS map and then multiply each household by average family size and again projected it by annual growth rate till 2010 to get the total number of population.

Population per unit cost is calculated from total population divided by investment cost in lakh (hundred thousand) rupees i.e. no of person per 100000 rupees. The road having the highest beneficiaries population per investment cost is given highest score i.e. 55.

The scoring of the individual District Road A and B based on population per unit cost.

Cultivated land

Cultivated land with the Zone of Influence area of each proposed road corridor has been taken as the second parameter for the scoring. Cultivated land within the zone of influence (ZOI) area i.e. left and right of the road link within 4 hours in walking time has been calculated from GIS modelling in Map. The road having the highest cultivated land /km is given highest score i.e. 15. The scoring of the individual District Road A and B based on Cultivated Land.

Inaccessibility

The population within the zone of influence (ZOI) area i.e. left and right of the proposed road within 4 hours in walking time has been estimated from GIS modelling as same as above. After delineating the Zol, the household within that Zol has been measured from GIS Modeling in maps. Total population within the range (20 minute, 2 hours and 4 hours) of zone of influence area is then multiplied by average walking distance and then divided by total km of proposed road. The road having the highest Population × Walking Hour /km is given highest score i.e. 20. The scoring of the individual District Road A and B based on Population × Walking Hour.

Total Population of poor, Dalits and marginalized Janjatis.

The areas inhabited by poor, *dalits*, *janajati* and marginalized people are considered as parameter for prioritization of roads. In this regards, the population of **poor, dalits and marginalized janjatis** within the zone of influence (ZOI) area are collected from ward level or VDC level records or from key informant. The road having the highest cultivated land /km is given highest score i.e. 10. The scoring of the individual District Road A and B based on Total Population of poor, Dalits and marginalized Janjatis.

The total scoring of all the parameters per road corridor for prioritization of District Road A and B for new construction have been compiled in Table 6.2 and 6.3 respectively as following.

6.2 Prioritization of District Road 'A' for New Linkage

The following four roads are proposed for District Road 'A' for new construction. Details are presented in table 6.2 below.

Table 6.2: Prioritization of District Road 'RRA' for New Linkage

S.N.	Road code	Road name	Total plan Length km	Length for new construction km	Parameter Used for the Priorisation of Road Corridors and their corresponding Scores					
					Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjatis/ethnic groups/communities (10)	Total Score (100)	Priority Rank
1	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.7	4.8	55.00	15.00	20.00	10.00	100.00	1
2	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	17.81	8.99	5.18	1.33	33.31	2
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	13.91	5.90	4.17	1.29	25.28	3
4	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	9.41	7.16	3.38	0.83	20.79	4
5	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.3	90	5.34	4.46	2.56	0.65	13.00	5
6	09A011R	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	4.84	3.60	2.56	0.52	11.52	6
7	09A09R	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	2.14	2.19	0.75	0.20	5.28	7
8	09A004R	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	25	1.69	1.76	0.77	0.15	4.37	8

6.3 Brief on proposed District Roads Class A for New Linkages

Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa District Road (09A008R):

This road starts from highway at Kitingdanda of Mamling and is targeted for Kewa of Chanuwa VDC of Dhankuta district. The total target length of this road is about 16.70 km, out of which 11.90 km upto Mulgoan of Ankhibuin VDC is already completed and remaining about 4.80 km is a new linkage to be extended from Mulgoan to upto Kewa. After completing this new linkage, this road will play a vital role in connecting Chainpur market center with Leguwa as well as Hile market centers of Dhankuta. In future, it can be a shortest route in connecting most of the VDCs of constituency number 2 of this district with Terai region of Nepal.

Tute Deurali-Mangalbare Chauki-Gufapokhari District road (09A007R):

This road almost follows ridge terrain until it reaches Gufapokhari, which is highly recognized as a tourism purpose. The total target length of this road is about 22.54 km, out of which 15.64 km upto Sirimane settlement is already completed and remaining section of about 7 km is considered as a new linkage to be extended upto Gufapokhari. Since it links the district with both the major market of Bansantpur of Dhankuta district and with Terathum district as well, this road has most important role in providing benefit to this district through promotion of commercial cropping, horticulture, livestock, non-timber, and religious, and tourism sectors. So, this proposed new linkage road has to be given major priority which will play a vital role to stimulus up economic growth of the area.

Chainpur-Nundhaki-Gufapokhari District Road (09A003R):

This road has a total target length of 43.15 km from Chainpur to upto Gufapokhari, out of which 25.88 km is already constructed upto Singring of Nundhaki VDC and the remaining 17.27 km length between Singring to Gufapokhari is a new section to be extended. The new section of this road to be extended from Singring to Gufapokhari follows almost ascending and descending path. It connects major market centers of Chainpur and Pokhari bazaar with Gufapokhari market in future. After completing this new linkage, this road will play a vital role in accelerating development of horticulture, non-timber, historical, religious and tourism sectors. More importantly, it has high potentiality in supporting tourism sector of the area.

Rammandir-Okharbote-Bagha-Nundhaki (09A010R)

This road mostly follows ascending and descending path until it reaches Nundhaki. The total target length of this road is about 30.26 km, out of which 18.26 km is already completed upto Bagha settlement and remaining about 12 km between Bagh to Bihibare bazaar of Nundhaki VDC is a new section to be extended. The alignment of this new proposed road linkage passes through different settlements and market centers like Somabare bazar, Phabing and Bihibare bazaar of Mawadin and Nundhaki VDCs. After completing this new linkage, it will contribute in linking Bihibare and Somabare bazaars with Okharbote bazaar as well as Pokhari and Chainpur bazaars as a ring road concept.

Basically, it will contribute in promoting high valued crops, horticulture, livestock, non-timber, and religious, sectors. So, this road has a potentiality of contributing into promotion of economic growth of the area

Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskam (Solukhombubu) District Road (09A006R)

The proposed new section of this road from Heluwabesi to Chhestam passes through Bhojpur and Sankuwasabha districts traversing partly valley and partly ascending and descending terrains. The new linkage will pass through different settlements like Bumlingtar, Kameltar, Bandewa (Bhojpur), Sisuwa, Salghari, Teyunbesi, Chepchewa, Tenchhun, Chheskam of Bumling (Bhojpur), Bala and Sisuwakhola VDCs. After completing this new linkage, it will provide linkage of Budhabare and Bumling bazaars with Heluwabesi, Khandbari and Tumlingtar bazaars. The total target length of this road is about 103.30 km, out of which about 90 km length is proposed as a new linkage. With the completed stage of this road, it will break up the isolation of northern belt VDCs with district headquarter as well as outside districts by

providing established transport facility. So, it has a high level potentiality to contribute in promoting different sectors like commercial high valued crops, horticulture, livestock, non-timber, mining and religious, and tourism through which overall development of the area will be promoted.

Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara (60A008R)

This is a completely newly proposed district road for the purpose of connecting the isolated northern realms of this district. It starts from Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Cheskang at Bumling tar of Kulung VDC of Bhojpur district and ultimately meets to proposed extension section of Koshi highway at Hendanna. It follows firstly valley and then ascending and descending path until it reaches end point. The target length of this road is 90 km from Bumlingtar to Hedanna of Pathivara VDC. It passes from different settlements and potential market centres like Bumlingtar (Bhojpur), Sallari, Budhabare besi, Yaphu, Simle, Chhoyan, Walunbesi, Mulgoan, Seduwa, Murmidanda, Ala, Ulin, Hedanna of Kulung (Bhojpur), Mangtewa, Yaphu, Makalu, Pathivara VDCs. Basically, construction of this road has been considered to have its importance in the promotion of commercial high valued crops, horticulture, livestock, non-timber, mining and religious, and tourism sectors through which overall development of the area will be promoted.

Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari (09A009R)

This road starts from Koshi highway at Vaidyaguan (Tumlingtar) and ends at Sabhapokhari. The new section to be extended upto Sabhapokhari follows firstly ascending and descending path and then ridge path from Deurali of Jaljala VDC to upto Sabhapokhari. The alignment of this new linkage passes through Sikharpur, Dandagoan, Gahate, Guphatar, Sirise (Khningoan), Deurali, Tesre, Nagidanda, Lamidanda, Suntaledanda, Sabhapokhari settlements of Syabun, Jaljala and Sabhapokhari VDCs. The total target length of this road is about 97.56 km, out of which 85 km is planned as a new linkage to be extended upto Sabhapokhari. After completion of this road, it will contribute in promoting commercial high valued crops, horticulture, livestock, non-timber, mining and religious, and tourism sectors through established linkage with major market centers of this district (like Tumlingtar bazaar) as well as of other districts (like Leguwa and Hile bazaars). More importantly, it has high potentiality in supporting tourism sector of the area.

Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari) District Road (09A004A)

This road starts from Koshi highway at Khandbari bazaar and is targeted to reach upto Phakuwa of Sabhapokhari VDC. The new section from Barahbise bazaar to Phakuwa follows mostly ascending and descending path passing through different settlements and market centers like Bangetoal bazar, Hisingoan, Phaktana, Saunetar, Apun, Sikden, Lukimba and Phakuwa of Sabhapokhari VDC. The total target length of this road is about 48.83 km, out of which 23.83 km upto Barahbise bazaar is already completed and remaining about 25 km upto Phakuwa of Sabhapokhari VDC is planned to be extended as a new section in the future plan. The extension of new section retains importance in providing access to remote settlements of Sabhapokhari VDC and it can be a linkage of Sabhapokhari with Khandbari in the long term plan as well. Basically, it has been considered to have its contribution into promotion of horticulture, non-timber, mining, tourism and livestock. So, this road has to be given major priority for its upgrade in boosting up economic growth of the area.

6.4 Prioritization of District Road 'B' for New Linkage

The following four roads are proposed for District Road 'B' for new construction. Details are presented in table 6.3 below.

Table 6.3: Scoring System for Prioritization of District Road 'B' for New Linkage

S.N.	Road code	Road name	Total Planned Length km	Length for new construction km	Parameter Used for the Prioritisation of Road Corridors and their corresponding Scores					
					Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjati/ethnic groups/communities (10)	Total Score (100)	Priority Rank
1	09B003R	Tumlingtar-Chewabesi-Heluwabesi	17.98	8	55.00	9.31	20.00	10.00	94.31	1
2	09B020R	Arunthan-Angla-Tambebesi-Yaphu	21	20	29.82	3.72	5.50	4.91	43.96	2
3	09B010R	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	17.96	15.00	5.76	2.86	41.57	3
4	09B018R	Sibuwa (Syabun)-Phachyang-Nagi	16	5.00	24.42	8.17	1.67	3.89	38.15	4
5	09B011R	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	27.08	1.69	2.55	4.00	35.31	5
6	09B009R	Chainpur-Ratamate-Tikhedhunga	9.03	3.00	14.37	10.67	6.07	2.67	33.77	6
7	09B008R	Chichila-Devitar-Barahbise	22.05	15	23.77	2.80	2.65	3.96	33.18	7
8	09B017R	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	16.27	11.07	1.81	2.59	31.73	8
9	09B014R	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	15.27	8.30	3.03	2.43	29.02	9
10	09B016R	Dake-Matschepokhari-Chichila	9	5	10.63	7.79	1.13	1.69	21.24	10
11	09B019R	Bhibare (Jaljala)-Chungkhrung-Malbase-Chaunrikharka	16.74	7	12.93	3.62	2.29	1.47	20.31	11

S.N.	Road code	Road name	Total Planned Length km	Length for new construction km	Parameter Used for the Priorisation of Road Corridors and their corresponding Scores					
					Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjatis/ethnic groups/communities (10)	Total Score (100)	Priority Rank
12	09B012R	Okharbote-Mangalbare	19.71	10.88	12.49	2.39	0.62	1.58	17.08	12
13	09B021R	Magtewa-Tamku-Sukrabare-Budhabare	15	15	11.49	1.86	1.54	1.83	16.73	13
14	09B006R	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15	12.47	7.65	2.26	1.33	1.01	12.24	14
15	09B022R	Pathivara-Pawakhola	25	25	5.59	2.11	0.58	2.29	10.57	15
16	09B005R	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	15	6.35	1.65	1.58	0.61	10.20	16
Total Length km			263.01	174.44						

6.5 Brief on proposed District Roads 'B' for New Linkages

Tumlingtar-Chewabesi-Heluwabesi District Road (09B003R)

This road starts from Koshi highway at Tumlingtar bazaar and targeted upto Heluwabesi bazaar of Sitalpati VDC. The new section that is targeted to extend from Chewabesi to Heluwabesi will pass through Dovantar, Batase, Balghare and Heluwabesi of Sitalpati VDC. The total target length of this road is about 17.98 km out of which about 8 km length has to be constructed as a new section upto Heluwabesi. This road is very much important in providing access to large population of Illaka no. 2 and 3 as a whole and 4 and 6 partially with Tumlingtar bazaar as well as Terai regions. In addition, it is equally important in connecting many VDCs of Bhojpur district with major market center of Sankhuwasabha and Dhankuta districts.

Arunthan-Angla-Tambebesi-Yaphu District Road (09B020R)

The total target length of this road is about 21 km out of which only 20 km is proposed to be extended as a new section upto Yaphu. It passes partially valley and partially ascending and descending path passing through Sitalpati, Angla, Simle, and Tombe, and Yaphu settlements of Sitalpati, Diding and Yaphu VDCs. This alignment is very important particularly in promoting tourism sector.

Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor) District Road (09B010R):

This road starts from Koshi highway at Arunthan of Chainpur VDC and it is targeted to reach in Khamling of Baneshwor VDC. It passes through Arunthan, Thaldanda and Khamling settlements. The total target length of this road is about 7 km out of which 2 km is planned to extend as a new linkage to reach Khamling settlement.

Sibuwa (Syabun)-Phachyang-Nagi district road (09B018R)

The alignment of this road follows an ascending and descending course starting from Sibuwa and targeted to reach at Nagi. The total target length of this road is about 16 km out of which about 3 km is planned to extend as a new linkage from Phachyang to Nagi. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa District Road (60B014R)

This road starts from highway at Bhyangkholo and targeted to reach Pakhuwa of Diding VDC. The alignment passes almost ascending and descending path until it reaches target point. The total target length of this road is about 23.38 km out of which 20 km is planned to extend as a new section passing through Yaphudanda (Diding), Sobak and Pakhuwa of Diding VDC.

Chainpur-Ratamate-Tikhedhunga District Road (09B009R)

This road starts at Chainpur bazaar and it has been targeted upto Chitlang, where it will meet Chainpur-Nudhaki-Gufapokhari road. The proposed new section will pass through Tikhedhunga, Chitlang of Siddakali VDC. The total target length of this road is about 9.03 km out of which about 3 km length is proposed as a new section to construct as a new linkage upto Chitlang.

Chichila-Devitar-Barahbise District Road (09B0008R)

This road starts from highway at Chichila bazaar and targeted to reach Barahbise bazaar. The alignment passes almost ascending and descending path until it reaches Barahbise bazaar. The total length of this road is about 22.05 km out of which 15 km is proposed to extend as a new section upto Barahbise bazaar. After the completion of this road it will serve as a shortest section of the potential shortest route of Chichila-Barahbise-Chainpur-Kitingdanda-Leguwa in connecting most of the parts of this district with Terai region. The new section passes through Bansinam, Devitar, Jyamire (Dhupu), Bitlap Birta, Barahbise bazar of Matschepokhari, Dhupu and Barahbise VDCs.

Bhandarichowk (Chainpur)-Chapabhuin-Kingring (Kharang) District Road (09B017R)

This road starts from Koshi highway at Bhandarichowk of Chainpur VDC and is targeted upto Kingring of Kharang VDC, where it again meets to Koshi highway. The total target length of this road is about 5.90 km out of which 3.09 km is proposed to extend as a new section upto Kingring of Kharang VDC. Chapabhuin settlement and remaining 3.09 km length is under construction as a new section.

Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari) Rural Road (60B013R)

This road starts from Koshi highway at Laving hill near Naya bazaar of Khandbari Municipality and meets to Chichila-Devitar-Barahbise road at Balaute settlement of Matschepokhari VDC. The total target length of this road is about 10.84 km out of which 8 km is proposed as a new extension section. The new section of will pass through Khiprin, Lapse, Kharka, Chyaple, Chanaute and Balaute settlements of Khandbari municipality and Matschepokhari VDC. After the completion of this road with proper geometric standard, it will be a shorter route to come to district headquarters for the entire population of Illaka no. 1 and partly of Illaka no. 2 and 4. However, since it will pass through steep terrain, it will be expensive at the initial stage.

Dake-Matschepokhari-Chichila District Road (09B016R)

This road starts from Khandbari-Dake-Barahbise district road at Dake settlement of Dhupu VDC. It follows almost ascending and descending path until it reaches Chichila bazaar. The total target length of this road is about 9 km out of which 5 km length is proposed to extend as a new linkage upto Chichila bazaar. The new section will pass through Loktam, Dandagoan and Chichila of Mateschepokhari VDC.

Bhibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka District District (09B019R)

This road starts from Bhibare bazaar of Jaljala VDC and targeted upto Chaunrikharka within this VDC. The total target length of this road is about 16.74 km out of which about 7 km length is proposed to extend as a new linkage upto Chaunrikharka. The new alignment will pass through Yansijung, Dhande, and Chaunrikharka of this VDC. In future, it has potentiality to be a ring road by connecting Pokhari bazaar through Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka district road.

Okharbote-Mangalbare Rural Road (09B012R)

The alignment starting from Okharbote mostly passes through ridge terrains and targeted to reach Mangalbare bazaar. The new section which is proposed to extend from Dhanus khola of Ahalegaira of Madimulkharka passes through Surke, Kanpurgoan, Alsekharka, Patichautara, and Mangalbarebazar of Madimulkharka VDC. The total target length of this road is about 19.71 km out of which about 10.88 km is proposed as a new section to be extended upto Mangalbare bazaar. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

Magtewa-Tamku-Sukrabare-Budhabare Rural Road (60B013R)

This is a newly proposed district road for the purpose of connecting the isolated northern realms of this district. It starts from Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara district road at Salleri settlement of Mangtewa VDC and it is targeted upto Budhabare bazar of Bala VDC where it meets to Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang district road. It follows almost ascending and descending path until it reaches to ending point. The alignment will pass through Salleri, Somabaredanda, Sukrabare, Mulgoan, Kolba, Budhabare bazar of Mangtewa, Tamku and Bala VDCs.

Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka rural road (09B006R)

This road is constructed upto Koksa and the new section will pass Batase, Maidane, Woringa, Pyankot (Hewakhola) of Siddapokhari VDC. The total target length of this road is about 15 km out of which about 12.47 km is proposed as a new section to construct upto Chaunrikharka. In future, it has potentiality to be a ring road by connecting Bhibare bazaar of Jaljala VDC.

Pathivara-Pawakhola Rural Road (60B013R)

This is a newly proposed district road for the purpose of connecting the remote settlements of Pathivara and Pawakhola VDCs. It starts from proposed Koshi highway alignment at Simma of Pathivara VDC and passes upto Bhotegoan of Pawakhola. The alignment will pass through Sima, Uwa, Sirutar, Karmarang, Silpat, Pawa, Nivare, Bhotegoan of Pathivara and Pawakhola VDCs.

Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare District Road (09B005R)

The alignment of this road mostly follows ascending and descending path and starts from highway at Mudhe bazaar of Tamaphok VDC and targeted to meet Tute Deurali-Mangalbare Chauki-Gufapokhari district road at Mangalbare bazaar. The new section which is proposed as a new linkage will pass through Patlekharka, Mahabhir, Sedanphun, Madamsimtta, Mangalbare bazaar of Tamaphok and Madimulkharka VDCs. The total target length of this road is about 29.38 km out of which about 15 km is planned as a new section to be extended from Tellok (Churidanda) to upto Mangalbare bazaar. This road is potential for the promotion of high valued crops, horticulture, livestock, non-timber and religious sectors of the area.

6.6 Possible Inter- district Transport Linkages:

In Sankhuwasabha district, there are some options of linking other districts with this district through district roads as an inter-district linkage. After the completion of target of planned roads, there will be established transport inter-district linkage supporting to improved transport services. In this background, the DDC of Sankhuwasabha should give the priority implementing planned inter-district roads as per the DTMP provision, which should be regularly updated. List of possible inter-district link roads are as follows:

- i. Sabhakhola-Kewabesi-Leguwachhat
- ii. Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)
- iii. Tute Deurali-Mangalbare Chauki-Gufapokhari
- iv. Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa
- v. Tumlingtar-Chewabesi-Heluwabesi
- vi. Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare
- vii. Okharbote-Mangalbare

6.7 Scoring system for prioritisation of Rural Roads Class A and Class B for Upgrading

The following criteria are proposed for prioritisation of District Roads for Upgrading.

Table 6.4: Scoring System for Prioritisation of Rural Roads for Upgrading

S. No.	Criteria	Scoring Unit	Score
1	Traffic Volume	Traffic Unit (TU)	70
2	Cost	Cost /km	20
3	Market /service centre	Centrality Index	10
Total			100

Parameters for prioritization for upgrading:**Traffic Volume**

Information of Traffic data has been collected from field data. Cost estimate was based on the data collected during the walkover survey for inventory of existing road. Unit cost has been calculated on the basis of district approved rate for labour and materials. The volume and type of traffic movements is the major indicator for assessing the relative importance of existing road links. However, since most of the roads being considered for rehabilitation/upgrading are fair weather earthen roads that are in a poor state or closed to traffic, the conduct of a traffic census is usually not effective in providing the data required. Instead, the data on traffic

movement is gathered from RRA and discussions with key individuals within the road corridor and at district and village level. Scores are awarded on the basis of the estimated traffic volumes on each of the roads being considered for rehabilitation. In accordance with traffic coefficients given in DoLIDAR's "Approach for the Development of Rural and Agricultural Roads", large trucks (more than 10 tones carrying capacity) and buses (Over 40 passengers) are given a weight of 4.0, small trucks (up to 10 tones carrying capacity) and buses (up to 40 passengers) are given 3.0 and tractors (4W towed trailers) are given a weight of 3.0, cars and pick-ups, light-vans, jeeps are given a weight of 1.0.

The road having the highest beneficiaries population per investment cost is given highest score i.e. 70.

Costs

Cost estimate is based on the data collected during the walkover survey for inventory of existing road. Unit costs are calculated on the basis of district approved rate for labour and materials. The linkage having the lowest per km cost get the highest score i.e. 20.

Market/Service Centres

Market Survey is carried out to identify market and service centre. Data and information collected in the field is the main basis for determining the importance on relative importance of market/service centre and central places. For evaluation purpose, data of offices, industry, business & commerce, education, and health, are combined for the centre and its influence area. Assessment of economic facilities and services existing in the market/service centres and their catchments areas leads to the identification of the most important market/service centre. All proposed roads scores based on centrality index of market /service centre by using same calculation method. The linkage having the lowest per km cost get the highest score i.e. 10.

The total scoring of all parameters per road corridor for prioritization of District Road A and B for Upgrading have been compiled in Table 6.5 and 6.6 respectively as following.

6.8 Prioritized Existing Transport Linkages for Upgrading

6.8.1 Prioritised List of District Road 'A' For Upgrading

Table 6.5: Prioritized List of District Road 'A' For Upgrading

S.N.	Code	Name of Road	Total Targeted Length km	Length of Road for Upgrading km	Parameter Used for the Priorisation of Road and their corresponding Scores				
					Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Priority Rank
1	09A001R	Khandbari-Badareni- Lingling-Chainpur	27.83	23.62	70.00	10.00	7.08	87.08	1
2	09A002R	Sabhakhola-Kewabesi- Leguwaghat	18.05	18.05	59.68	1.06	12.16	72.91	2
3	09A003R	Chainpur-Nundhaki- Gufapokhari	43.15	25.88	52.71	8.00	11.17	71.88	3
4	09A004R	Khandbri-Dake- Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	54.38	7.98	8.19	70.56	4
5	09A005R	Chainpur-Barahbise Road	36.20	36.20	55.78	7.56	6.92	70.26	5

S.N.	Code	Name of Road	Total Targeted Length km	Length of Road for Upgrading km	Parameter Used for the Priorisation of Road and their corresponding Scores				
					Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Priority Rank
6	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	48.80	2.65	12.16	63.62	6
7	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	41.83	1.57	20.00	63.40	7
8	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	47.41	1.04	9.66	58.11	8
9	09A009R	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	48.67	2.38	6.86	57.91	9
10	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	46.16	1.49	9.71	57.35	10
Total Length km			444.42	199.14					

Table 6.6: Prioritized List of District Road 'B' For Upgrading

S.N.	Code	Name of Road	Total Targeted Length km	Length of Road for Upgrading km	Parameter Used for the Priorisation of Road and their corresponding Scores				
					Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Priority Rank
1	09B001R	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	70.00	6.37	0.76	77.14	1
2	09B002R	Kewabesi-Bihibare-Buddachowk	21.98	21.98	41.27	3.12	1.07	45.46	2
3	09B003R	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	39.05	3.91	0.73	43.69	3
4	09B004R	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	19.22	2.08	20.00	41.30	4
5	09B005R	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	30.14	2.33	1.15	33.63	5

S.N.	Code	Name of Road	Total Targeted Length km	Length of Road for Upgrading km	Parameter Used for the Priorisation of Road and their corresponding Scores				
					Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Priority Rank
6	09B006R	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15.00	2.53	16.79	2.74	10.41	29.95	6
7	09B007R	Chainpur-Siddakali temple	3.11	3.11	21.24	7.26	0.94	29.44	7
8	09B008R	Chichila-Devitar-Barahbise	22.05	7.05	23.27	2.21	1.70	27.17	8
9	09B009R	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	15.34	10.00	1.55	26.88	9
10	09B010R	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7.00	5.00	17.60	7.26	1.92	26.78	10
11	09B011R	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	17.20	0.63	2.18	20.01	11
12	09B012R	Okharbote-Mangalbare	19.71	8.83	15.17	3.15	1.03	19.36	12
13	09B013R	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	12.95	1.61	2.60	17.16	13
14	09B014R	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	2.84	9.10	1.29	6.19	16.59	14
15	09B015R	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	11.94	2.46	2.18	16.58	15
16	09B016R	Dake-Matschepokhari-Chichila	9.00	4	12.50	1.29	2.18	15.98	16
17	09B017R	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.90	2.81	7.87	7.26	0.79	15.92	17
18	09B018R	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	9.91	0.79	1.36	12.06	18
19	09B019R	Bhibbare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	9.74	7.28	2.02	2.18	11.48	19
20	09B020R	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	7.49	0.79	2.18	10.46	20
Total Length km			296.22	161.78					

6.9 List of Village Roads:

Following are rural village roads which are under construction initiated by respective VDCs.

Table – 6.7: List of Village Roads

S.N.	Name of Road	Total Constructed Length (KM)	Type of Surface			Surface Condition			Serviceability	
			Earthen	Gravel	Blacktop	Good	Fair	Poor	All-Weather	Fair Weather
1	Jaljala-Melbase-Hewakhola Dovan	4.77	4.77					4.77		4.77
2	Siddakali-Siddipur-Kalopan	3.19	3.19				3.19			3.19
3	Chhyangkuti-Diding-Ahale	2.77	2.77					2.77		2.77
4	Toribari (Mawadin)-Padamdanda	2.04	2.04				2.04			2.04
5	Zero point-Tamaphok	1.99	1.99				1.99			1.99
6	Tallo Chautara-Phalante (Highway point)	1.97	1.97				1.97			1.97
7	Topakhani-Saunedanda	1.97	1.97					1.97		1.97
8	Kaldhara-Siddipur	1.79	1.79				1.79			1.79
9	Mamling-Dhode	1.51	1.51				1.51			1.51
10	Chainpur-Pipaldanda	1.46	1.46					1.46		1.46
11	Phalante-Waleshwor	1.38	1.38					1.38		1.38
12	Siddikali-Kalopani	0.99	0.99				0.99			0.99
13	Chainpur Market area	1.74	1.74				1.74			1.74
14	Hospital-Agriculture Bank (Chainpur)	0.30	0.30				0.30			0.30
15	Phalante Ring road (Mamling)	0.45	0.45				0.45			
16	Phalante-Khadka goan	1.63	1.63				1.63			1.63
17	Mamling-Kuntang	1.00	1.00				1.00			
18	Pokhari-Tripane	0.20	0.20					0.20		
19	Paudelgoan-Okharbote	0.54	0.54					0.54		
20	Chhele-Sirjung	0.94	0.94					0.94		
21	Khamare-Babung	0.96	0.96					0.96		
22	Kalodandi-Chaure-Hokse	2.00	2.00				2.00			2.00
23	Dake-Bittlab-Barabise	4.00	4.00				4.00			4.00
	Total (KM)	39.59	39.59				24.60	14.99		35.50

6.10 Additional demanded rural roads during Illaka level workshops

Following listed rural roads were demanded by the people of different VDCs during the illaka level workshops. These demanded roads are small village roads and these should be considered while preparing Village Transport master Plan (VTMP). These roads can be implemented by the respective VDCs with their own resources.

6.11 Prioritized List of Trail Bridges for New Construction

The prioritized list of Trail Bridges for New construction are as follows:

Table 6.8: Pritirised List of Trail Bridge for New Construction

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
1	09500418064	Sishubakhola	Bala	Sisuw khola	Budhabare bazar	6.96	1	Suspended	95
2	09500418064	Sitalpati	Khadbari Municipality	Chewa khola	Chewabesi	9.38	2	Suspended	30
3	09501918062	Jaljala	Shavapkhori	Chewa khola	Bokale	4	2	Suspended	72
4	09501218061	Hatiya	Hatiya	Arun nadi	Dasem	12	11	Suspended	80
5	09300118061	Keurepani	Khadbari Municipality	Arun	Maghitar	8.8	1	Suspended	148
6	09501618061	Dhupu	Shyaboon	Sabha khola	Sabha khola	2.5	3	Suspended	75
7	09501918061	Jaljala	Chainpur	Chewa khola	Satibante	2.48	1.5	Suspended	50
8	09500318062	Sishubakhola	Mangtewa	Keksuwa khola	Keksuwa Bagar	6.98	1.5	Suspended	55
9	09500418062	Sishubakhola	Sishubankhola	Sishubakhola	Tagada	5	2	Suspended	75
10	09500418063	Maglewa	Sishubankhola	Newa khola	Tengchungtar	3.25	2	Suspended	56
11	09500118062	Khadbari Municipality	Khadbari Municipality	Betine khola	Betini	3	1	Suspended	37
12	09503018062	Madi Murkharka	Tamaphok	Katike khola	Katike Dovan	4	1	Suspended	9
13	095014180621	Pawakhola	Pawakhola	Basuwa khola	Baidhan Phedi	7	2	Suspended	38
14	09502718066	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	3	2	Suspended	30
15	09502718061	Madi Murkharka	Madi Murkharka	Maya khola	Kabhere Phedi	3.4	1	Suspended	45
16	09501618063	Dhupu	Shavapkhori	Sava khola	Kholrrang sansari dan	1.6	3	Suspended	72
17	09502718062	Madi Murkharka	Madi Murkharka	Maya khola	Gursha	2.92	2	Suspended	34

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
18	09500218062	Sitalpati	Khadbari Municipality	Chewa khola	Dhobhanetar	1.89	1	Suspended	39
19	09502718067	Madi Murkharka	Madi Murkharka	Kavre Phudung khola	Kavre	6	1	Suspended	55
20	09502718065	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	4	1	Truss	23
21	09502718064	Madi Murkharka	Madi Murkharka	Thulo Arorang khola	Kanpur	4	1	Suspended	47
22	09502118065	Kharang	Aakhibuie	Piluwa khola	Hurthrum	3	1.5	Suspended	110
23	09500618066	Bala	Bala	Pikuwa khola	Kuwadak	5	2	Suspended	72
24	09502118063	Mamling	Aakhibuie	Thute khola	Achambu	3	2	Suspended	75
25	09500918061	Noom	Pathibhara	Arun Nadi	Arun	8	5	Suspended	120
26	09502218065	Shyaboon	Shyaboon	Rithe Manglabare	Rithe Manglabare	3	1	Suspended	65
27	09300118063	Khadbari Municipality	Dhupu	Pangtha khola	Barhanjyang	2	0.5	Suspended	30
28	095027180611	Madi Murkharka	Madi Murkharka	Maya khola	Dhade goan	3.79	1	Suspended	27
29	09501418061	Pawakhola	Pawakhola	Dhupu khola	Dhupi	28	6	Suspended	40
30	09502218061	Shyaboon	Shyaboon	Kusuwa khola	Mahabir	3	3	Suspended	28
31	09500518065	Kulung	Tamphu	Sankhuwa khola	Bumling	3.4	4	Suspended	106
32	095000818065	Noom	Makalu	Arun nadi	Makalu Arun	1.76	4	Suspended	75
33	09501218069	Hatiya	Hatiya	Chhangarak khola	Chhangarak	7	3.2	Suspended	35
34	09502118063	Sishubakhola	Bala	Sisuw khola	Dewa Dovan	3.4	4	Suspended	95

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
35	09500618064	Pawakhola	Pawakhola	Ikuwa	Lingkhim	2	2	Suspended	65
36	09500718063	Makalu	Makalu	Ipsuwa khola	Ipsuwa	2	5	Suspended	74
37	09502418021	Noondhaki	Noondhki	Chang Khola	Sijongma	6.2	3	Suspended	60
38	09502318062	Mawadin	Mawadin	Lakhuwa Khola	Mahadevthan	2.2	0.5	Suspended	44
39	09500618063	Sishubakhola	Bala	Sishubakhola	BakhamInum	3.2	5	Suspended	60
40	095014180612	Pawakhola	Pawakhola	Ikuwa khola	Nebhare	4.36	3	Suspended	55
41	09502318063	Mawadin	Mawadin	Lakhuwa Khola	Manepari	2.67	0.5	Suspended	52
42	09500318061	Mangtewa	Sitalpati	Arun	Simale Phedi	3.74	1	Suspended	130
43	0950718061	Noom	Makalu	Arun nadi	Biskam	1	4	Suspended	90
44	095014180620	Pawakhola	Pawakhola	Amkhuwa Khola	Haitar	10	2	Suspended	40
45	09500918064	Pathibhara	Pawakhola	Arun	Savatar	2	2	Suspended	120
46	09502618064	Siddhakali	Noondhki	Tupuwa Khola	Tupuwa	3.54	1	Truss	28
47	09501818067	Bharabishebazar	Shavapkhori	Sava khola	Barabise	1	0.5	Suspended	40
48	09501718061	Mastepokhari	Mastepokhari	Arrong Khola	Tilbari	1.7	4	Suspended	55
49	09501518063	Bharabishebazar	Bharabishebazar	Yaksawa Khola	Yaksawa	1.67	6	Suspended	78
50	09500318063	Mangtewa	Mangtewa	Baguwa khola	Yangdev	2.98	1.5	Suspended	47
51	09500818061	Pathibhara	Noom	Arun nadi	Hembiya	3.41	5	Suspended	120
52	09502518062	Siddhapokhari	Siddhapokhari	Khekuwa khola	Sanske dovan	2	0.5	Suspended	70
53	09501118063	Chepuwa	Chepuwa	Hokchu khola	Hokuchu	2.8	4	Suspended	70
54	09502318063	Mawadin	Mawadin	Sirkhuwa	Fating	2.2	0.5	Suspended	45

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
				khola	Puchhar				
55	09501018062	Yafu	Yafu	Yangden khola	Yangden	3.56	3	Suspended	68
56	09502718069	Madi Murkharka	Madi Murkharka	Oirang khola	Kanpur	4	0.5	Suspended	55
57	095014180618	Pawakhola	Pawakhola	Irkhuwa khola	Sirutar	2	2	Suspended	42
58	09500418061	Sishubakhola	Sishubankhola	Kaiku khola	Kaiku	4	4	Suspended	60
59	09501518061	Bharabishebazar	Shavapkhori	Sabha khola	Sabha khola	3	4	Suspended	72
60	095014180616	Pawakhola	Pawakhola	Khangwa khola	Khangwa	2.3	3	Suspended	25
61	09501718063	Masteypokhari	Masteypokhari	Dhaggre khola	Dhaggre	2	4	Suspended	30
62	09500718064	Yafu	Makalu	Aapsuwa khola	Aapsuwa	2.7	5	Suspended	56
63	09502418062	Noondhaki	Noondhki	Thanguwa khola	Bhir Goan	2.5	1	Suspended	65
64	09500618065	Bala	Bala	Kali khola	Bedhi kharka	2	2.5	Suspended	40
65	09500618062	Bala	Tamphu	Sankhuwa khola	Sisuwatar	1.34	4	Suspended	40
66	09502118062	Aakhibhuie	Aakhibhuie	Muluwa khola	Mulgoun	6	1	Suspended	81
67	095002218064	Shyaboon	Shyaboon	Kusuwa khola	Kaijale	1.5	0.5	Suspended	70
68	09500518063	Bala	Tamphu	Sankhuwa khola	Ibhang khola	2.85	6	Suspended	38
69	09501818061	Shavapokhari	Shavapkhori	Chinde khola	Chinde khola	2	5	Suspended	39
70	09501518061	Bharabishebazar	Bharabishebazar	Thanguwa khola	Thaguwa khola	3	4	Suspended	36

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
71	09501518065	Bharabishebazar	Shavapkhori	Sava khola	Saunetar	1.4	1	Suspended	60
72	09501618064	Dhupu	Dhupu	Dhupu khola	Dhupu Sera	2.3	1	Truss	13
73	09501118064	Chepuwa	Chepuwa	Arun	Humsur Phedi	2	4	Suspended	118
74	09503018061	Madi Murkharka	Tamaphok	Maya khola	Katike	1.77	0.5	Suspended	88
75	09502218062	Dhupu	Shyaboon	Sava khola	Banduke Dovan	1	0.5	Suspended	65
76	09502518061	Siddhapokhari	Shavapkhori	Sewa khola	Haitar Kharka	3	0.5	Suspended	42
77	09501818062	Shavapokhari	Shavapkhori	Majuwa khola	Majuwa	3.5	5	Suspended	25
78	09501218067	Hatiya	Hatiya	Riju khola	Bakhim	2	3.5	Suspended	40
79	09502518063	Siddhapokhari	Siddhapokhari	Jhutre khola	Machhebung	2.17	1	Truss	23
80	09501518064	Bharabishebazar	Bharabishebazar	Pikuwa khola	Pikhuwa	1.25	1	Suspended	24
81	09500918063	Pathibhara	Pawakhola	Arun Nadi	Samatar	4.7	6	Suspended	125
82	09501918063	Jaljala	Siddhapokhari	Hewa khola	Oringa	2	0.2	Suspended	90
83	095027180610	Madi Murkharka	Madi Murkharka	Mahavir khola	Kanpur	6	0.5	Suspended	45
84	09501318062	Hatiya	Kimathanka	Chokang	Chokang	1	4	Suspended	55
85	09501418063	Pathibhara	Pawakhola	Arun Nade	Haitar	6	6	Suspended	125
86	09502418064	Noondhaki	Mawadin	Yawara khola	Yawara	3	1	Suspended	130
87	09502218063	Shyaboon	Shyaboon	Kusuwa khola	Malbanse	1.5	0.5	Suspended	65
88	09501218062	Hatiya	Hatiya	Huksang	Hatiya	2.9	4	Truss	15
89	09501218063	Hatiya	Hatiya	Hangdak	Chembu	2	3.5	Truss	27
90	09501218068	Hatiya	Hatiya	Tiju khola	Jamorang	1.5	3.5	Suspended	35
91	095012180610	Hatiya	Hatiya	Chunam	Talam	1.5	3.5	Suspended	45
92	095014180619	Pawakhola	Pawakhola	Pewa khola	Deurali	3.12	2	Suspended	40

