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District Transport Master Plan (DTMP)

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MAIN REPORT

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Agricultural Roads (DOLIDAR)

District Development Committee,

Kavrepalanchok

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ice of District Development Committee Kavrepalanchowk

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FOREWORD

It is my pleasure to introduce this District Transport Master Plan (DTMP) of Kavreplanchowk district. I believe that this document will be helpful in backstopping to Rural Transport Infrastructure Sector 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. Considering these aspects, DDC Kavreplanchowk has prepared the DTMP by focusing most of the available resources into upgrading and maintenance of the existing road networks. It is expected that this DTMP will be helpful in lobbying and facilitating the donor agencies through central government generating resources required through basket fund approach. Furthermore, this document will be supportive in avoiding pervasive duplication approach in resources allocation under the rural road network development of Kavreplanchowk District.

I would like to thank, Chief District Engineer, Mr. Krishna Lal Piya, Engineer Mr.Achyut Adhikari and other DDC and DTO staffs who directly and indirectly supported in the process of preparing this document.

I would, like to express my gratitude to SIDeF team - Mr. Hare Ram Shrestha, Project Director, Mr. Dikendra Katwal, Team Leader/Engineer, Mr. Ankit Shrestha, Engineer for their field work and continuous dedication, in bringing this DTMP to final stage.

My special thank goes to all the representatives of political parties and other DRCC members who played central role in providing constructive and valuable supports in preparing this document.

Any innovative and constructive suggestions regarding this document will be highly appreciated.

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The consultant has prepared this report after extensive documentary consultation/ field work, road inventory study and interaction with stakeholders of the district.

We would like to extend our heartfelt gratitude to the RTI SECTOR Maintenance Pilot for entrusting us to carry out this task and extend our thanks to all the team of RTI sector Maintenance for the cooperation and guidance in accomplishing the work.

SIDeF would like to express our gratitude to Mr. Govinda Bahadur Karkee, Local Development Officer; Mr. Krishna Lal Piya, Chief DTO, Mr.Achyut Prasad Adhikari, Engineer, and all the DDC and DTO staffs for their valuable suggestions and co-operation for the preparation of this report.

We also extend our sincere thanks to the representatives of political parties for their active and valuable participation in the process of DTMP preparation. We are grateful to all the local people and leaders who have rendered their valuable accompany to our team during execution of the works.

We thanks to our own team - Mr. Dikendra Katwal, Team Leader/Engineer, Mr. Ankit Shrestha, Engineer and Chandra B. Shrestha GIS expert and other support staffs who worked continuously to finalise the DTMP.

Executive Director
SIDeF

EXECUTIVE SUMMARY

Kavreplanchock district is one of the mountainous districts. The remote parts are lagging of proper transportation facilities. There is less development of the rural road condition. Dhulikhel municipality , district headquarter is the key growth centre , centralized all facilities available in the district level . There are three municipalities in the district namely Dhulikhel , Panuti and Banepa . The district lies between $27^{\circ} 20'$ to $27^{\circ} 45'$ North latitude and $85^{\circ} 24'$ to $85^{\circ} 49'$ East longitude in Mahabharata range . The elevation of the district is 300 meter to 3018 meters from the mean sea level . Most of the parts of the districts lies in the Mahabharata range and have steep slope . 52.5percent of land have step slope , 41.3 percent of land have low slope , 5.1 percent consists of plain . valley and 1.1 percent land is covered by garvel and rivers .The average temperature of the district varies from minimum 10C to maximum 31C . The average annual precipitation is 1582ml The major rivers of the kavreplanchock districts are Sunkoshi , Indrawati , Roshi , Bagmati .

The total population of the Kavreplanchock district is 368,165.00 as per the latest census . 25.9 percent of the land is used for the agriculture purpose and 28.2 percent of lad is forest .

The district inventory identified just over 1723.70 km of roads, including 153.97 km of strategic roads and 181.77 km of Urban roads. In coordination with the DTICC and DDC, 38 rural roads with a length of 681.60 km were identified as making up the district road core network (DRCN), and the remaining 708.10 km were classified as village roads. The existing DRCN roads link up 87 of the VDC headquarters. All of the DRCN roads are earthen fair-weather roads.

Road Class	Total length	Black Top	Gravel	Earthen
Strategic road network	152.23	139.00	13.23	-
Urban roads	181.77	53.31	54.55	73.91
District road core network	681.60	12.20	170.90	498.50
Village roads	708.10	11.10	22.80	674.20
Total	1,723.70	215.61	261.48	1,246.61

The estimated costs for conservation, improvement and new construction is 278,030, 2,252,500 and 1,127,520 respectively. While the total cost for the conservation for five years is 1,390,150

Improvement type	Requirement	Cost (NPR)
Bridges	69m	42,780,000
Slab culverts	65m	11,375,000
Causeways	239m	20,160,000
Hume pipes	82units	820,000
Masonry retaining walls	300m3	3,000,000
Gabion retaining walls	9945m3	29,835,000
Lined drains	537900m	806,850,000
Widening	0m	-
Rehabilitation	95.9km	76,720,000
Gravelling	498.5km	897,300,000
Blacktopping	63.8km	363,660,000
New construction	194.4km	1,127,520,000
Total		3,380,020,000

For 5-years planning the total budget estimated is NPR 939,345,000 of which 80% of the total road sector budget has to be taken for DRCN roads which come to be NPR 751,476,000 where as the total estimated cost of DRCN road is NPR 4,772,845,000. This clearly shows that budget allocation is not sufficient for all interventions. Hence, budget allocation is done based on the ranking priority as well as the priority that are envisaged from DDC authority to give high priority for improvement of DRCN of hilly remote area VDCs whatsoever the ranking result arrive at.

Since budget is not sufficient to allocate for all the inventions for DRCN roads as estimated, budget has been allocated to some realistic basis and worked out manually.