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
93	09500818063	Noom	Noom	Tunguwa khola	Tungguwa	1.4	3	Truss	12
94	09501418067	Pawakhola	Pawakhola	Amsuwa khola	Amsuwa	1.3	6	Suspended	34
95	09501718062	Masteypokhari	Masteypokhari	Khamalbote khola	Joubari	7.9	4	Suspended	24
96	09501118061	Chepuwa	Kimathanka	Chokang	Chokang	1	13	Truss	30
97	09501218064	Hatiya	Hatiya	Sangju	Dangek	1	3.5	Truss	27
98	09501518066	Bharabishebazar	Masteypokhari	Langkhuwa khola	Langkhuwa khola	1	0.5	Suspended	50
99	09500518064	Tamphu	Tamphu	Alubha khola	Alubha khola	2	6	Truss	25
100	09501618065	Dhupu	Shavapkhori	Sava khola	Dhupu Sera	1.5	1	Suspended	55
101	095000518061	Tamphu	Tamphu	Aalubha khola	Aalubha Dovan	2	5	Suspended	45
102	09501418061	Pathibhara	Pathibhara	Arun Nadi	Sirutar	4	6	Suspended	130
103	09500818062	Noom	Noom	Induwa khola	Induwa	2	4	Suspended	40
104	095014180613	Pawakhola	Pawakhola	Leksuwa khola	Limbutar	1	2	Suspended	60
105	09501418065	Pawakhola	Pawakhola	Kangduwa khola	Kangduwa	2.57	6	Truss	32
106	09501818065	Shavapokhari	Shavapkhori	Sang khola	Chauki Goan	2.18	1	Truss	30
107	09501318061	Kimathanka	Kimathanka	Dhungkapa khola	Dhupu	1	13	Truss	15
108	09501418062	Pawakhola	Pawakhola	Baswa khola	Baswa	0.88	5	Suspended	45
109	09502718063	Madi Murkharka	Madi Murkharka	Waling khola	Phungland	2	1.5	Suspended	41
110	09501618062	Dhupu	Dhupu	Dhupu khola	Dhupu	1	3	Truss	30
111	09500818064	Noom	Noom	Rato khola	Rato khola	1.35	3	Truss	32
112	09501118065	Chepuwa	Kimathanka	Chhang khola	Chhokang	1	4	Suspended	62

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
113	09502418065	Siddhakali	Noondhki	Tupuwa Khola	Tupuwa Malbanse	1	1	Truss	28
114	09501118062	Chepuwa	Chepuwa	Gatte khola	Chepuwa	1	4	Suspended	45
115	09501218066	Hatiya	Hatiya	Logoma	Hatiya	1	5	Truss	25
116	09501218065	Hatiya	Hatiya	Gatte khola	Hangdengma	1	3.5	Truss	25
117	095014180610	Pawakhola	Pawakhola	Kali khola	Kali khola	4.32	6	Suspension	35
118	09500518062	Tamphu	Tamphu	Chinkhuwa khola	Chingkhuwa	1.3	5	Truss	26

6.12 Pritised list of Trail Bridge for Major Maintenance

Table – 6.9: Summary of Proposed Trail Bridges for Major Maintenance

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Bridge	
		Right Bank	Left Bank			Type	Span
1	9502318064	Mawadin	Mawadin	Sikuwa khola	Sikuwa	Suspended	35
2	95027180612	Madi Mulkhara	Madi Mulkhara	Phudung	Kerabari Phedi	Suspended	45
3	9500418065	Sishubakhola	Bala	Sisuwa khola	Sisuwatar	Suspended	45
4	95014180614	Pawakhola	Pawakhola	Irkhuwa khola	Sirutar	Suspended	48
5	9502418064	Noondhaki	Noondhaki	Chhage khola	Jamuna Phedi	Suspended	35
6	9501018063	Yafu	Yafu	Pikhuwa khola	Pikhuwa	Suspended	38
7	9500718065	Makalu	Pathibhara	Kasuwa khola	Kasuwa	Suspended	75
8	9501018064	Yafu	Makalu	Aapsuwa khola	Aapsuwa	Suspended	85
9	95014180617	Pawakhola	Pawakhola	Lekhsuwa khola	Lekhsuwa	Suspended	57
10	95014180615	Pawakhola	Pawakhola	Amsuwa khola	Khani Phedi	Suspended	38
11	9500918065	Pathibhara	Pathibhara	Arun	Sirutar	Suspended	70

**CHAPTER VII: FIRST FIVE-YEAR DISTRICT TRANSPORT
MASTER PLAN (DTMP)**

CHAPTER VII: FIRST FIVE-YEAR DISTRICT TRANSPORT MASTER PLAN (DTMP)

7.0 First Five-Year District Transport Master Plan

The first five-year District Transport Master Plan, District Transport Master Plan (DTMP) is prepared based on projected financial plan and prioritized transport linkages to indicate the year-wise target various categories of interventions is prepared and main trail (bridge only) for new construction.

7.1 Five Year Projected Financial Plan

The first five-year projected financial plan is prepared by considering all possible funding sources mainly DDC development grant, VDC's allocation, DDC's own resources, DoLIDAR support, GON's Grant and support from other donor agencies. This is project base on existing trend of funding.

Table 7.1 Possible Funding (Roads) for coming five years Budget (in Thousand NRs.)

Source of Budget	Fiscal Year				
	067/68	068/69	069/70	070/71	071/072
Development Grant	550	605	666	732	805
DDC capital Grant	368.5	405	446	490	540
VDC Fund	2420	2662	2928	3221	3543
Village Access Program	1000	1100	1210	1331	1464
DDC Internal Sources (Land registration/Revenue)	3400	3740	4114	4525	4978
Community Based Development Program	9603	10563	11620	12782	14060
Local Transportation infrastructure sector DDC grant	34083.5	37492	41241	45365	49902
Ministry of civil Aviation and Tourism Development (MoCATD)	1100	1210	1331	1464	1611
Constituency Development Fund (CDF)	110	121	133.1	146	161
Road Board Nepal	2000	2200	2420	2662	2928
LGCDP Fund	2000	2200	2420	2662	2928
RAP	12900.8	14191	2000	2000	2000
Sub- Total	69535.8	76489	70528	77381	84919
People's Participation (10%)	6954	7649	7053	7738	8492
Total	76489	84138	77581	85119	93411
Grand Total	416739				

Table 7.2 Projected financial plan for trail bridges In NRs.

Year	Projected Financial Plan for Trail Bridges		
	Routine Maintenance	Major Maintenance	New Construction Bridges
067/68	285,000.00	800,000.00	6,375,000.0
068/69	303,000.00	800,000.00	9,562,500.0
069/70	324,000.00	800,000.00	11,156,250.0
070/71	345,000.00	800,000.00	11,156,250.0
071/72	366,000.00	2009/10	11,156,250.0
Total	1,623,000.00	3,200,000.00	49,406,250.0
Grand Total	54,229,250.00		

7.2 Sharing of Budget

The annual budget available for the development of transportation sector in this district will be shared for various intervention new construction, maintenance and rehabilitation and further divided into district road and village/agriculture road. As per local situation of the district, the sharing of fund will be done as per chart given below.

Sharing of Budget

Total Annual Budget (Road) (NRs.'000)
416739
(100%)

New Construction
20
%
83348

Rehabilitation/Upgrading
65
%
270881

Maintenance
15
%
62511

↓

District Road A	District Road B
80	20
%	%
66678	16670

↓

District Road A	District Road B
80	20
%	%
216704	54176

↓

District Road A	District Road B
65	35
%	%
40632	21879

7.3 Year- Wise Sharing Of Budget

Table 7.3: Year- Wise Sharing Of Budget for roads

S.N.	Fiscal Year	Total Budget (NRs.)	Total Budget (NRs. in 'ooo) & Percentage for New, Rehabilitation & Maintenance						Total %
			New Construction		Rehabilitation/Upgrading		Maintenance		
			Amount	%	Amount	%	Amount	%	
1	067/68	76489	15298	20	49756	65.05	11435	14.95	100
2	068/69	84138	16828	20	54690	65	12621	15	100
3	069/70	77581	15516	20	50428	65	11637	15	100
4	070/71	85119	17024	20	55328	65	12768	15	100
5	071/72	93411	18682	20	60717	65	14012	15	100
	Total	416739	83348		270919		62473		100

7.4 Year-wise Targets

Table 7.4: Year-wise Targets for road

Fiscal Year	Road Category					
	District Road A Km			District Road B Km		
	New Construction	Rehabilitation/Upgrading	Maintenance	New Construction	Rehabilitation/Upgrading	Maintenance
067/68	6	11	165	2	3	89
068/69	7	13	182	2	4	98
069/70	6	12	168	2	3	91
070/71	7	13	184	2	4	99
071/72	7	14	202	2	4	109
Total (km)/no	33	62	902	8	18	486
Grand Total (km)/no	998			512		

Table 7.5: Year-wise Targets for Trail Bridges

Year	Year-Wise Target		
	Routine Maintenance	Major Maintenance	New Construction Bridges
	Number of Bridges	Number of Bridges	Number of Bridges
067/68	57	1	7
068/69	65	1	8
069/70	73	1	8
070/71	81	1	8
071/72	136	3	22
Total	412	7	53

According to the projected financial plan, year-wise physical targets are set as follows

Table 7.6: Year-wise physical targets for new construction

S.N.	Class of Transport Linkage	New Construction										Budget ' 000	
		2067/68		2068/69		2069/70		2070/71		2071/72		Total	
		Budget	km	Budget	km	Budget NRs. '000	km	Budget	km	Budget	km	Budget	km
1	District A Road	12238	6	13462	7	12413	6	12413	7	14946	7	65472	33
2	District road B	3060	2	3366	2	3103	2	3405	2	3736	2	16670	8

Table 7.7: Year-wise physical targets for Rehabilitation/Upgrading

S.N.	Class of Transport Linkage	Rehabilitation/Upgrading										Budget ' 000	
		2067/68		2068/69		2069/70		2070/71		2071/72		Total	
		Budget	km	Budget	km	Budget	km	Budget	km	Budget	km	Budget	km
1	District A Road	39805	11	43752	13	40342	12	44262	13	48574	14	216735	62
2	District Road B	9951	3	10938	4	10086	3	11066	4	12143	4	54184	18

7.5 Prioritized Transportation Linkages for the First Five Year Plan (DTMP)

Based on likely available budget, the following District Road A and B roads have been prioritized for new construction and Rehabilitation/ Upgrading for five year DTMP. Detailed are given in following table below:

7.5.1 Prioritized District Roads A for the First Five Year Plan (DTMP)

Table 7.8: Prioritized District Road ‘A’ for New Linkage

S.N.	Code	Name of Road	Total Length (km)	Targeted Length of Road for Upgrading to BT km	2067/68		2068/69		2069/70		2070/71		2071/72		Total		Source of Funding
					Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	
1	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.7	4.8	12000	4.80									12000	4.80	DDC/VDC/LGCDP/MoLP
2	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	5	3000	1.20	9500	4	0						12500	5.00	DDC/VDC/LGCDP/MoLP
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	10			8791	3	10989	4		3			27472	10.00	DDC/VDC/LGCDP/MoLP
4	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	5						2	9250	3			15417	5.00	DDC/VDC/LGCDP/MoLP
5	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.3	8							3500	1	24500	7.00	28000	8.00	DDC/VDC/LGCDP/MoLP
Required Budget and targeted length (km)			215.95	33	15000	6	18291	7	10989	6	12750	7	24500	7	95389	33	
Total likely available Budget and targeted length (km)				33	12238	6	13462	7	12413	6	12413	7	14946	7	65472	33	

Table 7.9: Prioritized District Road ‘A’ for Upgrading

S.N.	Code	Name of Road	Total Length (km)	Targeted Length of Road for Upgrading to BT km	2067/68		2068/69		2069/70		2070/71		2071/72		Total		Source of Funding
					Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	
1	09A001R	Khandbari-Badareni-Lingling-Chainpur	27.83	15.00	27929	5.00	22343	4.00	33514	6.00					83786	15.00	DDC/DC/LG CDP/MoLP
2	09A002R	Sabhakhola-Kewabesi-Leguwachhat	18.05	15.000	19500	6.00	19500	6.00	9750	3.00					48750	15.00	DDC/DC/LG CDP/MoLP
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	7.000			10619	3.00	10619	3.00	3540	1			24779	7.00	DDC/DC/LG CDP/MoLP
4	09A004R	Khandbri-Dake-Barabhise-Phakuwa (Sabhapokhari)	48.830	8.000							19295	4	19295	4	38589	8.00	DDC/DC/LG CDP/MoLP
5	09A005R	Chainpur-Barabhise Road	36.20	7.000							22834	4.00	17126	3.00	39960	7.00	DDC/DC/LG CDP/MoLP
6	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	10.000							13000	4.00	19500	6.00	32500	10.00	DDC/DC/LG CDP/MoLP
Required Budget and targeted length (km)			277.36	62	47429	11	52462	13	53884	12	58669	13	55920	13	268364	62	
Total likely available Budget and targeted length (km)				62	39805	11	43752	13	40342	12	44262	13	48574	14	216735	62	

7.5.2 Prioritization of District Road (B) for First Five-Year Plan

Table 7.10: Prioritized District Road (B) for New Construction

S.N.	Code	Name of Road	Total Length (km)	Targeted Length of Road for Upgrading to BT km	2067/68		2068/69		2069/70		2070/71		2071/72		Total		Source of Funding
					Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	
1	09B003R	Tumlingtar-Chewabesi-Heluwabesi	17.98	4.0	8000	2.00	8000	2.00							16000	4.00	DDC/VDC/LGCDP/MoLP
2	09B020R	Arunthan-Angla-Tambebesi-Yaphu	21	4.00					7250	2	7250	2			14500	4.00	DDC/VDC/LGCDP/MoLP
Required Budget and targeted length (km)			38.98	8	8000	2	8000	2	7250	2	7250	2	0	0	30500	8	
Total likely available Budget and targeted length (km)				8	3060	2	3366	2	3103	2	3405	2	3736	2	16670	8	

Table 7.11: Prioritized District Road (B) for Upgrading

S.N.	Code	Name of Road	Total Length (km)	Targeted Length of Road for Upgrading to BT km	2067/68		2068/69		2069/70		2070/71		2071/72		Total		Source of Funding
					Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	Budget Nrs in '000	km	
1	09B001R	Khandbari-Lebrang-Dake (Dhupu)	15.05	9.00	12843	3.00	17124	4.00	8562	2.00					38528	9.00	DDC/VDC/LGCDP/MoLP
2	09B002R	Kewabesi-Bihibare-Buddachowk	21.98	4.00					3061	1	9182	3			12243	4.00	DDC/VDC/LGCDP/MoLP
3	09B003R	Tumlingtar-Chewabesi-Heluwabesi	17.98	5.00							4487	1.00	17948	4.00	22435	5.00	DDC/VDC/LGCDP/MoLP
Required Budget and targeted length (km)			55.01	18.00	12843	3	17124	4	11623	3	13669	4	17948	4	73206	18	
Total likely available Budget and targeted length (km)				18.00	9951	3	10938	4	10086	3	11066	4	12143	4	54184	18	

7.6: Prioritized list of Trail Bridge for First Five-Year Plan (DTMP)

Table 7.12: Prioritized numbers of Trail Bridges for New Construction for Five years (DTMP)

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
1	09500418064	Sishubakhola	Bala	Sisuw khola	Budhabare bazar	6.96	1	Suspended	95
2	09500418064	Sitalpati	Khadbari Municipality	Chewa khola	Chewabesi	9.38	2	Suspended	30
3	09501918062	Jaljala	Shavapkhori	Chewa khola	Bokale	4	2	Suspended	72
4	09501218061	Hatiya	Hatiya	Arun nadi	Dasem	12	11	Suspended	80
5	09300118061	Keurepani	Khadbari Municipality	Arun	Maghitar	8.8	1	Suspended	148
6	09501618061	Dhupu	Shyaboon	Sabha khola	Sabha khola	2.5	3	Suspended	75
7	09501918061	Jaljala	Chainpur	Chewa khola	Satibante	2.48	1.5	Suspended	50
8	09500318062	Sishubakhola	Mangtewa	Keksuwa khola	Keksuwa Bagar	6.98	1.5	Suspended	55
9	09500418062	Sishubakhola	Sishubankhola	Sishubakhola	Tagada	5	2	Suspended	75
10	09500418063	Maglewa	Sishubankhola	Newa khola	Tengchungtar	3.25	2	Suspended	56
11	09500118062	Khadbari Municipality	Khadbari Municipality	Betine khola	Betini	3	1	Suspended	37
12	09503018062	Madi Murkharka	Tamaphok	Katike khola	Katike Dovan	4	1	Suspended	9
13	095014180621	Pawakhola	Pawakhola	Basuwa khola	Baidhan Phedi	7	2	Suspended	38
14	09502718066	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	3	2	Suspended	30
15	09502718061	Madi Murkharka	Madi Murkharka	Maya khola	Kabhere Phedi	3.4	1	Suspended	45
16	09501618063	Dhupu	Shavapkhori	Sava khola	Kholrrang sansari dan	1.6	3	Suspended	72
17	09502718062	Madi Murkharka	Madi Murkharka	Maya khola	Gursha	2.92	2	Suspended	34
18	09500218062	Sitalpati	Khadbari Municipality	Chewa khola	Dhobhanetar	1.89	1	Suspended	39

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Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge	
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span
19	09502718067	Madi Murkharka	Madi Murkharka	Kavre Phudung khola	Kavre	6	1	Suspended	55
20	09502718065	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	4	1	Truss	23
21	09502718064	Madi Murkharka	Madi Murkharka	Thulo Arorang khola	Kanpur	4	1	Suspended	47
22	09502118065	Kharang	Aakhibuie	Piluwa khola	Hurthrum	3	1.5	Suspended	110
23	09500618066	Bala	Bala	Pikuwa khola	Kuwadak	5	2	Suspended	72
24	09502118063	Mamling	Aakhibuie	Thute khola	Achambu	3	2	Suspended	75
25	09500918061	Noom	Pathibhara	Arun Nadi	Arun	8	5	Suspended	120
26	09502218065	Shyaboon	Shyaboon	Rithe Manglabare	Rithe Manglabare	3	1	Suspended	65
27	09300118063	Khadbari Municipality	Dhupu	Pangtha khola	Barhanjyang	2	0.5	Suspended	30
28	095027180611	Madi Murkharka	Madi Murkharka	Maya khola	Dhade goan	3.79	1	Suspended	27
29	09501418061	Pawakhola	Pawakhola	Dhupu khola	Dhupi	28	6	Suspended	40
30	09502218061	Shyaboon	Shyaboon	Kusuwa khola	Mahabir	3	3	Suspended	28
31	09500518065	Kulung	Tamphu	Sankhuwa khola	Bumling	3.4	4	Suspended	106

Table 7.13: Prioritized numbers of Trail Bridges for Major Maintenance for Five years (DTMP)

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Bridge	
		Right Bank	Left Bank			Type	Span
1	9502318064	Mawadin	Mawadin	Sikuwa khola	Sikuwa	Suspended	35
2	95027180612	Madi Mulkhara	Madi Mulkhara	Phudung	Kerabari Phedi	Suspended	45
3	9500418065	Sishubakhola	Bala	Sisuwa khola	Sisuwatar	Suspended	45
4	95014180614	Pawakhola	Pawakhola	Irkuwa khola	Sirutar	Suspended	48
5	9502418064	Noondhaki	Noondhaki	Chhage khola	Jamuna Phedi	Suspended	35

7.7: Recommendation

7.7.1 Adherence of DTMP

The main issue of the district is difficult geographical situation requiring huge financial resources for its sustainable infrastructure development. Rational planning and proper implementation are two sides of coin; negligence in one part will make other meaningless. DDC should stop current practice of ad-hoc decision making on investing in roads with short-term consideration.

It is strongly recommended that following approval from the District Council, DDC shall strictly use and require other district level institutions to use the DTMP in particular the Perspective Plan of District Road Network, in deciding the sub-projects to be undertaken for development even beyond the five-year period. Strong commitment from all stakeholders is necessary for its implementation. It is also suggested that the DTMP shall be revised at the end of the fifth year after evaluating previous planning. DDC should proceed with required changes in the DTMP if the district development potentials change significantly.

7.7.2 Construction Approach

It is recommended to adopt Labour based Environmental friendly and Participatory (LEP) approach popularly known as Green Roads construction method. Green Road approach aims at reducing scarring by minimizing the amount of cut necessary and by balancing the amount of material cut with the amount of fill required. Fill material is disposed of in layers “tipping areas”, adjacent to the roads on the valley side and where necessary dry stone retaining walls are used to retain this on the road as well as in the tipping areas. Gabion structures are used for retaining structures over 3 meters high. Fill material is further protected by bamboo terracing and re-vegetation programs. In areas where large cut are unavoidable and it is uneconomical to transport the earth for long distance, surplus material is disposed of over the valley side. However, dry stone check dams or breast walls are built at intervals down the slope to retain this material.

Following are the main aspects of LEP/Green Roads Approach.

Labour based:

Labour is one of Nepal’s largest resources and it is also one of the country’s most under utilized resource especially in the agricultural slack period of October to May. During this period, underemployment is a problem in most districts when farmers need to supplement their agricultural income with off-farm work. The creation of short and medium-term employment is one of the major aims of the LEP approach.

Labour is employed from within a one to two hour walk from a construction site. They bring their own food and do not require accommodation, so the complications arising out of

encampment are avoided. Some 65% to 90% of the construction cost is paid in wages, so the major part of the investment remains in the district and has a trickle down beneficial effect on the whole community. Local labourers learn skills that they can apply on their farms, use of future employment and which are beneficial for later road maintenance work. Labour is organized into group of 15 to 20 persons each with a group leader.

Environmental friendly:

A phased construction method is an essential part of this construction approach. Machine and outside contract oriented construction activities are not allowed in this method. The use of explosives is usually prohibited and rock splitter is used for breaking hard rocks. The improper use of explosives for blasting can destabilize mountain slopes and lead to environmental damage.

Due to very steep slopes, inherently unstable geology and harsh monsoon climate, standard engineering practices are not always the optimum solution for protecting roadside slopes in Nepal. Bio-engineering with vegetation can play an important role in stabilizing the surface layers of any slope. Vegetation with wide spreading root systems binds soil together and increases its sheer strength and limits the extent of slope failure.

Participatory Approach:

All stakeholders in the district and local people are involved in the process of planning, implementation, monitoring and evaluation and maintenance and operation of district/rural roads. LEP approach can only succeed if the local government and the people of the district feel a collective responsibility of the construction and maintenance of the district and village roads. The people will only assume this responsibility if they are the main benefactors of the program, both in terms of income earned during the construction phase and user benefit during the operation phase. Locally based and elected officials and organization is the best vehicle to represent the interests of local people and this is reflected in the User Committees constituted using LEP approach.

ANNEXES

Annex I
Existing/Potential Deployment Area and Market

Annex 1.1
Existing and potential Development Areas

Shankhuwasabha district

Constituency	Ilaka	VDC	Product							Mine	Industries	
			NTPF/MAPs	Horticulture	HVC	Agriculture	Livestock	Hydro power				
1	1	Kimathanka									churpi	
		Hatiya	Aalaich, chiraeto, bikhamba, padamchal, yarsagumba, pachaule		Potato		Paddy, kodo, miaze,	sheep, chauri in all	Hanggung khola, trishukhola, yugankhola		Lokta, allo	
		Chepuwa	Aalaich, chiraeto, bikhamba, padamchal, yarsagumba, pachaule		potato		Kodo, maize, paddy, uwa,	sheep, chauri	Ghattekholo-25; chorrokkha, Choyappu, Chathogo, taksithaba,		churpi	
		Pawakhola	Aalaich									
	2	Yafu		Pears, plumb		Potato, tea		paddy, maize, kodo	Chauri, sheep, cow		Allo	
		Makalu	Aalaich, maps						Chauri, sheep, cow	upsuwakhola 25;		
		Pathibhara		orange, apple, rudrakshya				paddy, kodo, potato, maize	sheep, cow		Lokta	
		Num	Chiraeto, cardamom, allo, lokta	Lemon, jackfruit, orange	Tea		Paddy, maize	sheep, cow	Neguakhola-22; thulokhola-13; arun III		Lokta	
	3	Bala				Cardamom, Potato, iskush		Paddy, millet	Cow/ buffalo, chauri, sheep	sishuwakhola	allo/ lokta	
		Sishuwa	Allo, Lokta (1-3)			Potato, iskush, cardamom, tea			Chauri, sheep, cow		allo/ lokta	
		Tamkhu	chiraeto	Pears, plumb		Cardamom, Tea		Maize, kodo		sankhuwakhola	copper	allo/ lokta
		Mangtewa		orange					cow / buffalo in all			
	4	Diding	Aalaich			Potato		paddy, maize, kodo	cow / buffalo, sheep, pig in all wards	Kaguwakhola		
		Sitalpati	Aalaich	Orange				Paddy	cow / buffalo, sheep, pig in all wards			
		Matchepokhari				Tea			cow / buffalo, sheep, pig in all wards	Matche pokhari		
	5	Sabhapokhari										
		Barahbise	Aalaich									
		Dhupu	Aalaich					Paddy	cow / buffalo, sheep, pig in all wards	Patha khola		
	6	Ramja Deurali										
		Khadbari				Vegetable		Paddy, maize,	cow / buffalo, sheep, pig			
	7	Wana	amriso, rithha, rudrak kayarshya, Harro, barro, amala	Orange, mango, jackfruit, banaa, plum, pears		cardamom, tea, potato, coffee, vegetable		Paddy, wheat, musturd, millet, maize	cow / buffalo, sheep, pig		Poultry farm	
		Syabun	Sikakai, khayar, chiraeto, Amriso, kadam, Kurilo, Harro barro	Orange, Junar, mango, jackfruit, banana, plum, pears		Cardamom, coffee, potato, rudrakshya, vegetable		Paddy, wheat, musturd, millet, maize	cow, buffalos, goat, pig, chicken, mule	Kusuwakhola -15;		
		Jaljala	Amriso, Lokta, Pachaule timber	Orange, mango, jackfruit, banaa, plum, pears		cardamom, tea, potato, coffee, vegetable		Paddy, wheat, musturd, millet, maize	cow / buffalo, sheep, pig	Hewa khola-12;		
	8	Sidhakali	Amriso, lokta, Kurilo, kadamchal, amala, Riddtha, Harro, barro, rudrakshya	mango, Jackfruit, pineapple, pears, plums		cardamom, tea, potato, coffee, vegetable		Paddy, wheat, musturd, millet, maize	cow / buffalo, sheep, pig, chicken		Papar factory	
Sidhapokhari		amriso, Panchaule, kurilo, chiraeto, harrobarro, amala, riddtha, rudrakshya	orange, mango, Jackfruit, pineapple, pears, guava		cardamom, tea, potato, coffee, vegetable		Paddy, wheat, musturd, millet, maize	cow / buffalo, sheep, pig, mule, chicken		Papar factory		

Annex 1.1
Existing and potential Development Areas

Shankhuwasabha district

Constituency	Ilaka	VDC	Product							
			NTFP/MAPs	Horticulture	HVC	Agriculture	Livestock	Hydro power	Mine	Industries
2	9	Nundhaki	Lokta, argeli, panchule, bikhuma, chiraeto, yarsagumba, gurash, jatamasi	Grapes, pea4rs, plums, apple	cardamom, potato, tea, coffee, vegetable, ginger, garlic	paddy, musturd, miaze, millet, barley,	cow/buffalo, goat, sheep, mulem, pig, chicken	Niduwashola-12 ;		Papar factory
		Chainpur	Khayar, ambriso, kurilo		Cardamom, coffee, potato, vegetable	Paddy, wheat, musturd, millet, maize	cow / buffalo, pig			
		Madirambeni		organge, Plum, apple, Pears, jackfruits, lemon	Cardamom, Tea, Coffee, Potato, Tomato, Vegetable, honey	Paddy, Maize, Wheat, Millet, Barley, phaper	Plum, organge, apple, Pears, jackfruits			
	10	Mawadin	Lokta, amriso, chiraeto, rittha, amala, harro barro, pakhanbed, panchaule, rudrakshya	Orange, Lemon, jackfruit, pineapple, pears	cardamom, tea, potato, coffee, vegetable	Paddy, wheat, musturd, millet, maize	cow / buffalo, sheep, pig	Lakhuwashola-15		Radi, pakhi, mill, handmade paper,
		Kharang	amriso, Khayar, Kurilo, Katami, rudrakshya,	Orange, mango, jackfruit, banaa, plum, pears	sugarcane, vegetables, coffee, ginger, tea	Paddy, wheat, maize,	cow, buffalos, goat, pig, chicken,			Bamboo
		Baneswor	Kurilo, khayar, mariso, padamchal, rudrakhya, MAPs	Orange, mango, jackfruit, lichhi, pinapple, pears	Tea, coffee, Sugarcane, Ginger, turmedic	Paddy, wheat, millet, maize	cow/buffalo, goat, pig			Plywood, weaving
	11	Aakhibhui	harro barro, amala, khayar, Dhupisall, lokta	Mango, jackfruits, bel, Mewa, orange, Litchi, banana	Vegetable, cardamom, tea, potato,	Paddy, wheat, miaze, millet	Pig, cow, buffalo, goat, sheep			
		Mamling	amala, chiraeto, Khayuar, amliso	Mango, jackfruits, bel, Mewa, orange, Litchi, banana	Vegetable, cardamom, tea, potato,	Paddy, wheat, miaze, millet	Pig, cow, buffalo, goat, sheep			
		Madimulkharka		Plum, organge, apple, Pears, jackfruits	Cardamom, Tea, Coffee, Potato, Tomato., Sugarcane, Vegetable, Honey	Paddy, Maize, Wheat, Millet, Barley, phaper	cow / buffalo, sheep, pig			Churpi, Handmade paper
		Tamafok	Lokta, chiraeto, lotsalla, gurash, yarsagumba, argeli	Jack fruits, mango, orange, Lemom, apple, pear,	Tea, Cardamom, Potato, Tomato, Green vegetable, Honey	Paddy, Maize, Wheat, Millet, Barley, phaper	cow / buffalo, sheep, pig	Deumaikhola-14;		Paper, hinwa wine, Allo clothe, Dhaka cloth weaving

Annex 1.2

Existing and potential income source from Agroproduct

Illaka No.	VDC	Existing income source from Agro products	potential for future
1	Bashkarka	orange, goat,	coffee, timur
	Majphat	orange, ginger, onion, Vegetable seeds, vegetable	khoto, milk, potato, arubakhada, pears
	salija	Potato, fresh vegetable, allo, argeli, lokta	Vegetable seeds, milk, khoto, MAPS
	Dhairing	Vegetable, allo, milk, khoto	alaichi, MAPs
2	Nanlingband	Fresh vegetable, potato, goat,	khoto, organge, concrete and sand
	Banau	potato, goat	, allo
	Pang	paddy, wheat, maize, vegetable, milk,	bamboo, coffe, concrete and sand
	Khurkot	paddy, wheat, maize, vegetable, milk,	bamboo, coffe, concrete and sand
	Kyang	potato, allo, lokta, slate, MAPs, Rattan	slate, MAPs, Rattan
3	Bhuktangle	allo, lokta, potato, paddy, chiraeto	rattan, amriso, nagbeli, lothsalla, sheep and goat
	deupur	Orange, vegetable, milk	, honey, coffee, ginger,
	Deurali	Vegetable, food stuff,	amriso, coffee
	chitre	milk, vegetable,	alaichi, coffee, lokta, tourism, lothsalla, MAPs
4	Tilhar	Orange, khoto, lapsi, rattan,	milk, vegetable
	Siwalaya	Vegetable, business, industries, brick, block,, poultry, nepiyar, amriso,	concrete and sand, fruit
	Chuwa	Milk, vegetable, Nepiyer seed, goat,	bamboo, Amriso, khoto
	Durlung	potato, khoto, milk, goat	bamboo, Amriso, khoto
	pakuwa	Milk, paddy, vegetable, banana	sikakai, fruits
5	Bajung	Vegetable, milk, organge, pears	bee keeping, goat farming
	Katuwachaupari	Milk, food stuff, vegetable, coffe,	mango, lichhi, bamboo
	Pipaltari	milk, food stuff, vegetable, coffe,	mango, lichhi, bamboo
	Thulipokhari	Lapsi	bamboo, amriso, coffee
	Khaula Lakuri	lapsi, ginger	bamboo, amriso
	Arthur	Orange,	coffee, MAPs
6	Ramja Deurali	Lapsi, amriso,	tourism, milk, vegetable, alaichi, MAPs
	Karkineta	Milk, goat,	bambo, MAPs, tourism, khoto
	thapathan	Lapsi,	ginger, milk
	Shankarpokhari	Milk, organge, vegetable, khoto,	coffee
	Mudikuwa	Milk, fruits, vegetable	coffee
7	khanigaun	milk, food, goat, khoto, bambo	coffee
	Devisthan	Milk, food, mango	bhaicutar, lichhi, rukhkattar
	Limithana	food stuff, milk	Coffee, organge, lapsi, alaichi
	bhangara	lapsi and milk	bee keeping, ginger
	Thamaula	leather, slate, mimur, okhar, allo	milk, organe, cofee
8	palamkhani	sheep, allo	iron mine
	Kurgha	orange, vetable seed, milk, llapsi, slate, beekeeping	coffee, vgetable, alaichi, allo, timor
	pangrang	onion, vegetable seed, slate stone	coffee, orange, rattan
	bachha	paddy, vegetable seed, goat	coffee, vegetable
	Bhosing	potato, vegetable seed, allo utish	achaichi
9	lunkhudeurali	milk, allo, honey	vegetable, goat
	balakot	allo	Vegetable seed, amriso, nepiyer
	pakhapani	potato, orange, milk, honey	Vegetable seed, coffee, khoto
	hosharangdi	organge, baffalo, goat, vegetable	allo, timur, coffee
	borle	pears	amriso, coffee
10	saraukhola	Paddy, wheat, organge, milk	coffee, vegetable
	huwas	paddy, vegetable, milk	
	taklak	khar, besar	ginger, coffee, vegetable
	beulibas	food, vegetable	banana
	tribeni	food, milk, goat	orange
11	urampokhara	bafallo, beekeeping	coffee, goat
	bahaki thati	bafallo, goat, honey, ginger	amriso, coffee, vegetable
	shaligram	paddy	vegetable
	Ranipani	goat	Coffee
11	barrahchaur	food, bafaloo, goat	Vegetable, khoto

Annex 1.3

Matrix of Present Centrality Index of Market Centre (Sankhuwasabha District)