For 5-years DTMP, The estimated costs for conservation, improvement and new construction is NRS278,565,000NRS2,252,500 and NRS1,127,520 respectively. While the total cost for the conservation for five years is NRS1,392,825,000

After DTMP the status of the DRCN roads are somehow changed the fair weather road have decreased by 15% i.e. from 498.5km to 396.74 km. All- weather gravel road is now increased by 101.76 Km i.e. from 25% to 40%.

ABBREVIATIONS

DDC	District Development Committee
DOLIDAR	Department of Local Infrastructure Development and Agriculture Road
DOlR	Department of Road
DTICC	District Transport Infrastructure Coordination Committee
DTMP	District Transport Master Plan
DTPP	District Transport Perspective Plan
GIS	Geographical Information system
GPS	Global Positioning System
GON	Government of Nepal
LGCDP	Local Governance and Community Development Programme
MFALD	Ministry of Federal Affairs and Local Development
SWAp	Sector Wide Approach
VDC	Village Development Committee

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1. INTRODUCTION

Kavreplanchock district is one of the mountainous districts. The remote parts are lagging of proper transportation facilities. There is less development of the ruler road condition. Dhulikhel Municipality, district headquarter is the key growth centre, centralized all facilities available in the district level. There are three municipalities in the district namely Dhulikhel , Panuti and Banepa . The district lies between $27^{\circ} 20'$ to $27^{\circ} 45'$ North latitude and $85^{\circ} 24'$ to $85^{\circ} 49'$ East longitude in Mahabharata range. The elevation of the district is 300 meter to 3018 meters from the mean sea level. Most of the parts of the districts lies in the Mahabharata range and have steep slope. 52.5percent of land have steep slope, 41.3 percent of land have low slope, 5.1 percent consists of plain . Valley and 1.1 percent land is covered by garvel and rivers .The average temperature of the district varies from minimum 10C to maximum 31C. The average annual precipitation is 1582ml The major rivers of the kavreplanchock districts are Sunkoshi, Indrawati , Roshi , Bagmati . The total population of the Kavreplanchock district is 381937 as per the latest census. 25.9 percent of the land is used for the agriculture purpose and 28.2 percent of land is forest.

Figure 1 Location of the district



According to the National Census 2011, the total population of the district is 381937 comprising 182936 female (52.1%) and 182936 male (47.89%) residing in 80720 households. Kavreplanchock district has an average population density of around 3209.55 people per sq. km. The average family size is 4.73. Life expectancy of the people is 62.2 years. The average literacy rate is about 64% (52.80% female and 75.70% male are literate). Kavreplanchock district has a multi ethic composition with Magar, Tamang Majhi and other. The common language is Nepali (52.8%) followed by Magar (0.51%) Majhi(0.36) and Tamang(33.75) Newar(1.32%)and others (11.76%).

Mostly all of the VDC Headquarter is linked with the Roads. The district headquarter is linked with Arniko Highway. The district headquater is also linked by BP Highway 55 km road. Kavreplanchock district is located in the Bagmati zone in the Central Development Region of Nepal. It is surrounded by Ramechhap and Kavreplanchowk district in the east, Kathmandu, Bhaktapur and Lalitpur District in the west, Sindhuplanchock district in the north and Sindhuli and Makwanpur district in south. Also, the district consists of three main feeder roads Panchkhal to Planchock , Banepa to Panauti and Panchkhal to Melamchi . The are the main roads to provideaccess to the adjoining VDC's.

2. DISTRICT ROAD CORE NETWORK (DRCN)

This chapter gives an overview of the existing roads in Kavreplanchock District, distinguishing between strategic roads and rural roads. It goes on to identify those rural roads that make up the district road core network (DRCN) that will form the basis for this DTMP. The remaining rural roads are classified as village roads. The concept of DRCN is such that ,that particular road which will connect the VC headquarter by which all of the people from the VDC will be able to access the strategic road.

2.1 TOTAL ROAD NETWORK

Kavreplanchock district has an estimated road network of 1723.70 kilometers, including 153.23 kilometres of strategic roads managed by DOR and 1389.70 kilometers of rural roads managed by Kavreplanchock DDC and the VDCs. Most of the strategic roads and all of the rural roads have an earthen and gravel surface. A map of the total road network in Kavre district is shown in Figure at the end of this chapter.

Table 2.1.1 Total road length (km)

Road Class	Total length	Black Top	Gravel	Earthen
Strategic roads	152.23	139.00	13.23	-
Urban roads	181.77	53.31	54.55	73.91
Rural roads	1,389.70	23.30	193.70	1,172.70
Total	1,723.70	215.61	261.48	1,246.61

2.2 NATIONAL HIGHWAYS AND FEEDER ROADS

Kavreplanchock district has 7 Feeder Road totaling 59.23 km. There are mainly two highways in Kavreplanchock districts (BP Highway, Arniko Highway). All of the highways are blacktopped totaling 93 kilometers.

Table 2.2.1 National Highways and Feeder Roads (km)

Code	Description	Total length	Black Top	Gravel	Earthen
F029	Banepa - Khopasi	9.54	9.54		
F030	Panchkhal - Melamchi - Helembu	10.63	10.63		
F071	Panchkhal (ARM) - Planchowk Bhagawati	11.00	10.00	1.00	
F072	Gwarko - Panauti - DSRM(H06)	20.00	9.10	10.90	
F073	Bakhundol(ARM)-Bogatigaun(Ktm University Road)	2.00	2.00		
F096	Nagarkot - Saankhu	1.33		1.33	
F097	Amaldol - Nala - Banepa	4.73	4.73		
Total		59.23	46.00	13.23	0.00

2.3 DISTRICT ROAD CORE NETWORK

As part of the preparation of this DTMP, the District Road Core Network (DRCN) was identified together with the DTICC and DDC. This DRCN is the minimum network that allows all VDC headquarters to be connected with the strategic road network and the district headquarters, either directly or through other VDCs. In the selection of the DRCN roads, account was taken of the road conditions and the existing traffic levels. The identified DRCN roads were subsequently provided with road codes according to national standards.