S. N.	Name of Market centre	Population, 2010*	EDUCATION		HEALTH		BUSINESS & COMMERCE							INDUSTRY				OFFICES							Centrality Index	Ranking	Grading of Market Centre							
			Campus (no)	High School (no.)	Primary School (no.)	no of Hospital no	no of H.P.Post	Hotels & Lodges (no.)	Restaurants & Tea Stalls (no.)	Grocery Shops (no.)	Hardware Shop (no.)	Medical Shop (no)	Clothes/readymade shop (no)	Stationary	Others	Rice & flour Mills & IWM (no.)	Forest Best Industry (no)	Agro-based (no)	Mechanical/Fabrication (no)	Handicraft (no)	Bank (no.)	Agriculture Service centre no	Veterinary office (no)	Post office (no)				Telephone office (no)	Electricity office (no)	Cooperatives office (no)	NGO (no)	INGO	Others	
1	Khadbari	7,000	2	12	5	2	1	16	4	30	4	6	25	6	25	4	0	2	5	4	5	1	1	1	1	1	7	15	4	1	481	1	A	
2	Chainpur	1,375	1	2	2	1	1	25	15	100	7	4	30	6	0	3	8	0	2	7	2	1	1	1	1	1	1	5	0	9	341	2	A	
3	Manebhanjang	1,100	0	1	4	0	1	7	8	18	3	1	12	6	10	1	1	0	2	2	0	1	1	0	0	0	10	0	2	150	3	A		
4	Airport market	500	1	1	2	0	2	7	15	30	5	1	20	3	0	1	0	0	3	2	0	0	0	1	0	1	2	1	0	0	128	4	A	
5	Pokhari	1,000	0	1	2	0	1	10	15	25	1	3	8	4	2	2	2	1	0	0	0	0	1	1	0	1	4	6	0	1	117	5	A	
6	Mudhesanisshare	1,200	0	1	2	0	0	10	10	15	4	4	12	4	0	1	4	0	2	0	0	0	1	0	1	3	2	0	0	96	6	B		
7	Barhabise	500	0	1	2	0	1	10	7	20	3	3	12	0	1	1	0	0	0	0	0	1	1	1	0	1	2	2	0	3	91	7	B	
8	Okharbote	400	0	3	1	0	1	10	5	10	3	4	6	2	0	1	3	0	0	1	0	0	0	1	0	1	1	2	1	4	88	8	B	
9	Kharang	300	0	1	6	0	1	5	0	15	3	2	5	2	0	1	0	5	0	0	0	0	1	1	0	1	1	7	0	0	80	9	B	
10	Kuwapani	250	0	1	5	0	2	2	5	15	2	4	2	2	0	1	1	0	1	1	0	0	0	1	0	1	1	3	0	1	67	10	B	
11	Bihibare	250	0	1	4	0	1	4	10	20	0	3	3	2	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	61	11	B	
12	Wana	250	0	2	1	0	1	4	3	5	3	1	5	5	0	1	1	0	0	0	0	1	1	1	1	1	1	4	0	0	58	12	B	
13	Mulkharka Bazar	200	0	1	2	0	1	4	2	10	3	1	2	1	0	1	1	0	0	0	0	1	1	1	1	1	1	8	0	1	58	13	B	
14	Num	425	0	1	0	0	1	4	10	21	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	56	14	B	
15	Bhanjang	250	0	2	1	0	1	3	10	15	0	1	3	3	0	1	1	0	0	0	0	1	1	1	0	1	1	0	0	1	55	15	B	
16	Bihibare	150	0	1	1	0	0	3	3	7	0	1	3	1	0	1	2	0	0	1	0	0	0	0	0	1	2	5	0	1	43	16	C	
17	Guphapokhari	200	0	0	1	0	0	5	5	10	0	0	1	1	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	1	42	17	C	
18	Gadi	150	0	2	1	0	1	1	5	20	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	1	42	18	C	
19	Sukrabare	100	0	2	1	0	1	0	4	9	0	1	1	0	0	1	0	0	2	0	0	1	0	0	0	1	1	1	0	1	37	19	C	
20	Seduwa	300	0	1	1	1	0	4	0	12	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	33	20	C	
21	Mangaibare	500	0	1	2	0	0	4	2	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	31	21	C	
22	Chichila	235	0	1	2	0	1	2	5	4	5	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	22	C	
23	Sukrabare	200	0	2	0	0	1	0	4	7	0	0	1	0	0	3	0	0	0	0	0	0	1	1	0	0	0	2	0	1	27	23	C	
24	Bidhabare	80	0	0	1	0	1	3	5	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	25	24	C	
25	Dake Bhanjang	225	0	1	1	0	1	0	3	10	0	1	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	24	25	recognized as apotential	
26	Syakshila gola	70	0	1	0	0	1	2	4	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	20	26	recognized as apotential	
27	Chepuwa	1,200	0	1	1	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	1	3	0	0	1	19	27	recognized as apotential	
28	Hunggung	1,920	0	1	0	0	0	0	0	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	1	0	0	0	18	28	recognized as apotential	
29	Lingling	75	0	1	0	0	1	0	2	5	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	17	29	recognized as apotential	
30	Hatiya	650	0	0	1	0	1	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	1	1	0	0	1	1	0	1	17	30	recognized as apotential	
31	Simma	200	0	1	0	0	0	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	31	recognized as apotential	
32	Kimathanka	516	0	0	1	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	32	recognized as apotential	
33	Heluwabesi	325	0	1	0	0	0	0	2	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	33	recognized as apotential	
34	Chamtang	750	0	0	1	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	34	recognized as apotential	
Total Functions			4.0	48.0	54.0	4.0	25.0	148.0	166.0	472.0	46.0	44.0	164.0	48.0	40.0	50.0	26.0	13.0	19.0	18.0	7.0	10.0	14.0	17.0	3.0	16.0	38.0	78.0	5.0	37.0				
Median Population			175	250	400	425	250	313	250	300	425	300	300	413	421	300	413	375	225	463	313	516	363	250	425	350	300	325	300	300				
Weight			0.70	1.00	1.60	1.70	1.00	1.25	1.00	1.20	1.70	1.20	1.20	1.65	1.68	1.20	1.65	1.50	0.90	1.85	1.25	2.06	1.45	1.00	1.70	1.40	1.20	1.30	1.20	1.20				

Annex II
Traffic Volume and List of Existing Roads with
Required Intervention

Annex 2.1

Composition of traffic and the respective traffic coefficients

S.N.	Type of traffic	Transport unit
1	Cars, light vans, jeeps and pick-ups	1
2	Light trucks up to 2.5 tones gross	1.5
3	Trucks up to 10 tones gross	3
4	Trucks up to 15 tones gross	4
5	4 W tractor towed trailer-standards	3
6	2 W tractor towed trailer-standards	1.5
7	Buses up to 40 passengers	3
8	Buses over 40 passengers	4
9	Bicycles	0.2
10	Motorcycle	0.4
11	Rickshawa and tricycles carrying goods	1
12	Carts pulled/pushed by the human beings	0.5
13	Bullock carts with pneumatic tyre wheels	1
14	Bullock carts with wooden wheels tyre wheels	2
15	Mule carts or horse drawn carts	1
16	Packed animals and mules	0.3
17	Padestrians walking on the link	0.1
18	Porters walking on the link	0.2

S.N	Road Name	Type of transport Linkage: RRA, RRB	Starting point	Ending point	Passage through settlement	Name of the market centre	Centrality Index	Average Daily Traffic Volume	Average Daily Traffic Volume	Average Daily Traffic Volume	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	Daily Traffic Volume (Average)	TU
Class A																				
9	Piluwa Dovan-Hitisundhe-Kharang	RRB	Pilubadoman	Kharang	Kewadovan, Dumkatta, Kalleri, Hattisundhe, Majhuwa, Bijuwapani, Patighar, Kharang	Kharang	51	20	5	0	0	0	1	1	0		0	0	0	6.4
10	Chichila-Devitar-Barabhise	RRB	Chichila	Barabhise bazar	Chichila, Machhegoan	Chichila	70	15	5	5	0	0	0	1	0	0	0	0	0	7
11	Chainpur-Ratamate-Tikhedhunga	RRB	Chainpur	Ratamate	chainpur, Ratamate	chainpur	230	15	8	0	0	0	1	1	0	0	0	0	0	6.5
12	Okharbote (Madirambeni)-Dandakharka-Chhahare	RRB	Okharbote	Chhahare	Okharbote, Dandagoan, Sirjung, Dandakharka	Okharbote, Dandakharka	78	8	3	0	0	0	0	1	1	0	0	0	0	5.9
13	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	RRB	Arunthan	Thaldanda	Arunthan, Thaldanda	Chainpur	230	15	4	0	0	1	1	1	0	0	0	0	0	6.7
14	Chainpur-Siddakali temple	RRB	Chainpur	Siddakali temple		Chainpur, Pokhari	230	50	0	0	0	2	3	1	0	0	0	0	0	11.2
15	Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa	RRB	Bhyangkholo	Harelo	Bhyangkholo, Harelo, Deurali,	Bhyangkholo	20	30	5	5	0	0	0	1	0	0	0	0	0	8.5
16	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	RRB	Bhandarichowk	Chapabhue	Arunthan, Bhandarigoan, Dangaligoan, Chapabhuin	Chainpur	281	25	6	0	0	0	1	1	1	0	0	0	0	8.6
17	Pokhari (Siddakali and Siddapokhari)-Pyankot-	RRB	Pokhari	Pangrangkot	Pokhari, Koksa	Pokharibazar	87	25	5	0	0	1	2	1	0		0	0	0	8.3
18	Arunthan-Angla-Tambebesi-Yaphu	RRB	Arunthan	Yaphu	Arunthan	Arunthan	25	20	4	3	0	0	0	0	0	0	0	0	0	3.7
19	Lavinghill-Tallomalata-Thaldanda-Balaute	RRB	Lavinghill	Tallomalta	Lavinghill, Malta,	Lavinghill (Nayabazar)	41	30	3	0	0	2	1	1	0	0	0	0	0	9
20	Dake-Matschepokhari-Chichila	RRB				Dake	128	15.00	3.00	-		1.00	-	1.00						6.1

Annex III
Cost Estimate and Financial Analysis

ANNEX 3.1

Cost Estimate of Proposed District Road A for Rehabilitation /Upgrading of Sankhuwasabha District

S.N	Road code	Road Name	Total GPS Length of road (KM)				Total Vehicle Pliable GPS length (KM)	Surface condition (good /fair/poor)	Required intervention (KM)				Cross Drainage Structures in Numbers					Cost(Nrs.)						Average/Km cost (Nrs.)	Total Cost without Maintenance			
			Earthen	Gravel	Blacktop	Total			Upgrading		Under construction	Maintenance		Bridge		RCC Slab Culvert	Causeway	RCC Humppie	Upgrading with Structural Works (e.g., Breast & Retaining Walls, Stone Causeway and Drainage Works)		Ongoing work (Incomplete works for target place)	Maintenance				Cross Drainage Structures	Environmental Mitigation cost	Total cost
									Rehabilitation	Gravel		Gravel	Earthen	RCC	Truss				Rehabilitation	Gravel		Earthen	Gravel					
											Gravel																	
Class A																												
1	A	Sabhakhola-Kewabesi-Lezuwashat	18.05			18.05	18.05	Poor	3.60	18.05	0.00	18.05	2	0	0	20	0	6,480,000.00	54,150,000.00	-	13,537,500.00	-			74,167,522.00	4,109,003.99	60,630,022.00	
2	A	Chaitpur-Barabhise Road	36.20			36.20	15.69	Fair	7.20	36.20	0.00	15.69	2	4	0	40	0	12,960,000.00	108,600,000.00	-	11,767,500.00	75,000,000.00			208,327,546.00	5,754,904.59	196,560,046.00	
3	A	Chaitpur-Nundhaki-Gufapokhari	25.88			25.88	17.00	Fair	6.40	25.88	0.00	17.00	0	1	0	38	0	11,520,000.00	77,640,000.00	-	12,750,000.00	9,000,000.00			110,910,039.00	4,285,550.19	98,160,039.00	
4	A	Khandburi-Dake-Barabhise-Phakuwa	23.83			23.83	23.83	Poor	4.60	23.83	0.00	23.83	3	0	0	20	0	8,280,000.00	71,490,000.00	-	17,872,500.00	49,500,000.00			147,142,523.00	6,174,675.74	129,270,023.00	
5	A	Khandburi-Badareni-Lineline-Chaitpur	23.62			23.62	23.62	Poor	3.50	23.62	4.21	23.62	2	0	0	8	0	6,300,000.00	70,860,000.00	10,525,000.00	17,715,000.00	47,250,000.00			152,650,010.00	6,462,743.86	134,935,010.00	
6	A	Ramnandi-Okharbote-Bagha-Nundhaki	18.26			18.26	18.26	Poor	7.50	18.26	0.00	18.26	2	1	0	33	0	13,500,000.00	54,780,000.00	-	13,695,000.00	54,000,000.00			135,975,036.00	7,446,606.57	122,280,036.00	
7	A	Tute Deurali-Mangalbare Chauki	9.45	0.00		9.45	9.45	Fair	5.75	9.45	0.00	6.09	0	0	0	3	0	10,350,000.00	28,350,000.00	-	4,567,500.00	-			43,267,503.00	-	-	
				6.09		6.09	6.09	Fair				6.09	0.00									9,135,000.00				9,135,000.00	-	-
		Total																								52,402,503.00	3,372,104.44	43,267,503.00
8	A	Manebhanyang-Heluwabesi-Bumling	13.30			13.30	13.30	Poor	1.40	13.30	0.00	13.30	0	0	0	13	0	2,520,000.00	39,900,000.00	-	9,975,000.00	-			52,395,013.00	3,939,474.66	42,420,013.00	
9	A	Tumlingtar-Lingling-Wam-Nagi-Tesre	12.56			12.56	12.56	Poor	1.22	12.56	0.00	12.56	1	0	0	13	0	2,196,000.00	37,680,000.00	-	9,420,000.00	31,500,000.00			80,796,014.00	6,432,803.66	71,376,014.00	
10	A	Kiringdanda-Bihbare-Mulgoan (Kewa)	11.90			11.90	8.73	Fair	2.00	11.90	0.00	8.73	0	2	0	6	0	3,600,000.00	35,700,000.00	-	6,547,500.00	12,000,000.00			57,847,508.00	4,861,135.13	51,300,008.00	
		Sub-Total	193.05	6.09	199.14	166.58			43.17	193.05	4.21	6.09	157.130	12.000	8.000	0.000	194.000	0.000	77706000.00	579150000.00	10525000.00	117847500.00	91350000.00	278250000.00	1072613714.00	5283900.28	950198714.00	
Class B																												
1	B	Kewabesi-Bihbare-Buddachowk	21.98			21.98	15.00	Poor	3.00	21.98	0.00	15.00	0	0	0	25	0	5,400,000.00	65,940,000.00	-	11,250,000.00	-			82,590,000.00	3,757,506.82	71,340,000.00	
2	B	Okharbote-Mangalbare	8.83			8.83	6.83	Fair	1.20	8.83	0.00	6.83	0	1	0	16	0	2,160,000.00	26,490,000.00	-	5,122,500.00	6,000,000.00			39,772,500.00	4,504,246.89	34,650,000.00	
3	B	Khandburi-Lebrang-Dake (Dhapu)	15.05			15.05	15.05	Fair	2.50	15.05	0.00	15.05	0	1	0	0	0	4,500,000.00	45,150,000.00	-	11,287,500.00	6,000,000.00			66,937,500.00	4,447,674.42	55,850,000.00	
4	B	Mudhe Sanshare-Churidanda	14.38			14.38	8.18	Fair	2.80	14.38	0.00	8.18	0	1	0	20	3	5,040,000.00	43,140,000.00	-	6,135,000.00	6,000,000.00			60,315,000.00	4,194,367.18	54,180,000.00	
5	B	Sitawa (Syabun)-Phachyang-Nagi	11.00			11.00	8.00	Poor	2.90	11.00	0.00	8.00	0	0	0	0	0	5,220,000.00	33,000,000.00	-	6,000,000.00	-			44,220,000.00	4,020,000.00	38,220,000.00	
6	B	Tumlingtar-Chewabesi-Heluwabesi	9.98			9.98	9.98	Fair	1.50	9.98	0.00	9.98	1	0	0	4	0	2,700,000.00	29,940,000.00	-	7,485,000.00	13,500,000.00			53,625,000.00	5,373,246.49	46,140,000.00	
7	B	Bihbare (Jajala)-Chungkhurung-Malbasse	9.74			9.74	0.00	Poor	4.74	9.74	0.00	0.00	0	0	0	19	0	8,532,000.00	29,220,000.00	-	-	-			37,752,000.00	3,875,975.36	37,752,000.00	
8	B	Badareni-Maksuwa-Katbare-Okten	18.34			18.34	8.34	Fair	3.00	18.34	0.00	8.34	0	0	0	8	0	5,400,000.00	55,020,000.00	-	6,255,000.00	-			66,675,000.00	3,635,496.18	60,420,000.00	
9	B	Pilwa Dovan-Hirsonde-Kharang	8.34			8.34	8.34	Poor	2.99	8.34	0.00	8.34	0	0	1	6	0	5,382,000.00	25,020,000.00	-	6,255,000.00	1,500,000.00			38,157,000.00	4,575,179.86	31,902,000.00	
10	B	Chichila-Devnar-Barabhise	7.05			7.05	5.00	Poor	3.05	7.05	0.00	5.00	0	0	2	13	0	5,490,000.00	21,150,000.00	-	3,750,000.00	3,000,000.00			33,390,000.00	4,736,170.21	29,640,000.00	
11	B	Chaitpur-Ratamate-Tikhdhunga	6.03			6.03	5.00	Fair	2.80	6.03	0.00	5.00	0	0	0	14	0	5,040,000.00	18,090,000.00	-	3,750,000.00	-			26,880,000.00	4,457,711.44	23,130,000.00	
12	B	Okharbote (Madramben)	6.39			6.39	6.39	Poor	2.50	6.39	0.00	6.39	0	0	0	11	0	4,500,000.00	19,170,000.00	-	4,792,500.00	-			28,462,500.00	4,454,225.35	23,670,000.00	
13	B	Chaitpur-Siddakali temple	5.00			5.00	5.00	Fair	1.50	5.00	0.00	5.00	0	0	0	12	0	2,700,000.00	15,000,000.00	-	3,750,000.00	-			21,450,000.00	4,290,000.00	17,700,000.00	
14	B	Bhyangkhol-Harelo-Deurali (Diding)	3.38			3.38	3.38	Poor	1.00	3.38	0.00	3.38	0	0	0	4	0	1,800,000.00	10,140,000.00	-	2,535,000.00	-			14,475,000.00	4,282,544.38	11,940,000.00	
15	B	Bhandarichowk (Chaitpur)-Chanabhun-Pokhari (Siddakali and Siddapokhari)-Pyankot	2.81			2.81	2.81	Fair	1.50	2.81	0.00	2.81	0	0	0	6	0	2,700,000.00	8,430,000.00	-	2,107,500.00	-			13,237,500.00	4,710,854.09	11,130,000.00	
16	B	Arunhan-Angla-Tambhesi-Yapbu	2.53			2.53	2.00	Fair	1.20	2.53	0.00	2.00	0	0	0	7	0	2,160,000.00	7,590,000.00	-	1,500,000.00	-			11,250,000.00	4,446,640.32	9,750,000.00	
17	B	Lavinghill-Tallomalata-Thaldanda-Balaute	1.00			1.00	1.00	Poor	1.00	1.00	0.00	1.00	0	0	0	0	0	1,800,000.00	3,000,000.00	-	750,000.00	-			5,550,000.00	5,550,000.00	4,800,000.00	
18	B	Dake-Matschepokhari-Chichila	4.00			4.00	4.00	Poor	2.00	4.00	0.00	4.00	0	0	0	0	0	3,600,000.00	12,000,000.00	-	3,000,000.00	-			18,600,000.00	4,650,000.00	15,600,000.00	
		Sub-Total	161.78	0.00	161.78	120.25			43.680	161.780	0.000	120.250	1.000	3.000	3.000	166.000	3.000	78,624,000.00	485,340,000.00	-	90,187,500.00	36,000,000.00	-	690,151,500.00	4,450,941.68	599,964,000.00		
		Total	354.83	6.09	360.92	286.83			86.850	354.830	4.210	277.380	13.000	11.000	3.000	360.000	3.000	156,330,000.00	1,064,490,000.00	10,525,000.00	208,035,000.00	314,250,000.00	-	1,762,765,214.00	4,867,420.98	1,550,162,714.00		

ANNEX 3.2

Cost Estimate of Proposed District Road A for New Construction of Sankhuwasabha District

S.N	Name of Road	Tentative Length(Km)				Cost (NRs.)			Total Cost (NRs.)	Cost per Km (NRs.)
		Total	A/D	Valley	Ridge	A/D	Valley	Ridge		
1	Chainpur-Nundhaki-Gufapokhari	17.27	4.27	0.00	13.00	14,945,000	-	32,500,000	47,445,000.00	2,747,249.57
2	Khandbri-Dake-Barabhise-Phakuwa (Sabhapokhari)	25	5.00	20.00	0.00	17,500,000	80,000,000	-	97,500,000.00	3,900,000.00
3	Rammandir-Okharbote-Bagha-Nundhaki	12	7.00	0.00	5.00	24,500,000	-	12,500,000	37,000,000.00	3,083,333.33
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	7	0.00	0.00	7.00	-	-	17,500,000	17,500,000.00	2,500,000.00
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-	90	30.00	40.00	20.00	105,000,000	160,000,000	50,000,000	315,000,000.00	3,500,000.00
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	25.00	35.00	0.00	87,500,000	140,000,000	-	227,500,000.00	3,791,666.67
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	85	45.00	0.00	40.00	157,500,000	-	100,000,000	257,500,000.00	3,029,411.76
8	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	4.8	0.00	0.00	4.80	-	-	12,000,000	12,000,000.00	2,500,000.00
	Sub-Total	301.07	116.27	95.00	89.80	406,945,000	380,000,000	224,500,000	1,011,445,000.00	3,131,457.67
1	Okharbote-Mangalbare	10.88	3.00	0.00	7.88	10,500,000	-	19,700,000	30,200,000.00	2,775,735.29
2	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	15.00	10.00	0.00	5.00	35,000,000	-	12,500,000	47,500,000.00	3,166,666.67
3	Sibuwa (Syabun)-Phachyang-Nagi	5.00	5.00	0.00	0.00	17,500,000	-	-	17,500,000.00	3,500,000.00
4	Tumlingtar-Chewabesi-Heluwabesi	8.00	0.00	8.00	0.00	-	32,000,000	-	32,000,000.00	4,000,000.00
5	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaurinkharka	7.00	0.00	0.00	7.00	-	-	17,500,000	17,500,000.00	2,500,000.00
6	Chichila-Devitar-Barabhise	15.00	10.00	5.00	0.00	35,000,000	20,000,000	-	55,000,000.00	3,666,666.67
7	Chainpur-Ratamate-Tikhedhunga	3.00	3.00			10,500,000	-	-	10,500,000.00	3,500,000.00
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	2.00	2.00			7,000,000	-	-	7,000,000.00	3,500,000.00
9	Bhyangkholo-Harelo-Deurali (Diding)-Pakuwa	20.00	15.00	0.00	5.00	52,500,000	-	12,500,000	65,000,000.00	3,250,000.00
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	3.09	3.09			10,815,000	-	-	10,815,000.00	3,500,000.00
11	Pokhari (Siddakali and Siddapokhari)-Pvankot-Chaurinkharka	12.47	5.00	0.00	7.47	17,500,000	-	18,675,000	36,175,000.00	2,900,962.31
12	Arunthan-Angla-Tambebesi-Yaphu	20.00	15.00	5.00	0.00	52,500,000	20,000,000	-	72,500,000.00	3,625,000.00
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	8.00	8.00	0.00	0.00	28,000,000	-	-	28,000,000.00	3,500,000.00
14	Magtewa-Tamku-Sukrabare-Budhabare	15.00	15.00	0.00	0.00	52,500,000	-	-	52,500,000.00	3,500,000.00
15	Pathivara-Pawakhola	25.00	5.00	0.00	20.00	17,500,000	-	50,000,000	67,500,000.00	2,700,000.00
16	Dake-Matschepokhari-Chichila	5.00	5.00	0.00	0.00	17,500,000	-	-	17,500,000.00	3,500,000.00
	Sub-Total	174.44	104.09	18.00	52.35	364,315,000	72,000,000	130,875,000	567,190,000.00	3,317,814.43
	Total	475.51	220.36	113.00	142.15	771,260,000.00	452,000,000.00	355,375,000.00	1,578,635,000.00	3,224,636.05

Annex: 3.3

Year -wise Sharing of Budget and target (km)

According to the projected financial plan, year-wise physical targets are set as

S.N	Class of Transport Linkage	New Construction										Budget ' 000	
		2067/68		2068/69		2069/70		2070/71		2071/72		Total	
		Budget	km	Budget	km	Budget NRs. '000	km	Budget	km	Budget	km	Budget	km
1	District A Road	12238	6	13462	7	12413	6	12413	7	14946	7	65472	33
2	District road B	3060	2	3366	2	3103	2	3405	2	3736	2	16670	8

S.N	Class of Transport Linkage	Rehabilitation/Upgrading										Budget ' 000	
		2067/68		2068/69		2069/70		2070/71		2071/72		Total	
		Budget	km	Budget	km	Budget	km	Budget	km	Budget	km	Budget	km
1	District A Road	39805	11	43752	13	40342	12	44262	13	48574	14	216735	62
2	District Road B	9951	3	10938	4	10086	3	11066	4	12143	4	54184	18

S.N	Class of Transport Linkage	Maintenance										Budget ' 000	
		2067/68		2068/69		2069/70		2070/71		2071/72		Total	
		Budget	km	Budget	km	Budget	km	Budget	km	Budget	km	Budget	km
1	District A Road	7433	165	8203	182	7564	168	8299	184	9108	202	40607	902
2	District road B	4002	89	4417	98	4073	91	4469	99	4904	109	21865	486

Annex:3.4 Sharing of Budget for FY 067/68

Total Annual Budget (NRs.'000)
76489
(100%

New Construction
20
%
15298

Rehabilitation/Upgrading
65.05
%
49756

Maintenance
14.95
%
11435

	District Road A	District B Road
	80	20
	%	%
	12238	3060
Year Wise Target (km)	6	2

	District Road A	District B Road
	80	20
	%	%
	39805	9951
	11	3

	District Road A	District B Road
	65	35
	%	%
	7433	4002
	165	89

Annex:3.5
Sharing of Budget for FY
068/69

Total Annual Budget (NRs.'000)
84138
(100%

New Construction
20
%
16828

Rehabilitation/Upgrading
65
%
54690

Maintenance
15
%
12621

	District Road A	District B Road
	80	20
	%	%
	13462	3366
Year Wise Target (km)	7	2

	District Road A	District B Road
	80	20
	%	%
	43752	10938
	13	4

	District Road A	District B Road
	65	35
	%	%
	8203	4417
	182	98

Annex:3.6
Sharing of Budget for FY
069/70

Total Annual Budget (NRs.'000)
77581
(100%)

New Construction
20
%

15516



District Road A	District B Road
80	20
%	%
12413	3103

Year Wise Target (km)	6	2
------------------------------	---	---

Rehabilitation/Upgrading
65
%
50428



District Road A	District B Road
80	20
%	%
40342	10086

12	3
----	---

Maintenance
15
%
11637



District Road A	District B Road
65	35
%	%
7564	4073

168	91
-----	----

Annex:3.7 Sharing of Budget for FY 070/71

Total Annual Budget (NRs.'000)
85119
(100%)

New Construction
20
%
17024

Rehabilitation/Upgrading
65
%
55328

Maintenance
15
%
12768



District Road A	District B Road
80	20
%	%
13619	3405

District Road A	District B Road
80	20
%	%
44262	11066

District Road A	District B Road
65	35
%	%
8299	4469

Year Wise Target (km)	District Road A	District B Road
	7	2

District Road A	District B Road
13	4

District Road A	District B Road
184	99

Annex:3.8 Sharing of Budget for FY 071/72

Total Annual Budget (NRs.'000)
93411
(100%

New Construction
20
%
18682

Rehabilitation/Upgrading
65
%
60717

Maintenance
15
%
14012

	District Road A	District B Road
	80	20
	%	%
	14946	3736

	District Road A	District B Road
	80	20
	%	%
	48574	12143

	District Road A	District B Road
	65	35
	%	%
	9108	4904

Year Wise Target (km)		
	7	2

	14	4

	202	109

Annex IV
Prioritization of Proposed Transport Linkage for
New/Upgrading For DTPP/DTMP

Annex : 4.1.1**Prioritization of District roads A for Rehabilitation/Upgrading based on Cost per Traffic Unit**

S.N	Name of the Road	Total Planned Length km	Length of Road for Rehabilitation/ Upgrading km	Traffic Volume	Co.efficient	Score(70)
1	Sabhakhola-Kewabesi-Leguwachhat	18.05	18.05	42.8	0.85	59.68
2	Chainpur-Barahbise Road	36.20	36.20	40	0.80	55.78
3	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	37.8	0.75	52.71
4	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	39	0.78	54.38
5	Khandbari-Badareni-Lingling-Chainpur	27.83	23.62	50.2	1.00	70.00
6	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	33.1	0.66	46.16
7	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	30	0.60	41.83
8	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	35	0.70	48.80
9	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	34.9	0.70	48.67
10	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	34	0.68	47.41

Annex : 4.1.2

Prioritization of District roads A for Rehabilitation/Upgrading based on Market Centre

S.N.	Name of the Road	Total planed Length (km)	Length of Road for Rehabilitation/ Upgrading km	Market centre	Total Centrality Index	Co.efficient	Score(10)
1	Sabhakhola-Kewabesi-Leguwachhat	18.05	18.05	Kewa	50.00	0.11	1.06
2	Chainpur-Barahbise Road	36.20	36.20	Chainpur, Bihibare, Chitlang, Barhabise	356	0.76	7.56
3	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	chainpur, Pokhari, Chitlang, bihibare	377	0.80	8.00
4	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	Khandbari, Pangtha, Dake, Barahbise	376	0.80	7.98
5	Khandbari-Badareni-Lingling-Chainpur	27.83	23.62	Khanbari, Badreni, Lingling, Khamare, Bhanjyangkharka, chainpur	471	1.00	10.00
6	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	Rammandir, Okharbote	70	0.15	1.49
7	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	Tutedeurali, Milkejaljale, Chauki, Mangalbare	74	0.16	1.57
8	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	Manebhanjyang, Chandanpur, Heluwabesi	125	0.27	2.65
9	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	Airport Bazaar, Lingling	112.00	0.24	2.38
10	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	Bihibare	49.00	0.10	1.04

Annex : 4.1.3

Prioritization of District roads A for Rehabilitation/Upgrading based on Cost

S.N	Name of the Road	Total planed Length (km)	Length of Road for Rehabilitation/ Upgrading km	Upgrading Cost	Upgrading Cost /km
1	Sabhakhola-Kewabesi-Leguwachhat	18.05	18.05	58,662,500.00	3250000
2	Chainpur-Barahbise Road	36.20	36.20	206,650,000.00	5708564
3	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	91,610,000.00	3539799
4	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	114,947,500.00	4823647
5	Khandbari-Badareni-Lingling-Chainpur	27.83	23.62	131,935,000.00	5585732
6	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	74,345,000.00	4071468
7	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	30,712,500.00	1976351
8	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	43,225,000.00	3250000
9	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	72,320,000.00	5757962
10	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	48,675,000.00	4090336

Annex : 4.1.4

Scoring for prioritisation of the District Roads A for Rehabilitation/Upgrading

S.N	Name of Road	Total Planed Length km	Length of Road for Reehabilitation/ Upgrading km	Parameter Used for the Priorisation of Road Corridors				
				Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Rank
1	Sabhakhola-Kewabesi-Leguwighat	18.05	18.05	59.68	1.06	12.16	72.91	2
2	Chainpur-Barahbise Road	36.20	36.20	55.78	7.56	6.92	70.26	5
3	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	52.71	8.00	11.17	71.88	3
4	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	54.38	7.98	8.19	70.56	4
5	Khandbari-Badareni-Lingling-Chainpu	27.83	23.62	70.00	10.00	7.08	87.08	1
6	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	46.16	1.49	9.71	57.35	10
7	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	41.83	1.57	20.00	63.40	7
8	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	48.80	2.65	12.16	63.62	6
9	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	48.67	2.38	6.86	57.91	9
10	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	47.41	1.04	9.66	58.11	8
Total Length km		444.420	199.140					

Annex : 4.1.5

Prioritized District Road A for Twenty Year DTPP for Rehabilitation/Upgrading

S.N.	Code	Name of Road	Total Targeted Length km	Length of Road for Upgrading km	Parameter Used for the Priorisation of Road and their corresponding Scores				
					Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Priority Rank
1	09A001R	Khandbari-Badareni-Lingling-Chainpur	27.83	23.62	70.00	10.00	7.08	87.08	1
2	09A002R	Sabhakhola-Kewabesi-Leguwachhat	18.05	18.05	59.68	1.06	12.16	72.91	2
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	25.88	52.71	8.00	11.17	71.88	3
4	09A004R	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	23.83	54.38	7.98	8.19	70.56	4
5	09A005R	Chainpur-Barahbise Road	36.20	36.20	55.78	7.56	6.92	70.26	5
6	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	13.30	48.80	2.65	12.16	63.62	6
7	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	15.54	41.83	1.57	20.00	63.40	7
8	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	11.90	47.41	1.04	9.66	58.11	8
9	09A009R	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	12.56	48.67	2.38	6.86	57.91	9
10	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	18.26	46.16	1.49	9.71	57.35	10
Total Length km			444.42	199.14					

Annex : 4.2.1

Prioritization of District roads B for Rehabilitation/Upgrading based on Cost per Traffic Unit

S.N	Name of the Road	Total Planned Length km	Length of Road for Rehabilitation/Upgrading km	Traffic Volume	Co.efficient	Score(70)
1	Kewabesi-Bihibare-Buddachowk	21.98	21.98	20.4	0.59	41.27
2	Okharbote-Mangalbare	19.71	8.83	7.5	0.22	15.17
3	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	34.6	1.00	70.00
4	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	14.9	0.43	30.14
5	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	4.9	0.14	9.91
6	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	19.3	0.56	39.05
7	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	9.74	3.6	0.10	7.28
8	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	9.5	0.27	19.22
9	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	6.4	0.18	12.95
10	Chichila-Devitar-Barahbise	22.05	7.05	11.5	0.33	23.27
11	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	7.58	0.22	15.34
12	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	5.9	0.17	11.94
13	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7.00	5.00	8.7	0.25	17.60
14	Chainpur-Siddakali temple	3.11	3.11	10.5	0.30	21.24
15	Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	8.5	0.25	17.20
16	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.90	2.81	3.89	0.11	7.87
17	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15.00	2.53	8.3	0.24	16.79
18	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	3.7	0.11	7.49
19	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	2.84	4.5	0.13	9.10
20	Dake-Matschepokhari-Chichila	9.00	4	6.18	0.18	12.50

Annex : 4.2.2

Prioritization of District roads B for Rehabilitation/Upgrading based on Market Centre

S.N.	Name of the Road	Total planned Length (km)	Length for Rehabilitation/Upgrading km	Market centre	Centrality Index	Total Centrality Index	Co.efficient	Score(10)
1	Kewabesi-Bihibare-Buddachowk	21.98	21.98	Kewabesi, Somabare, Gadekodhunga, Bihibare, buddachowk	99	99.00	0.31	3.12
2	Okharbote-Mangalbare	19.71	8.83	Okharbote, Mulkharka	100	100.00	0.32	3.15
3	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	Khandbari, Dake	202	202.00	0.64	6.37
4	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	Mudhesanischare	74	74.00	0.23	2.33
5	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	Sibuwa	25	25.00	0.08	0.79
6	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	Tumlingtar, Beteni, Chewabesi	124	124.00	0.39	3.91
7	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaurikharka	16.74	9.74	Bihibare, Chungkhurung	64	64.00	0.20	2.02
8	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	Badreni, Barahbise	66	66.00	0.21	2.08
9	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	Kharang	51	51.00	0.16	1.61
10	Chichila-Devitar-Barahbise	22.05	7.05	Chichila	70	70.00	0.22	2.21
11	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	chainpur, Pokhari	317	317.00	1.00	10.00
12	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	Okharbote, Dandakharka	78	78.00	0.25	2.46
13	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7.00	5.00	Chainpur	230	230.00	0.73	7.26
14	Chainpur-Siddakali temple	3.11	3.11	Chainpur	230	230.00	0.73	7.26
15	Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	Bhyangkholo	20	20.00	0.06	0.63
16	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.90	2.81	Chainpur	230	230.00	0.73	7.26
17	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15.00	2.53	Pokharibazar	87	87.00	0.27	2.74
18	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	Arunthan	25	25.00	0.08	0.79
19	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	2.84	Lavinghill (Nayabazar)	41	41.00	0.13	1.29
20	Dake-Matschepokhari-Chichila	9.00	4	Dake, Chichila	41	41.00	0.13	1.29

Annex : 4.2.3

Prioritization of District roads B for Rehabilitation/Upgrading based on Cost

S.N	Name of the Road	Total planned Length km	Length for Rehabilitation/Upgrading km	Rehabilitation/Upgrading Cost	Rehabilitation/Upgrading Cost/km	Co.efficient	Score(20)
1	Kewabesi-Bihibare-Buddachowk	21.98	21.98	67275000	3060737	0.05	1.07
2	Okharbote-Mangalbare	19.71	8.83	27927500	3162797	0.05	1.03
3	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	64427500	4280897	0.04	0.76
4	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	40885000	2843185	0.06	1.15
5	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	26500000	2409091	0.07	1.36
6	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	44780000	4486974	0.04	0.73
7	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	9.74	14610000	1500000	0.11	2.18
8	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	3000000	163577	1.00	20.00
9	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	10485000	1257194	0.13	2.60
10	Chichila-Devitar-Barahbise	22.05	7.05	13575000	1925532	0.08	1.70
11	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	12750000	2114428	0.08	1.55
12	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	9585000	1500000	0.11	2.18
13	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7.00	5.00	8500000	1700000	0.10	1.92
14	Chainpur-Siddakali temple	3.11	3.11	10857500	3491158	0.05	0.94
15	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	5070000	1500000	0.11	2.18
16	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.90	2.81	11565000	4115658	0.04	0.79
17	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15.00	2.53	795000	314229	0.52	10.41
18	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	1500000	1500000	0.11	2.18
19	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	2.84	1500000	528169	0.31	6.19
20	Dake-Matschepokhari-Chichila	9.00	4	6000000	1500000	0.11	2.18

Annex : 4.2.4
Scoring System for prioritisation of the District Road B for Rehabilitation/Upgrading

S.N	Name of Road	Total Planned Length km	Length of Road for Rehabilitation/Upgrading km	Parameter Used for the Prioritisation of Road Corridors and their corresponding Scores				
				Traffic volume (70)	Market /service centre (10)	Cost (20)	Total Score (100)	Rank
1	Kewabesi-Bihibare-Buddachowk	21.98	21.98	41.27	3.12	1.07	45.46	2
2	Okharbote-Mangalbare	19.71	8.83	15.17	3.15	1.03	19.36	12
3	Khandbari-Lebrang-Dake (Dhupu)	15.05	15.05	70.00	6.37	0.76	77.14	1
4	Mudhe Sanishcare-Churidanda-Madimulkharka-Mangalbare	29.38	14.38	30.14	2.33	1.15	33.63	5
5	Sibuwa (Syabun)-Phachyang-Nagi	16.00	11.00	9.91	0.79	1.36	12.06	18
6	Tumlingtar-Chewabesi-Heluwabesi	17.98	9.98	39.05	3.91	0.73	43.69	3
7	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	9.74	7.28	2.02	2.18	11.48	19
8	Badareni-Maksuwa-Katahare-Okten-Barahbise	18.34	18.34	19.22	2.08	20.00	41.30	4
9	Piluwa Dovan-Hitisundhe-Kharang	8.34	8.34	12.95	1.61	2.60	17.16	13
10	Chichila-Devitar-Barahbise	22.05	7.05	23.27	2.21	1.70	27.17	8
11	Chainpur-Ratamate-Tikhedhunga	9.03	6.03	15.34	10.00	1.55	26.88	9
12	Okharbote (Madirambeni)-Dandakharka-Chhahare (Mawadin)	6.39	6.39	11.94	2.46	2.18	16.58	15
13	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7.00	5.00	17.60	7.26	1.92	26.78	10
14	Chainpur-Siddakali temple	3.11	3.11	21.24	7.26	0.94	29.44	7
15	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	3.38	17.20	0.63	2.18	20.01	11
16	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.90	2.81	7.87	7.26	0.79	15.92	17
17	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15.00	2.53	16.79	2.74	10.41	29.95	6
18	Arunthan-Angla-Tambebesi-Yaphu	21.00	1.00	7.49	0.79	2.18	10.46	20
19	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	2.84	9.10	1.29	6.19	16.59	14
20	Dake-Matschepokhari-Chichila	9.00	4	12.50	1.29	2.18	15.98	16
Total Length km		296.220	161.78					