The resulting District Road Core Network in Kavreplanchock district is shown in Figure 3 at the end of this chapter. The DRCN covers 87 VDCs out of 87 VDCs. The DRCN consists of 87 district roads with a total length of 681.80 km. The remaining 708.10 km of existing rural roads are not considered to be DRCN roads and are classified as village roads under the responsibility of the VDCs (see also section 2.3). All DRCN roads are currently earthen roads some are gravel and are considered fair-weather only.

Table 2.3.1 Total road length (km)

Road Class	Total length	Black Top	Gravel	Earthen
Strategic road network	153.97	139.00	13.23	-
Highways	93.00	93.00		
Feeder roads	59.23	46.00	13.23	
Urban roads	181.77	53.31	54.55	73.91
Dhulikhel Municipilaty Urban Road	30.90	13.50	17.40	
Banepa Municipality Urban Road	35.91	20.73	15.18	
Panauti Municipality Urban Road	114.96	19.08	21.97	73.91
District road core network	681.60	12.20	170.90	498.50
Village roads	708.10	11.10	22.80	674.20
Total	1,725.44	215.61	261.48	1,246.61

Table 2.3.2 District road core network (km)

Code	Description	Total length	Black Top	Gravel	Earthen	All weather	Fair weather
24DR001	Mane Dhovan - Ranikot - Surya Binayak	4.30	-	-	4.30	-	4.30
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	19.60	10.70	6.90	2.00	17.60	2.00
24DR003	Sanga - Aashapuri -Ryale	9.40	-	4.80	4.60	4.80	4.60
24DR004	Nala-Ghimire Gaun-Nagarkot	10.00	-	3.00	7.00	3.00	7.00
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti	7.30	0.40	6.90	-	7.30	-
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	38.90	-	18.40	20.50	18.40	20.50
24DR007	Kuntabesi-Nayagaun-Nagarkot	18.20	-	9.30	8.90	9.30	8.90
24DR008	Dhulikhel - Raviopi - Nagarkot	11.40	-	-	11.40	-	11.40
24DR009	Banepa - Raviopi- Panchkhal	14.50	-	10.00	4.50	10.00	4.50
24DR010	Panauti-Malpi-Kolati Bhumidanda	6.00	-	6.00	-	6.00	-
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	18.40	-	-	18.40	-	18.40
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour)- Nayagaun	13.20	-	-	13.20	-	13.20
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	7.50	-	-	7.50	-	7.50
24DR014	Khopasi-Kamidanda-Taaldhunga	59.10	-	8.90	50.20	8.90	50.20
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	7.10	-	6.80	0.30	6.80	0.30
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	7.00	-	-	7.00	-	7.00
24DR017	Milche Borang Danda-Taal Dhunga- Banakhu	29.10	-	-	29.10	-	29.10
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	12.10	0.10	-	12.00	0.10	12.00
24DR019	BP Highway - Sharda Batase - Inte	2.70	-	2.10	0.60	2.10	0.60
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	24.60	0.20	13.10	11.30	13.30	11.30
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)	24.50	-	-	24.50	-	24.50
24DR022	Katunje-Sipali-Budakhani-Banakhu	20.90	-	20.90	-	20.90	-
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	15.00	-	1.00	14.00	1.00	14.00
24DR024	Bhakunde-Pokhari Narayansthan-Mechhe	30.40	-	13.20	17.20	13.20	17.20
24DR025	Tiniple - Kalchhe- Bela (BP Highway)	9.90	-	-	9.90	-	9.90
24DR026	Tiniple-Baluwa-Bhedabhari	11.80		8.50	3.30	8.50	3.30
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	30.60	0.80	22.70	7.10	23.50	7.10
24DR028	Bohore Dovan-Aadha Bato -Sarsyunkharka (Danda Gaun)-Saramthali-Maure	19.10	-	-	19.10	-	19.10
24DR029	Palanchowk - Kharelthok - Koshi Dekha	10.00	-	5.00	5.00	5.00	5.00
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel-Dolalghat	20.00	-	-	20.00	-	20.00
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur	13.20	-	1.00	12.20	1.00	12.20
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari	30.20	-	1.40	28.80	1.40	28.80
24DR033	Dolalghat-Sallebhumlu-Chaubas-Lauredeurali-Nagregagarche	38.70	-	-	38.70	-	38.70
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	23.80	-	-	23.80	-	23.80
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	14.40	-	-	14.40	-	14.40

Code	Description	Total length	Black Top	Gravel	Earthen	All weather	Fair weather
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	15.50	-	1.00	14.50	1.00	14.50
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	20.60	-	-	20.60	-	20.60
24DR038	Dhadkharka - Majhifeda - Shailung	12.60	-	-	12.60	-	12.60
Total		681.60	12.20	170.90	498.50	183.10	498.50

2.4 VILLAGE ROADS

The 708.10 km of remaining roads that do not form part of the identified district road core network (DRCN) are classified as village roads and are under the responsibility of the 87 VDCs in Kavreplanchok district. These are roads of a lower importance that do not form the main link between the VDC headquarters and the district headquarters or strategic road network. Instead they provide additional access to other parts of the VDCs.

On average each 87 VDC will thus be responsible for 8.13 km of village roads. It is recommended that the VDCs organise maintenance workers to carry out the emergency and routine/recurrent maintenance of these roads to ensure they remain accessible. Any upgrading or new construction of village roads falls outside the scope of this DTMP and is the responsibility of the VDCs.

Funding for these roads will mainly come from the VDC grants. Some district funding will also be allocated to the village roads. However, this district funding will be mainly for maintenance, especially emergency maintenance and routine/recurrent maintenances keep the village roads open.

Figure 2 Total road inventory

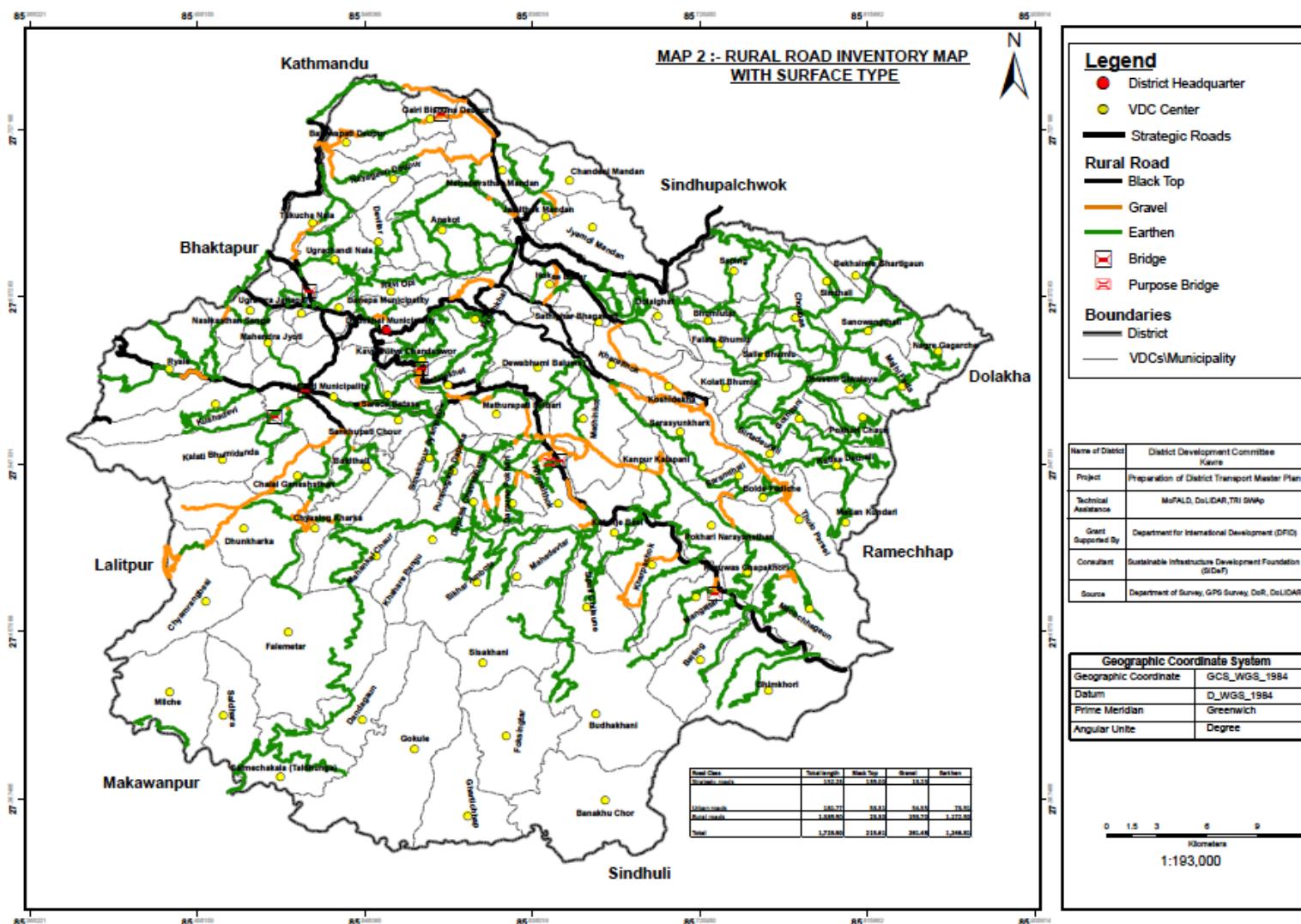
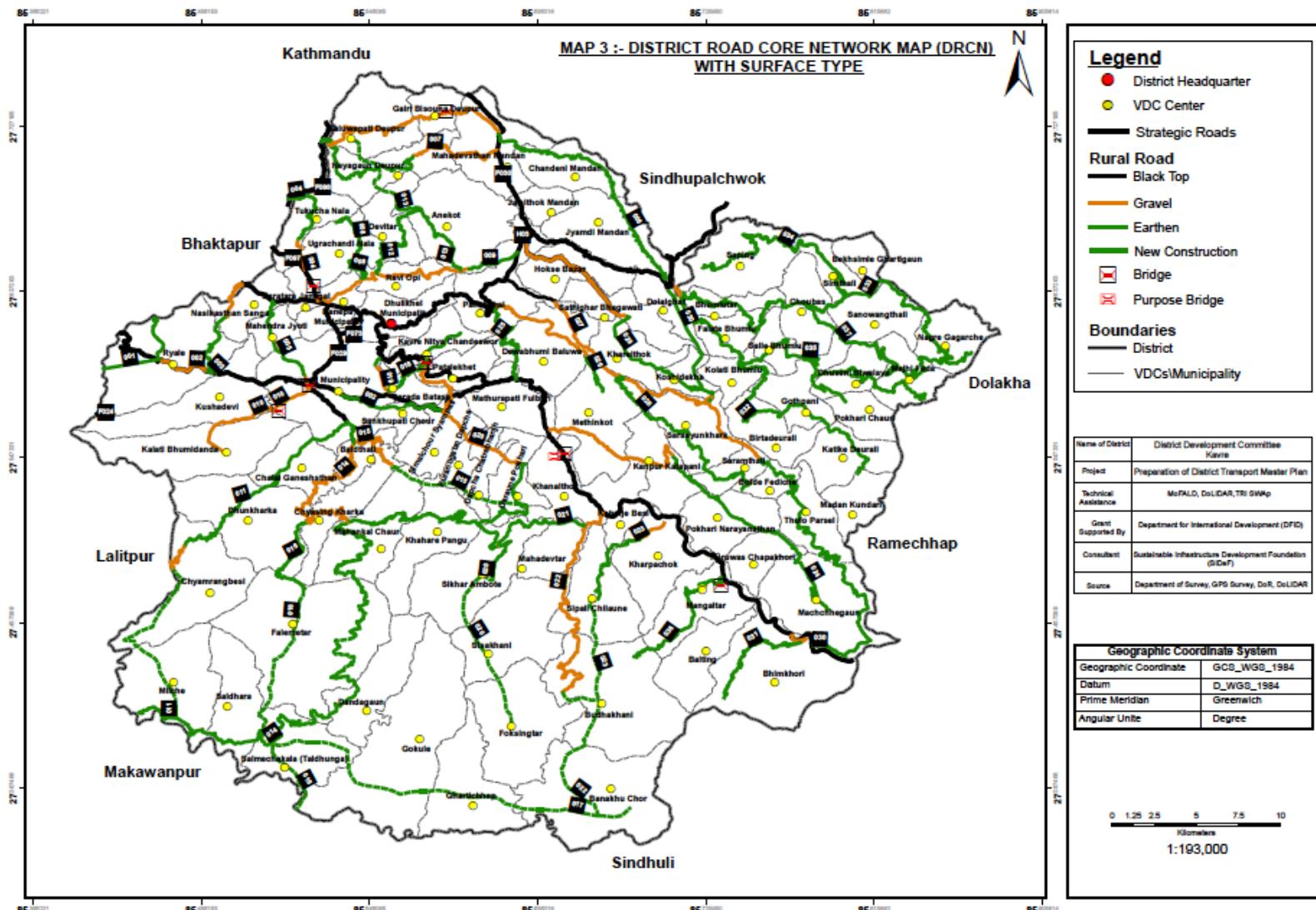