Annex : 4.3.1

Scoring of proposed District Roads A based on Population per unit Cost

S.N	Road name	Total Planned Length km	length for new construction km	Population	Investment Cost	Population /cost in one lacks	co.efficient	Score (55)
				E	F	G		
A	B	C	D	E	F	G		
						= $(E/G)*100000$		
1	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	45000	47445000	95	0.25	13.91
2	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	25	11250	97500000	12	0.03	1.69
3	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	23750	37000000	64	0.17	9.41
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	21250	17500000	121	0.32	17.81
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	90	114750	315000000	36	0.10	5.34
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	75000	227500000	33	0.09	4.84
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	37500	257500000	15	0.04	2.14
8	Kitingdanda-Bihbare-Mulgoan (Kewa)-Leghuwa	16.70	4.8	45000	12000000	375	1.00	55.00

Annex : 4.3.2
Scoring of proposed District Roads A based on Cultivated Land

S.N	Road name	Total Planned Length	length for new construction	Cultivated land in ha	Cultivated land in ha/km	co.efficient	Score(15)
1	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	5340	309	0.39	5.90
2	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	25	2310	92	0.12	1.76
3	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	4500	375	0.48	7.16
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	3295	471	0.60	8.99
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	90	21000	233	0.30	4.46
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	11318	189	0.24	3.60
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	9750	115	0.15	2.19
8	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	4.8	3771	786	1.00	15.00

Annex : 4.3.3

Scoring of proposed District Roads A based on Population multiply by walk hou

S.N	Road name	Total Planned Length km	length for new construction km	Population* waking Hour	Pop.*Walking Hour/km	Co.efficient	Score(20)
1	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	84375	4886	0.21	4.17
2	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	25	22500	900	0.04	0.77
3	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	47500	3958	0.17	3.38
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	42500	6071	0.26	5.18
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	90	270000	3000	0.13	2.56
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	180000	3000	0.13	2.56
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	75000	882	0.04	0.75
8	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	4.8	112500	23438	1.00	20.00

Annex : 4.3.4

Scoring of proposed District Roads A based on Population effected by poor, Dalits and marginalized Janjatis/ethnic							
S.N	Road name	Total Planned Length km	length for new construction km	Population of dalit, poor, janazati of IZI	Population of dalit, poor, janazati of IZI /km	Co.efficient	Score(10)
1	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	17100	990	0.13	1.29
2	Khandbri-Dake-Barahbise-Phakuwa (Sabhapokhari)	48.83	25	2858	114	0.01	0.15
3	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	7675	640	0.08	0.83
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	7155	1022	0.13	1.33
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	90	44626.5	496	0.06	0.65
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	23916	399	0.05	0.52
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	13350	157	0.02	0.20
8	Kitingdanda-Bihibare-Mulgoan (Kewa) Leghuwa	16.70	4.8	36795	7666	1.00	10.00

Annex : 4.3.5
Scoring System for prioritisation of the proposed District Roads A for new construction

S.N	Road name	Total Planed Length km	length for new construction km	Parameter Used for the Priorisation of Road Corridors and their corresponding Scores					
				Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjatis/ethnic groups/communities (10)	Total Score (100)	Rank
1	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	13.91	5.90	4.17	1.29	25.28	3
2	Khandbri-Dake-Barabhise-Phakuwa (Sabhapokhari)	48.83	25	1.69	1.76	0.77	0.15	4.37	8
3	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	9.41	7.16	3.38	0.83	20.79	4
4	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	17.81	8.99	5.18	1.33	33.31	2
5	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.30	90	5.34	4.46	2.56	0.65	13.00	5
6	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	4.84	3.60	2.56	0.52	11.52	6
7	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	2.14	2.19	0.75	0.20	5.28	7
8	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.70	4.8	55.00	15.00	20.00	10.00	100.00	1

Annex : 4.3.6

Prioritized District Road A for Twenty Year DTPP for New Costruction

S.N	Road code	Road name	Total plan Length km	Length for new construction km	Parameter Used for the Priorisation of Road Corridors and their corresponding Scores					
					Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjatis/ethnic groups/communities	Total Score (100)	Priority Rank
1	09A008R	Kitingdanda-Bihibare-Mulgoan (Kewa)-Leghuwa	16.7	4.8	55.00	15.00	20.00	10.00	100.00	1
2	09A007R	Tute Deurali-Mangalbare Chauki-Gufapokhari	22.54	7	17.81	8.99	5.18	1.33	33.31	2
3	09A003R	Chainpur-Nundhaki-Gufapokhari	43.15	17.27	13.91	5.90	4.17	1.29	25.28	3
4	09A010R	Rammandir-Okharbote-Bagha-Nundhaki	30.26	12	9.41	7.16	3.38	0.83	20.79	4
5	09A006R	Manebhanjyang-Heluwabesi-Bumling-Budhabare-Chepchewa-Chheskang (Solukhumbu)	103.3	90	5.34	4.46	2.56	0.65	13.00	5
6	09A011R	Bumlingtar-Mangtewa-Yaphu-Makalu-Pathivara	60	60	4.84	3.60	2.56	0.52	11.52	6
7	09A09R	Tumlingtar-Lingling-Wana-Nagi-Tesre-Sabhapokhari	97.56	85	2.14	2.19	0.75	0.20	5.28	7
8	09A004R	Khandbri-Dake-Barabhise-Phakuwa (Sabhapokhari)	48.83	25	1.69	1.76	0.77	0.15	4.37	8
Total Length km			422.34	301.07						

Annex : 4.4.1
Scoring of proposed District Roads B based on Population per unit Cost

S.N	Road name	Total Planned Length km	length for new construction km	Population	Investment Cost	Population /cost in one lacks	co-efficient	Score
A	B	C	D	E	F	G		
1	Okharbote-Mangalbare	19.71	10.88	7500	30200000	25	0.23	12.49
2	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	15	6000	47500000	13	0.12	6.35
3	Sibuwa (Syabun)-Phachyang-Nagi	16	5.00	8500	17500000	49	0.44	24.42
4	Tumlingtar-Chewabesi-Heluwabesi	17.98	8	35000	32000000	109	1.00	55.00
5	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	7	4500	17500000	26	0.24	12.93
6	Chichila-Devitar-Barahbise	22.05	15	26000	55000000	47	0.43	23.77
7	Chainpur-Ratamate-Tikhedhunga	9.03	3.00	3000	10500000	29	0.26	14.37
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	2500	7000000	36	0.33	17.96
9	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	35000	65000000	54	0.49	27.08
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	3500	10815000	32	0.30	16.27
11	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15	12.47	5500	36175000	15	0.14	7.65
12	Arunthan-Angla-Tambebesi-Yaphu	21	20	43000	72500000	59	0.54	29.82
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	8500	28000000	30	0.28	15.27
14	Magtewa-Tamku-Sukrabare-Budhabare	15	15	12000	52500000	23	0.21	11.49
15	Pathivara-Pawakhola	25	25	7500	67500000	11	0.10	5.59
16	Dake-Matschepokhari-Chichila	9	5	3700	17500000	21	0.19	10.63

Annex : 4.4.2
Scoring of proposed District Roads B based on Cultivated Land

S.N	Road name	Total Planned Length	length for new construction	Cultivated land in ha	Cultivated land in ha/km	co.efficient	Score(15)
1	Okharbote-Mangalbare	19.71	10.88	4198	386	0.16	2.39
2	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	15	4000	267	0.11	1.65
3	Sibuwa (Syabun)-Phachyang-Nagi	16	5.00	6580	1316	0.54	8.17
4	Tumlingtar-Chewabesi-Heluwabesi	17.98	8	12000	1500	0.62	9.31
5	Bihibare (Jaljala)-Chungkhurung-Malbase-	16.74	7	4085	584	0.24	3.62
6	Chichila-Devitar-Barahbise	22.05	15	6763	451	0.19	2.80
7	Chainpur-Ratamate-Tikhedhunga	9.03	3.00	5159	1720	0.71	10.67
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	4835	2418	1.00	15.00
9	Bhyangkholo-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	5434	272	0.11	1.69
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	5511	1783	0.74	11.07
11	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15	12.47	4538	364	0.15	2.26
12	Arunthan-Angla-Tambebesi-Yaphu	21	20	12000	600	0.25	3.72
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	10697	1337	0.55	8.30
14	Magtewa-Tamku-Sukrabare-Budhabare	15	15	4500	300	0.12	1.86
15	Pathivara-Pawakhola	25	25	8500	340	0.14	2.11
16	Dake-Matschepokhari-Chichila	9	5	6276	1255	0.52	7.79

Annex : 4.4.3

Scoring of proposed District Roads B based on Population multiply by walk hour

S.N	Road name	Total Planned Length km	length for new construction km	Population* waking Hour	Pop.*Walking Hour/km	Co.efficient	Score(20)
1	Okharbote-Mangalbare	19.71	10.88	4000	368	0.03	0.62
2	Mudhe Sanishare-Churidanda-Madimulkharka-Mangalbare	29.38	15	14000	933	0.08	1.58
3	Sibuwa (Syabun)-Phachyang-Nag	16	5.00	4930	986	0.08	1.67
4	Tumlingtar-Chewabesi-Heluwabesi	17.98	8	94500	11813	1.00	20.00
5	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	7	9477	1354	0.11	2.29
6	Chichila-Devitar-Barahbise	22.05	15	23509	1567	0.13	2.65
7	Chainpur-Ratamate-Tikhedhungæ	9.03	3.00	10751	3584	0.30	6.07
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	6800	3400	0.29	5.76
9	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	30079	1504	0.13	2.55
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	3295	1066	0.09	1.81
11	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharkæ	15	12.47	9817	787	0.07	1.33
12	Arunthan-Angla-Tambebesi-Yaphu	21	20	65000	3250	0.28	5.50
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	14307	1788	0.15	3.03
14	Magtewa-Tamku-Sukrabare-Budhabare	15	15	13660	911	0.08	1.54
15	Pathivara-Pawakhola	25	25	8605	344	0.03	0.58
16	Dake-Matschepokhari-Chichila	9	5	3343	669	0.06	1.13

Annex : 4.4.4

Scoring of proposed District Roads B based on Population effected by poor, Dalits and marginalized Janjatis/ethnic groups/communities in							
S.N	Road name	Total Planned Length km	length for new construction km	Population of dalit, poor, janazati of IZI	Population of dalit, poor, janazati of IZI /km	Co-efficient	Score(10)
1	Okharbote-Mangalbare	19.71	10.88	7500	689	0.16	1.58
2	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	15	4000	267	0.06	0.61
3	Sibuwa (Syabun)-Phachyang-Nagi	16	5.00	8500	1700	0.39	3.89
4	Tumlingtar-Chewabesi-Heluwabes	17.98	8	35000	4375	1.00	10.00
5	Bhibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	7	4500	643	0.15	1.47
6	Chichila-Devitar-Barahbise	22.05	15	26000	1733	0.40	3.96
7	Chainpur-Ratamate-Tikhedhungæ	9.03	3.00	3500	1167	0.27	2.67
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	2500	1250	0.29	2.86
9	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	35000	1750	0.40	4.00
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	3500	1133	0.26	2.59
11	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15	12.47	5500	441	0.10	1.01
12	Arunthan-Angla-Tambebesi-Yaphu	21	20	43000	2150	0.49	4.91
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	8500	1063	0.24	2.43
14	Magtewa-Tamku-Sukrabare-Budhabare	15	15	12000	800	0.18	1.83
15	Pathivara-Pawakhola	25	25	25000	1000	0.23	2.29
16	Dake-Matschepokhari-Chichilæ	9	5	3700	740	0.17	1.69

Annex : 4.4.5
Agreegate Scoring of proposed District Roads B

S.N	Road name	Total Target Length km	length for new constructi on km	Parameter Used for the Priorisation of Road Corridors and their corresponding Scor					
				Population served per unit cost (55)	Cultivated land within zone of influence (15)	Population (20)	Link providing service to the areas inhabited by the poor, Dalits and marginalized Janjatis/ethnic groups/communities (10)	Total Score (100)	Rank
1	Okharbote-Mangalbare	19.71	10.88	12.49	2.39	0.62	1.58	17.08	12
2	Mudhe Sanischare-Churidanda-Madimulkharka-Mangalbare	29.38	15	6.35	1.65	1.58	0.61	10.20	16
3	Sibuwa (Syabun)-Phachyang-Nagi	16	5.00	24.42	8.17	1.67	3.89	38.15	4
4	Tumlingtar-Chewabesi-Heluwabesi	17.98	8	55.00	9.31	20.00	10.00	94.31	1
5	Bihibare (Jaljala)-Chungkhurung-Malbase-Chaunrikharka	16.74	7	12.93	3.62	2.29	1.47	20.31	11
6	Chichila-Devitar-Barabhise	22.05	15	23.77	2.80	2.65	3.96	33.18	7
7	Chainpur-Ratamate-Tikhedhunga	9.03	3.00	14.37	10.67	6.07	2.67	33.77	6
8	Arunthan (Chainpur)-Thaldanda-Khamling (Baneshwor)	7	2.00	17.96	15.00	5.76	2.86	41.57	3
9	Bhyangkhola-Harelo-Deurali (Diding)-Pakhuwa	23.38	20	27.08	1.69	2.55	4.00	35.31	5
10	Bhandarichowk (chainpur)-Chapabhuin-Kingring (Kharang)	5.9	3.09	16.27	11.07	1.81	2.59	31.73	8
11	Pokhari (Siddakali and Siddapokhari)-Pyankot-Chaurinkharka	15	12.47	7.65	2.26	1.33	1.01	12.24	14
12	Arunthan-Angla-Tambebesi-Yaphu	21	20	29.82	3.72	5.50	4.91	43.96	2
13	Lavinghill-Tallomalata-Thaldanda-Balaute (Matschepokhari)	10.84	8	15.27	8.30	3.03	2.43	29.02	9
14	Magtewa-Tamku-Sukrabare-Budhabare	15	15	11.49	1.86	1.54	1.83	16.73	13
15	Pathivara-Pawakhola	25	25	5.59	2.11	0.58	2.29	10.57	15
16	Dake-Matschepokhari-Chichila	9	5	10.63	7.79	1.13	1.69	21.24	10

Annex V
**Existing Trail Bridge and Allocated Budget for Trail
Bridge**

Annex: 5.2

Prospective Bridge (Major Maintenance)

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Bridge		Priliminary Cost est NRs.	Total		Marginalized Population					
		Right Bank	Left Bank			Type	Span		HH	Population	Dalit	Janajati	Minorities	other poor	Total No	%
1	9502318064	Mawadin	Mawadin	Sikuwa khola	Sikuwa	Suspended	35	88,200	600	4,000	0	2750	0	600	3,350	84
2	95027180612	Madi Mulkhara	Madi Mulkhara	Phudung	Kerabari Phedi	Suspended	45	132,300	590	3,360	120	1620	0	666	2,406	72
3	9500418065	Sishubakhola	Bala	Sisuwa khola	Sisuwatar	Suspended	45	170,100	117	702	0	702	0	0	702	100
4	95014180614	Pawakhola	Pawakhola	Irkhuwa khola	Sirutar	Suspended	48	213,696	340	2,090	92	1998	0	0	2,090	100
5	9502418064	Noondhaki	Noondhaki	Chhage khola	Jamuna Phedi	Suspended	35	80,850	103	950	15	700	0	130	845	89
6	9501018063	Yafu	Yafu	Pikhuwa khola	Pikhuwa	Suspended	38	175,560	133	798	12	786	0	0	798	100
7	9500718065	Makalu	Pathibhara	Kasuwa khola	Kasuwa	Suspended	75	283,500	35	210	6	204	0	0	210	100
8	9501018064	Yafu	Makalu	Aapsuwa khola	Aapsuwa	Suspended	85	321,300	100	600	30	570	0	0	600	100
9	95014180617	Pawakhola	Pawakhola	Lekhsuwa khola	Lekhsuwa	Suspended	57	167,580	74	443	0	443	0	0	443	100
10	95014180615	Pawakhola	Pawakhola	Amsuwa khola	Khani Phedi	Suspended	38	111,720	120	650	20	620	0	0	640	98
11	9500918065	Pathibhara	Pathibhara	Arun	Sirutar	Suspended	70	294,000	65	390	36	354	0	0	390	100

Annex: 5.3 Prospective Bridge

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge		Priliminary Cost est NRs.	Total		Marginalized Population					
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span		HH	Populati on	Dalit	Janajati	Minorities	other poor	Total No	%
1	09500418064	Sishubakhola	Bala	Sisuw khola	Budhabare bazar	6.96	1	Suspended	95	1,577,000	850	6,750	275	1,700	0	4,750	6,725	100
2	09500418064	Sitalpati	Khadbari Municipality	Chewa khola	Chewabesi	9.38	2	Suspended	30	378,076	800	4,800	700	2,350	0	1,750	4,800	100
3	09501918062	Jajjala	Shavapkhori	Chewa khola	Bokale	4	2	Suspended	72	892,800	850	4,250	375	3,475	0	400	4,250	100
4	09501218061	Hatiya	Hatiya	Arun nadi	Dasem	12	11	Suspended	80	1,856,000	211	1,266	6	1,260	0	0	1,266	100
5	09300118061	Keurepani	Khadbari Municipality	Arun	Maghitar	8.8	1	Suspended	148	3,312,288	950	5,750	300	2,900	0	2,100	5,300	92
6	09501618061	Dhupu	Shyaboon	Sabha khola	Sabha khola	2.5	3	Suspended	75	1,485,000	1,000	6,000	360	4,740	0	500	5,600	93
7	09501918061	Jajjala	Chainpur	Chewa khola	Satibante	2.48	1.5	Suspended	50	870,000	850	5,150	525	3,050	0	1,025	4,600	89
8	09500318062	Sishubakhola	Mangtewa	Keksuwa khola	Keksuwa Bagar	6.98	1.5	Suspended	55	649,000	650	4,020	350	1,750	0	1,700	3,800	95
9	09500418062	Sishubakhola	Sishubankhola	Sishubakhola	Tagada	5	2	Suspended	75	930,000	430	2,150	0	350	0	1,650	2,000	93
10	09500418063	Maglewa	Sishubankhori	Newa khola	Tengchungtar	3.25	2	Suspended	56	1,010,100	750	4,000	0	1,750	0	2,250	4,000	100
11	09500118062	Khadbari Municipality	Khadbari Municipality	Betine khola	Betini	3	1	Suspended	37	409,920	875	6,300	850	2,675	0	1,875	5,400	86
12	09503018062	Madi Murkharka	Tamaphok	Katike khola	Katike Dovan	4	1	Suspended	9	1,008,000	940	5,400	96	760	0	3,500	4,356	81
13	095014180621	Pawakhola	Pawakhola	Basuwa khola	Baidhan Phedi	7	2	Suspended	38	691,600	370	2,220	99	1,122	0	500	1,721	78
14	09502718066	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	3	2	Suspended	30	372,000	525	3,150	186	1,854	0	1,110	3,150	100
15	09502718061	Madi Murkharka	Madi Murkharka	Maya khola	Kabhere Phedi	3.4	1	Suspended	45	504,000	450	2,700	210	1,500	0	990	2,700	100
16	09501618063	Dhupu	Shavapkhori	Sava khola	Kholrrang sansari dan	1.6	3	Suspended	72	979,200	650	3,900	313	2,297	0	1,290	3,900	100
17	09502718062	Madi Murkharka	Madi Murkharka	Maya khola	Gursha	2.92	2	Suspended	34	421,600	469	2,814	150	990	0	1,674	2,814	100
18	09500218062	Sitalpati	Khadbari Municipality	Chewa khola	Dhobhanetar	1.89	1	Suspended	39	433,664	750	4,780	1,222	1,278	0	1,380	3,880	81
19	09502718067	Madi Murkharka	Madi Murkharka	Kavre Phudung khola	Kavre	6	1	Suspended	55	913,000	290	1,800	150	620	0	670	1,440	80
20	09502718065	Madi Murkharka	Madi Murkharka	Sano Arorang khola	Kanpur	4	1	Truss	23	841,800	240	1,440	0	1,110	0	330	1,440	100
21	09502718064	Madi Murkharka	Madi Murkharka	Thulo Arorang khola	Kanpur	4	1	Suspended	47	526,400	240	1,440	0	1,110	0	330	1,440	100
22	09502118065	Kharang	Aakhibhuie	Piluwa khola	Hurthrum	3	1.5	Suspended	110	1,298,000	495	2,970	533	2,040	0	105	2,678	90
23	09500618066	Bala	Bala	Pikuwa khola	Kuwadak	5	2	Suspended	72	892,800	335	1,920	30	890	0	340	1,260	66
24	09502118063	Mamling	Aakhibhuie	Thute khola	Achambu	3	2	Suspended	75	885,000	854	5,005	587	1,710	0	2,690	4,987	100
25	09500918061	Noom	Pathibhara	Arun Nadi	Arun	8	5	Suspended	120	1,920,000	75	450	60	290	0	100	450	100
26	09502218065	Shyaboon	Shyaboon	Rithe Manglabare	Rithe Manglabare	3	1	Suspended	65	728,000	780	3,650	260	1,650	0	1,600	3,510	96
27	09300118063	Khadbari Municipality	Dhupu	Pangtha khola	Barhaniyang	2	0.5	Suspended	30	318,000	450	2,250	130	1,500	0	375	2,005	89