Figure 3 District Road Core Network (DRCN)



3. DISTRICT TRANSPORT PERSPECTIVE PLAN (DTPP)

The District Transport Perspective Plan is simply the list of all the identified interventions that are necessary to bring the roads to a maintainable all-weather standard and keep them there, as well as the construction of any new roads considered necessary to complete the DRCN. As such it is the summation of the interventions identified which are required to improve the road to the proper standard, as well as the conservation requirements to keep the roads at this standard.

3.1 CONSERVATION

Allocations to conservation has been done in order of priority: emergency maintenance – routine – recurrent (blacktop) – recurrent (gravel) – periodic (blacktop) – periodic maintenance (gravel). And reduction in allocation should be applied to the lowest priority type of conservation. The total requirements of the emergency maintenance is 83 Km, routine maintenance is 681.1Km recurrent maintenance is 0 Km and periodic maintenance is 661.1km in the Kavreplanchowk district.

Table 3.1.1 Conservation requirements

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance (km)	Periodic maintenance (km)
24DR001	2.00	4.30	-	4.30
24DR002	2.00	19.60	-	19.60
24DR003	3.00	9.40	-	9.40
24DR004	2.00	10.00	-	10.00
24DR005	1.00	7.30	-	7.30
24DR006	3.00	38.90	-	38.90
24DR007	3.00	18.20	-	18.20
24DR008	3.00	11.40	-	11.40
24DR009	3.00	14.50	-	14.50
24DR010	1.00	6.00	-	6.00
24DR011	3.00	18.40	-	18.40
24DR012	2.00	13.20	-	13.20
24DR013	2.00	7.50	-	7.50
24DR014	5.00	59.10	-	59.10
24DR015	1.00	7.10	-	7.10
24DR016	1.00	7.00	-	7.00
24DR017	3.00	29.10	-	29.10
24DR018	-	12.10	-	12.10
24DR019	-	2.70	-	2.70
24DR020	3.00	24.60	-	24.60
24DR021	3.00	24.50	-	24.50
24DR022	2.00	20.90	-	20.90
24DR023	2.00	15.00	-	15.00
24DR024	3.00	30.40	-	30.40
24DR025	1.00	9.90	-	9.90
24DR026	1.00	11.80	-	11.80
24DR027	3.00	30.60	-	30.60
24DR028	2.00	19.10	-	19.10
24DR029	1.00	10.00	-	10.00
24DR030	2.00	20.00	-	-
24DR031	2.00	13.20	-	13.20
24DR032	3.00	30.20	-	30.20
24DR033	3.00	38.70	-	38.70
24DR034	2.00	23.80	-	23.80

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance (km)	Periodic maintenance (km)
24DR035	2.00	14.40	-	14.40
24DR036	2.00	15.50	-	15.50
24DR037	3.00	20.60	-	20.60
24DR038	2.00	12.60	-	12.60
Total	83.00	681.60	-	661.60

3.2 IMPROVEMENT

Improvement of the DRCN road includes rehabilitation, gravelling, application of required cross drainage and protective structures, blacktopping and widening, which gives the DRCN roads in all weather standard.

Rehabilitation refers to existing road network where the roads are in poor condition, to require an improved road surface. Gravelling refer in existing earthen road to make them all weather standards. Similarly blacktopping refers in existing gravel road to improve its standard. Cross drainage structure (causeway, pipe culvert, slab culvert, bridge), protective structures (gabion wall, masonry wall, dry wall) are required to meet the all weather standard of the DRCN roads.

3.2.1 REHABILITATION

Rehabilitation and upgrading refer to the existing road network where the roads are found to be in poor condition, to require technical improvement (curves, gradients, etc) or to require an improved road surface. During field survey the rehabilitation works to be carried out is found to be 95.90 km out of the entire length of DRCN roads.

Table 3.2.1 Sections of the district road core network requiring rehabilitation

Code	Description	Total length (km)	Rehabilitation (km)
24DR001	Mane Dhovan - Ranikot - Surya Binayak	4.30	1.00
24DR003	Sanga - Aashapuri -Ryale	9.40	1.50
24DR004	Nala-Ghimire Gaun-Nagarkot	10.00	0.90
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	38.90	7.60
24DR007	Kuntabesi-Nayagaun-Nagarkot	18.20	6.70
24DR008	Dhulikhel - Raviopi - Nagarkot	11.40	3.00
24DR009	Banepa - Raviopi- Panchkhal	14.50	3.00
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	18.40	4.00
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour)- Nayagaun	13.20	0.90
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	7.00	5.00
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	24.60	4.00
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote-Mahadevtar-Sisakhani (Pota Dhovan)	24.50	14.30
24DR022	Katunje-Sipali-Budakhani-Banakhu	20.90	5.00
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	15.00	3.00
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	30.60	3.00
24DR028	Bohore Dovan-Aadha Bato -Sarsyunkharka (Danda Gaun)- Saramthali-Maure	19.10	6.00
24DR029	Palanchowk - Kharelthok - Koshi Dekha	10.00	5.00
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat	20.00	3.00
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur	13.20	2.50

Code	Description	Total length (km)	Rehabilitation (km)
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali - Madankudari	30.20	5.00
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	15.50	4.50
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	20.60	7.00
Total		681.60	95.90

3.2.2 GRAVELLING

To improve the surface condition of the existing earthen roads considered in DRCN, 498.50 km will have to be converted into gravel standard to maintain as all weather condition.

Table 3.2.2 Sections of the district road core network requiring gravelling

Code	Description	Total length (km)	Gravelling (km)
24DR001	Mane Dhovan - Ranikot - Surya Binayak	4.30	4.30
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	19.60	2.00
24DR003	Sanga - Aashapuri -Ryale	9.40	4.60
24DR004	Nala-Ghimire Gaun-Nagarkot	10.00	7.00
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti	7.30	-
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	38.90	20.50
24DR007	Kuntabesi-Nayaqaun-Nagarkot	18.20	8.90
24DR008	Dhulikhel - Raviopi - Nagarkot	11.40	11.40
24DR009	Banepa - Raviopi- Panchkhal	14.50	4.50
24DR010	Panauti-Malpi-Kolati Bhumidanda	6.00	-
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	18.40	18.40
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour)- Nayaqaun	13.20	13.20
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	7.50	7.50
24DR014	Khopasi-Kamidanda-Taaldhunga	59.10	50.20
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	7.10	0.30
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	7.00	7.00
24DR017	Milche Borang Danda-Taal Dhunga- Banakhu	29.10	29.10
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	12.10	12.00
24DR019	BP Highway - Sharda Batase - Inte	2.70	0.60
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	24.60	11.30
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)	24.50	24.50
24DR022	Katunje-Sipali-Budakhani-Banakhu	20.90	-
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	15.00	14.00
24DR024	Bhakunde-Pokhari Narayansthan-Mechhe	30.40	17.20
24DR025	Tiniple - Kalchhe- Bela (BP Highway)	9.90	9.90
24DR026	Tiniple-Baluwa-Bhedabhari	11.80	3.30
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	30.60	7.10
24DR028	Bohore Dovan-Aadha Bato -Sarsyunkharka (Danda Gaun)- Saramthali-Maure	19.10	19.10
24DR029	Palanchowk - Kharelthok - Koshi Dekha	10.00	5.00
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat	20.00	20.00
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur	13.20	12.20

Code	Description	Total length (km)	Gravelling (km)
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari	30.20	28.80
24DR033	Dolalghat-Sallebhumi-Chaubas-Lauredeurali-Nagregagarche	38.70	38.70
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	23.80	23.80
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	14.40	14.40
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	15.50	14.50
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	20.60	20.60
24DR038	Dhadkharka - Majhifeda - Shailung	12.60	12.60
Total		631.10	498.50

3.2.3 CROSS DRAINAGE

To maintain the road in all weather condition, the required cross drainage structures are listed during the DRCN survey. Overall 69m of Bridge, 65m of Slab Culvert, 195m of CC Causeway, and 44m of Dry Stone Causeway, 82m of Pipe Culvert are required. Also, the required cross drainage structure is shown in table below.

Table 3.2.3 Required cross drainage structures

Code	Description	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)
24DR001	Mane Dhovan - Ranikot - Surya Binayak	-	-	-	-	-
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	-	-	-	-	-
24DR003	Sanga - Aashapuri -Ryale	-	-	5	-	-
24DR004	Nala-Ghimire Gaun-Nagarkot	-	7	13	-	6
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti		-	-	-	-
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	-	-	20	-	6
24DR007	Kuntabesi-Nayagaun-Nagarkot	-	-	4	-	12
24DR008	Dhulikhel - Raviopi - Nagarkot	-	-	-	-	3
24DR009	Banepa - Raviopi- Panchkhal	-	-	-	-	3
24DR010	Panauti-Malpi-Kolati Bhumidanda	-	-	5	-	-
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	-	-	-	-	2
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour) - Nayagaun	-	-	-	-	8
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	-	-	-	-	-
24DR014	Khopasi-Kamidanda-Taaldhunga	-	-	-	-	-
24DR015	Katunjebesi-Sikhar Ambote-Roshikinari-Panauti	12	-	-	-	-
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	-	-	6	-	3
24DR017	Milche Borang Danda-Taal Dhunga-Banakhu	-	-	10	-	6
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	-	-	-	-	-
24DR019	BP Highway - Sharda Batase - Inte	-	7	-	-	2
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	15	-	-	-	1
24DR021	Kamidanda Bhanjyang-Medhamsu-	15	8	10	-	1

Code	Description	Bridge (m)	Slab culvert (m)	CC Causewa y (m)	Stone Causeway (m)	Pipe culvert (units)
	Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)					
24DR022	Katunje-Sipali-Budakhani-Banakhu	15	8	20	-	3
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	-	-	-	-	-
24DR024	Bhakunde-Pokhari Narayansthan-Mechhe	-	-	-	8	-
24DR025	Tiniple - Kalchhe- Bela (BP Highway)	12	5	5	10	-
24DR026	Tiniple-Baluwa-Bhedabhari	-	-	-	-	1
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	-	-	42	10	7
24DR028	Bohere Dovan-Aadha Bato -Sarsyunkharka (Danda Gaun)-Saramthali-Maure	-	-	-	1	4
24DR029	Palanchowk - Kharelthok - Koshi Dekha	-	-	-	-	1
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel-Dolalghat	-	-	-	-	-
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur			1		2
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari	-	15	-	-	-
24DR033	Dolalghat-Sallebhumlu-Chaubas-Lauredeurali-Nagregagarche	-	-	-	-	-
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	-	15	15	-	3
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	-	-	17	-	3
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	-	-	-	-	1
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	-	-	7	15	-
24DR038	Dhadkharka - Majhifeda - Shailung	-	-	15	-	4
Total		69	65	195	44	82

3.2.4 PROTECTIVE STRUCTURES

To maintain the road in all weather condition, the required protective structures are listed during the DRCN survey. For the all weather status 300m³ of Masonry Walls, 9945m³ of Gabion Walls and 537900m of Lined Drain are required. The required protective structure is shown in table below.