Annex: 5.3 Prospective Bridge

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge		Prilimary Cost est NRs.	Total		Marginalized Population					
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span		HH	Populati on	Dalit	Janajati	Minorities	other poor	Total No	%
28	095027180611	Madi Murkharka	Madi Murkharka	Maya khola	Dhade goan	3.79	1	Suspended	27	969,900	275	2,790	150	690	0	1,560	2,400	86
29	09501418061	Pawakhola	Pawakhola	Dhupu khola	Dhupi	28	6	Suspended	40	688,000	25	150	0	150	0	0	150	100
30	09502218061	Shyaboon	Shyaboon	Kusuwa khola	Mahabir	3	3	Suspended	28	1,114,400	219	1,314	114	828	0	372	1,314	100
31	09500518065	Kulung	Tamphu	Sankhuwa khola	Bumling	3.4	4	Suspended	106	1,568,800	143	858	78	408	0	372	858	100
32	095000818065	Noom	Makalu	Arun nadi	Makalu Arun	1.76	4	Suspended	75	1,110,000	275	1,650	60	1,590	0	0	1,650	100
33	09501218069	Hatiya	Hatiya	Chhangarak khola	Chhangarak	7	3.2	Suspended	35	484,400	270	1,620	8	1,612	0	0	1,620	100
34	09502118063	Sishubakhola	Bala	Sisuw khola	Dewa Dovan	3.4	4	Suspended	95	1,406,000	138	828	0	828	0	0	828	100
35	09500618064	Pawakhola	Pawakhola	Ikuwa	Lingkhim	2	2	Suspended	65	806,000	215	1,500	7	1,493	0	0	1,500	100
36	09500718063	Makalu	Makalu	Ipsuwa khola	Ipsuwa	2	5	Suspended	74	1,187,200	210	1,260	48	1,212	0	0	1,260	100
37	09502418021	Noondhaki	Noondhki	Chang Khola	Sijongma	6.2	3	Suspended	60	816,000	125	799	21	736	0	42	799	100
38	09502318062	Mawadin	Mawadin	Lakhuwa Khola	Mahadevthan	2.2	0.5	Suspended	44	466,400	365	2,190	0	2,040	0	967	3,007	137
39	09500618063	Sishubakhola	Bala	Sishubakhola	Bakhamlnum	3.2	5	Suspended	60	960,000	123	738	12	726	0	0	738	100
40	095014180612	Pawakhola	Pawakhola	Ikuwa khola	Nebhare	4.36	3	Suspended	55	748,000	122	814	0	789	0	25	814	100
41	09502318063	Mawadin	Mawadin	Lakhuwa Khola	Manepari	2.67	0.5	Suspended	52	551,200	265	1,590	20	650	0	390	1,060	67
42	09500318061	Mangtewa	Sitalpati	Arun	Simale Phedi	3.74	1	Suspended	130	2,912,000	300	2,150	220	750	0	900	1,870	87
43	0950718061	Noom	Makalu	Arun nadi	Biskam	1	4	Suspended	90	1,332,000	350	2,100	60	2,040	0	0	2,100	100
44	095014180620	Pawakhola	Pawakhola	Amkhuwa Khola	Haitar	10	2	Suspended	40	496,000	110	660	55	505	0	0	560	85
45	09500918064	Pathibhara	Pawakhola	Arun	Savatar	2	2	Suspended	120	2,184,000	175	1,050	76	885	0	0	961	92
46	09502618064	Siddhakali	Noondhki	Tupuwa Khola	Tupuwa	3.54	1	Truss	28	1,024,800	162	1,090	110	390	0	360	860	79
47	09501818067	Bharabishebazar	Shavapkhori	Sava khola	Barabise	1	0.5	Suspended	40	632,000	400	2,000	350	1,400	0	156	1,906	95
48	09501718061	Mastepokhari	Mastepokhari	Arrong Khola	Tilbari	1.7	4	Suspended	55	1,177,000	541	3,246	264	2,718	0	264	3,246	100
49	09501518063	Bharabishebazar	Bharabishebazar	Yaksawa Khola	Yaksawa	1.67	6	Suspended	78	1,341,600	216	1,296	37	1,175	0	84	1,296	100
50	09500318063	Mangtewa	Mangtewa	Baguwa khola	Yangdev	2.98	1.5	Suspended	47	554,600	389	1,830	30	740	0	950	1,720	94
51	09500818061	Pathibhara	Noom	Arun nadi	Hembiya	3.41	5	Suspended	120	1,920,000	85	510	72	438	0	0	510	100
52	09502518062	Siddhapokhari	Siddhapokhari	Khekuwa khola	Sanske dovan	2	0.5	Suspended	70	742,000	250	1,450	110	700	0	600	1,410	97
53	09501118063	Chepuwa	Chepuwa	Hokchu khola	Hokuchu	2.8	4	Suspended	70	1,036,000	253	1,771	9	1,762	0	0	1,771	100
54	09502318063	Mawadin	Mawadin	Sirkhuwa khola	Fating Puchhar	2.2	0.5	Suspended	45	477,000	255	1,530	117	1,195	0	79	1,391	91
55	09501018062	Yafu	Yafu	Yangden khola	Yangden	3.56	3	Suspended	68	924,800	385	1,790	175	810	0	660	1,645	92
56	09502718069	Madi Murkharka	Madi Murkharka	Oirang khola	Kanpur	4	0.5	Suspended	55	583,000	300	1,800	0	600	0	666	1,266	70
57	095014180618	Pawakhola	Pawakhola	Irkuwa khola	Sirutar	2	2	Suspended	42	520,800	115	800	7	793	0	0	800	100
58	09500418061	Sishubakhola	Sishubakhola	Kaiku khola	Kaiku	4	4	Suspended	60	888,000	116	696	0	696	0	0	696	100
59	09501518061	Bharabishebazar	Shavapkhori	Sabha khola	Sabha khola	3	4	Suspended	72	1,065,600	75	450	0	414	0	36	450	100

Annex: 5.3 Prospective Bridge

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge		Primary Cost est NRs.	Total		Marginalized Population					
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span		HH	Population	Dalit	Janajati	Minorities	other poor	Total No	%
60	095014180616	Pawakhola	Pawakhola	Khangwa khola	Khangwa	2.3	3	Suspended	25	995,000	187	1,165	0	1,165	0	0	1,165	100
61	09501718063	Masteypokhari	Masteypokhari	Dhanggre khola	Dhanggre	2	4	Suspended	30	444,000	260	1,560	96	1,284	0	180	1,560	100
62	09500718064	Yafu	Makalu	Aapsuwa khola	Aapsuwa	2.7	5	Suspended	56	896,000	108	648	6	642	0	0	648	100
63	09502418062	Noondhaki	Noondhki	Thanguwa khola	Bhir Goan	2.5	1	Suspended	65	728,000	190	1,215	9	1,156	0	27	1,192	98
64	09500618065	Bala	Bala	Kali khola	Bedhi kharka	2	2.5	Suspended	40	520,000	340	1,500	185	800	0	510	1,495	100
65	09500618062	Bala	Tamphu	Sankhuwa khola	Sisuwatar	1.34	4	Suspended	40	592,000	148	888	0	888	0	0	888	100
66	09502118062	Aakhibhuie	Aakhibhuie	Muluwa khola	Mulgoun	6	1	Suspended	81	901,600	290	1,450	90	700	0	250	1,040	72
67	095002218064	Shyaboon	Shyaboon	Kusuwa khola	Kaijale	1.5	0.5	Suspended	70	742,000	205	1,235	28	1,151	0	0	1,179	95
68	09500518063	Bala	Tamphu	Sankhuwa khola	Ibhang khola	2.85	6	Suspended	38	653,600	133	798	12	786	0	0	798	100
69	09501818061	Shavapkhari	Shavapkhori	Chinde khola	Chinde khola	2	5	Suspended	39	624,000	122	732	6	588	0	24	618	84
70	09501518061	Bharabishebazar	Bharabishebazar	Thanguwa khola	Thaguwa khola	3	4	Suspended	36	532,800	93	558	0	558	0	0	558	100
71	09501518065	Bharabishebazar	Shavapkhori	Sava khola	Saunetar	1.4	1	Suspended	60	672,000	160	800	50	450	0	250	750	94
72	09501618064	Dhupu	Dhupu	Dhupu khola	Dhupu Sera	2.3	1	Truss	13	475,800	300	1,500	70	500	0	750	1,320	88
73	09501118064	Chepuwa	Chepuwa	Arun	Humsur Phedi	2	4	Suspended	118	1,746,400	77	509	0	509	0	0	509	100
74	09503018061	Madi Murkharka	Tamaphok	Maya khola	Katike	1.77	0.5	Suspended	88	932,800	630	3,870	178	1,950	0	1,014	3,142	81
75	09502218062	Dhupu	Shyaboon	Sava khola	Banduke Dovan	1	0.5	Suspended	65	1,027,000	650	3,250	85	2,000	0	600	2,685	83
76	09502518061	Siddhapokhari	Shavapkhori	Sewa khola	Haitar Kharka	3	0.5	Suspended	42	445,200	90	590	0	350	0	240	590	100
77	09501818062	Shavapkhari	Shavapkhori	Majuwa khola	Majuwa	3.5	5	Suspended	25	400,000	83	498	0	456	0	42	498	100
78	09501218067	Hatiya	Hatiya	Riju khola	Bakhim	2	3.5	Suspended	40	568,000	270	1,620	8	1,612	0	0	1,620	100
79	09502518063	Siddhapokhari	Siddhapokhari	Jhutre khola	Machhebung	2.17	1	Truss	23	841,800	125	750	54	616	0	35	705	94
80	09501518064	Bharabishebazar	Bharabishebazar	Pikuwa khola	Pikhuwa	1.25	1	Suspended	24	398,400	240	1,140	40	861	0	114	1,015	89
81	09500918063	Pathibhara	Pawakhola	Arun Nadi	Samatar	4.7	6	Suspended	125	4,300,000	88	548	60	488	0	0	548	100
82	09501918063	Jajjala	Siddhapokhari	Hewa khola	Oringa	2	0.2	Suspended	90	921,600	125	750	40	710	0	0	750	100
83	095027180610	Madi Murkharka	Madi Murkharka	Mahavir khola	Kanpur	6	0.5	Suspended	45	477,000	110	550	0	233	0	200	433	79
84	09501318062	Hatiya	Kimathanka	Chokang	Chokang	1	4	Suspended	55	814,000	470	2,880	10	2,862	0	0	2,872	100
85	09501418063	Pathibhara	Pawakhola	Arun Nade	Haitar	6	6	Suspended	125	4,300,000	65	390	30	360	0	0	390	100
86	09502418064	Noondhaki	Mawadin	Yawara khola	Yawara	3	1	Suspended	130	2,912,000	525	3,030	170	765	0	1,910	2,845	94
87	09502218063	Shyaboon	Shyaboon	Kusuwa khola	Malbanse	1.5	0.5	Suspended	65	689,000	130	780	128	549	0	35	712	91
88	09501218062	Hatiya	Hatiya	Huksang	Hatiya	2.9	4	Truss	15	621,000	140	849	11	898	0	0	909	107
89	09501218063	Hatiya	Hatiya	Hangdak	Chembu	2	3.5	Truss	27	1,096,200	160	1,260	8	1,237	0	0	1,245	99
90	09501218068	Hatiya	Hatiya	Tiju khola	Jamorang	1.5	3.5	Suspended	35	497,000	270	1,620	8	1,612	0	0	1,620	100
91	095012180610	Hatiya	Hatiya	Chunam	Talam	1.5	3.5	Suspended	45	639,000	270	1,620	8	1,612	0	0	1,620	100

Annex: 5.3 Prospective Bridge

Rank	Bridge Number	VDC/Municipality		River Name	Place Name	Distance		Bridge		Priliminary Cost est NRs.	Total		Marginalized Population					
		Right Bank	Left Bank			Gained (hrs)	Roadhead (day)	Type	Span		HH	Populati on	Dalit	Janajati	Minorities	other poor	Total No	%
92	095014180619	Pawakhola	Pawakhola	Pewa khola	Deurali	3.12	2	Suspended	40	496,000	73	451	0	454	0	0	454	101
93	09500818063	Noom	Noom	Tunguwa khola	Tungguwa	1.4	3	Truss	12	477,600	70	420	48	372	0	0	420	100
94	09501418067	Pawakhola	Pawakhola	Amsuwa khola	Amsuwa	1.3	6	Suspended	34	584,800	95	570	30	540	0	0	570	100
95	09501718062	Masteypokhari	Masteypokhari	Khamalbote khola	Joubari	7.9	4	Suspended	24	347,800	22	132	78	42	0	12	132	100
96	09501118061	Chepuwa	Kimathanka	Chokang	Chokang	1	13	Truss	30	1674000	82	492	0	492	0	0	492	100
97	09501218064	Hatiya	Hatiya	Sangu	Dangek	1	3.5	Truss	27	1,096,200	325	1,950	10	1,940	0	0	1950	100
98	09501518066	Bharabishebazar	Masteypokhari	Langkhuwa khola	Langkhuwa khola	1	0.5	Suspended	50	530,000	165	915	97	595	0	80	772	84
99	09500518064	Tamphu	Tamphu	Alubha khola	Alubha khola	2	6	Truss	25	1,115,000	119	700	0	700	0	0	700	100
100	09501618065	Dhupu	Shavapkhori	Sava khola	Dhupu Sera	1.5	1	Suspended	55	913,000	200	1,000	40	450	0	350	840	84
101	095000518061	Tamphu	Tamphu	Aalubha khola	Aalubha Dovan	2	5	Suspended	45	720,000	78	446	0	446	0	0	446	100
102	09501418061	Pathibhara	Pathibhara	Arun Nadi	Sirutar	4	6	Suspended	130	4,472,000	60	360	24	336	0	0	360	100
103	09500818062	Noom	Noom	Induwa khola	Induwa	2	4	Suspended	40	592,000	45	270	6	264	0	0	270	100
104	095014180613	Pawakhola	Pawakhola	Leksuwa khola	Limbutar	1	2	Suspended	60	744,000	74	443	0	443	0	0	443	100
105	09501418065	Pawakhola	Pawakhola	Kangduwa khola	Kangduwa	2.57	6	Truss	32	1,427,200	31	186	0	186	0	0	186	100
106	09501818065	Shavapkhari	Shavapkhori	Sang khola	Chauki Goan	2.18	1	Truss	30	1,098,000	110	550	20	220	0	200	440	80
107	09501318061	Kimathanka	Kimathanka	Dhungkapa khola	Dhupu	1	13	Truss	15	837,000	82	492	0	492	0	0	492	100
108	09501418062	Pawakhola	Pawakhola	Baswa khola	Baswa	0.88	5	Suspended	45	720,000	90	540	6	534	0	0	540	100
109	09502718063	Madi Murkharka	Madi Murkharka	Waling khola	Phungland	2	1.5	Suspended	41	483,800	47	282	12	174	0	96	282	100
110	09501618062	Dhupu	Dhupu	Dhupu khola	Dhupu	1	3	Truss	30	1,194,000	185	1,110	96	354	0	660	1110	100
111	09500818064	Noom	Noom	Rato khola	Rato khola	1.35	3	Truss	32	1,273,600	39	234	0	234	0	0	234	100
112	09501118065	Chepuwa	Kimathanka	Chhang khola	Chhokang	1	4	Suspended	62	917,600	95	665	0	665	0	0	665	100
113	09502418065	Siddhakali	Noondhki	Tupuwa Khola	Tupuwa Malbanse	1	1	Truss	28	1,024,800	162	990	100	340	0	360	800	81
114	09501118062	Chepuwa	Chepuwa	Gatte khola	Chepuwa	1	4	Suspended	45	963,000	175	390	0	850	0	0	850	218
115	09501218066	Hatiya	Hatiya	Logoma	Hatiya	1	5	Truss	25	1,075,000	65	690	8	382	0	0	390	57
116	09501218065	Hatiya	Hatiya	Gatte khola	Hangdengma	1	3.5	Truss	25	1,015,000	105	108	8	682	0	0	690	639
117	095014180610	Pawakhola	Pawakhola	Kali khola	Kali khola	4.32	6	Suspension	35	1,120,000	18	336	0	108	0	0	108	32
118	09500518062	Tamphu	Tamphu	Chinkhuwa khola	Chingkhuwa	1.3	5	Truss	26	1,118,000	56	336	0	336	0	0	336	100

Annex: 5.4

Projected Financial Plan for Trail Bridges

NRs.

Year	Routine Maintenance		Major Maintenance Bridges		New Construction Bridges		Total Budget NRs
	Number of Bridges	Total budget in NRs.	Number of Bridges	Total budget in NRs.	Number of Bridges	Total budget in NRs.	
2010/11	95	285,000.00	1	800,000.00	4	6,375,000.0	7,460,000.00
2011/12	101	303,000.00	1	800,000.00	6	9,562,500.0	10,665,500.00
2012/13	108	324,000.00	1	800,000.00	7	11,156,250.0	12,280,250.00
2013/14	115	345,000.00	1	800,000.00	7	11,156,250.0	12,301,250.00
2014/15	122	366,000.00	1	800,000.00	7	11,156,250.0	12,322,250.00
Total	541	1,623,000.00	5	4,000,000.0	31	49,406,250.0	55,029,250.00

Annex: 5.5
Projected Financial Plan for Trail Bridges
NRs.

Year	Year-Wise Target		
	Routine Maintenance (No.of Bridge)	Major Maintenance (No.of Bridge)	New Construction (No.of Bridge)
067/68	95	1	4
068/69	101	1	6
069/70	108	1	7
070/71	115	1	7
071/72	122	1	7
Total	541	5	31

**ANNEX VI
PHOTOGRAPHS**

PHOTOGRAPHS



Photo 1: Khadbari Bazaar



Photo 2: Chainpur Bazaar



Photo 3: District Road



Photo 4: Field Team Using GPS



Photo 5: DTICC Meeting



Photo 6: RA in Market Survey

ANNEX VII
Meeting Minutes