Table 3.2.4 Required protective structures

Code	Description	Masonry walls (m³)	Gabion walls (m³)	Lined drain (m)
24DR001	Mane Dhovan - Ranikot - Surya Binayak	-	-	-
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	-	-	-
24DR003	Sanga - Aashapuri -Ryale	-	100	9,300
24DR004	Nala-Ghimire Gaun-Nagarkot	-	610	2,800
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti	-	-	-
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	-	945	29,200
24DR007	Kuntabesi-Nayagaun-Nagarkot	100	500	4,000
24DR008	Dhulikhel - Raviopi - Nagarkot	-	-	-
24DR009	Banepa - Raviopi- Panchkhal	-	100	14,000
24DR010	Panauti-Malpi-Kolati Bhumidanda	-	-	5,500
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	-	1,350	7,500
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour)- Nayagaun	-	500	8,500
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	-	-	7,000
24DR014	Khopasi-Kamidanda-Taaldhunga	-	-	58,000
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	-	-	7,100
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	-	600	8,900
24DR017	Milche Borang Danda-Taal Dhunga- Banakhu			28,000
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	-	140	4,000
24DR019	BP Highway - Sharda Batase - Inte	-	-	2,000
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	-	600	25,100
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)		-	22,000
24DR022	Katunje-Sipali-Budakhani-Banakhu	200	760	19,000
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	-	460	13,000
24DR024	Bhakunde-Pokhari Narayansthan-Mechhe	-	-	27,500
24DR025	Tiniple - Kalchhe- Bela (BP Highway)	-	40	9,000
24DR026	Tiniple-Baluwa-Bhedabhari	-		11,000
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	-	440	27,000
24DR028	Bohere Dovan-Aadha Bato -Sarsyunkharka (Danda Gaun)-Saramthali-Maure	-	150	18,000
24DR029	Palanchowk - Kharelthok - Koshi Dekha	-	370	6,000
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat	-	300	6,500
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)-Betini - Ahale Banspur		945	8,000
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari	-	-	30,200
24DR033	Dolalghat-Sallebhumlu-Chaubas-Lauredeurali-Nagregagarche	-	-	38,000
24DR034	Dolalghat-Saping-Simthali-Bekhsimle		100	23,800
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	-	80	13,500
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	-	755	14,000
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	-	-	18,500
24DR038	Dhadkharka - Majhifeda - Shailung	-	100	12,000
Total		300	9,945	537,900

3.2.5 WIDENING

The widening roads are done only to those roads which do not meet the prior drist road standard also, the road must have VPD greater than 100. No no such section of road require widening as the do not cross the 100 VPD range.

Table 3.2.5 Sections of the district road core network requiring widening

Code	Description	Total length (km)	Widening (m)
Total			

3.2.6 BLACKTOPPING

To improve the surface condition of the DRCN raods based on the PCU greater than 100, the required blacktopping of DRCN roads are listed during the DRCN survey. The required blacktopping length of the roads is shown in table below. The total Blacktopping length is 63.8m.

Table 3.2.6 Sections of the district road core network requiring blacktopping

Code	Description	Total length (km)	Blacktop (km)	Traffic (VPD)	Blacktopping (km)
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	19.60	10.70	315	8.90
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti	7.30	0.40	222	6.90
24DR014	Khopasi-Kamidanda-Taaldhunga	59.10	-	102	24.00
24DR020	Kavrehangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	24.60	0.20	103	13.00
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	30.60	0.80	103	11.00
Total					63.8

3.3 NEW CONSTRUCTION

New construction road are proposed to such VDC which do not have access to the roads yet. In Kavreplanchock District places locally known as Danda Pari mostly lack the road. So, the roads are proposed to such VDC's. The total proposed new construction length is 194.40m.

Table 3.3.1 Sections of the district road core network requiring new construction

Code	Description	New VDCs	Existing length	New length	Bridge (m)
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang		18.40	15.00	
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauhi Chour)- Nayagaun		13.20		
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot		7.50	11.00	
24DR014	Khopasi-Kamidanda-Taaldhunga		59.10	15.00	
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)		7.00	32.00	
24DR017	Milche Borang Danda-Taal Dhunga-Banakhu		29.10	25.00	
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri		12.10	4.00	
24DR019	BP Highway - Sharda Batase - Inte		2.70		
24DR020	Kavrehangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule		24.60	28.00	
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)		24.50	12.00	
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat		20.00	4.30	
24DR022	Katunje-Sipali-Budakhani-Banakhu		20.90	14.10	
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang		15.00	1.00	
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari		30.20	8.00	
24DR034	Dolalghat-Saping-Simthali-Bekhsimle		23.80	2.00	
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur		13.20	17.00	
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti		7.10	6.00	
Total			661.30	194.40	

3.4 DISTRICT TRANSPORT PERSPECTIVE PLAN

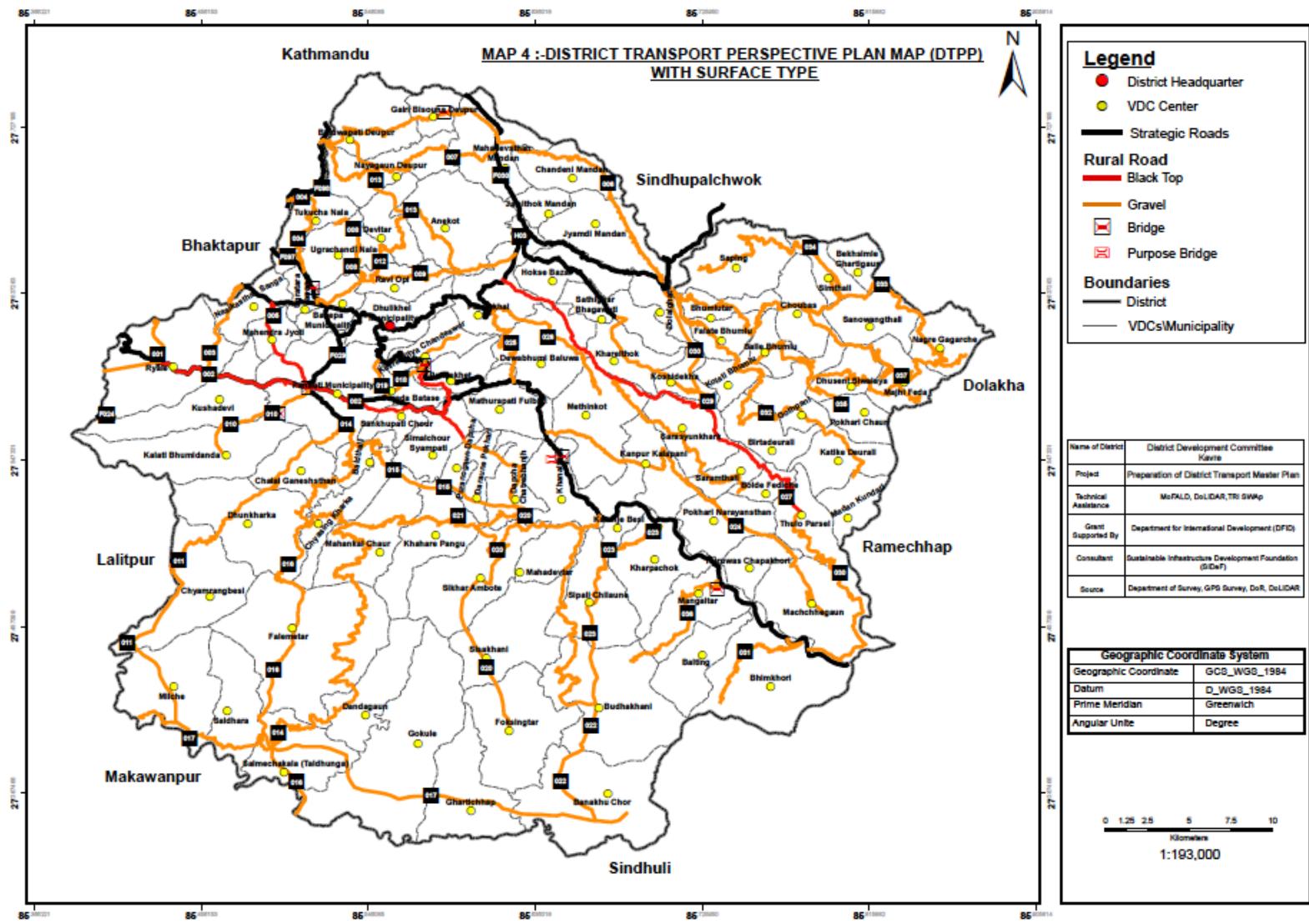
The DTPP looks at the DTPP at the new construction, rehabilitation, and upgrading works deemed necessary, which are ranked according to the specific criteria. New construction is required where the existing network does not provide sufficient accessibility. Whereas the roads are found to be in poor condition upgrading is required. All of the DRCN roads of Kavrepalanchok district are both fair and all weather status. To make them all weather 498.5Km roads should gravel, 69m bridge, 65m slab culvert, 195m cc causeway, 44m stone causeway, 82no. of pipe culvert, 300 cubic meter masonry wall, 9945 cubic meter gabion wall and 537900m line drain is required.

Table 3.4.1 District Transport Perspective Plan

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance (km)	Periodic maintenance (km)	Rehabilitation (km)	Gravelling (km)	Blacktopping (km)	Widening (m)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)	New construction (km)	
24DR001	2.00	4.30	-	4.30	1.00	4.30	-	-	-	-	-	-	-	-	-	-	-	
24DR002	2.00	19.60	-	19.60	-	2.00	-	-	-	-	-	-	-	-	-	-	-	
24DR003	3.00	9.40	-	9.40	1.50	4.60	8.90	-	-	-	5.00	-	-	-	100.00	9,300.00	-	
24DR004	2.00	10.00	-	10.00	0.90	7.00	-	-	-	7.00	13.00	-	6.00	-	610.00	2,800.00	-	
24DR005	1.00	7.30	-	7.30	-	-	-	-	-	-	-	-	-	-	-	-	-	
24DR006	3.00	38.90	-	38.90	7.60	20.50	6.90	-	-	-	20.00	-	6.00	-	945.00	29,200.00	-	
24DR007	3.00	18.20	-	18.20	6.70	8.90	-	-	-	-	4.00	-	12.00	100.00	500.00	4,000.00	-	
24DR008	3.00	11.40	-	11.40	3.00	11.40	-	-	-	-	-	-	3.00	-	-	-	1.00	
24DR009	3.00	14.50	-	14.50	3.00	4.50	-	-	-	-	-	-	3.00	-	100.00	14,000.00	-	
24DR010	1.00	6.00	-	6.00	-	-	-	-	-	-	5.00	-	-	-	-	5,500.00	-	
24DR011	3.00	18.40	-	18.40	4.00	18.40	-	-	-	-	-	-	2.00	-	1,350.00	7,500.00	-	
24DR012	2.00	13.20	-	13.20	0.90	13.20	-	-	-	-	-	-	8.00	-	500.00	8,500.00	-	
24DR013	2.00	7.50	-	7.50	-	7.50	-	-	-	-	-	-	-	-	-	7,000.00	15.00	
24DR014	5.00	59.10	-	59.10	-	50.20	-	-	-	-	-	-	-	-	-	58,000.00	-	
24DR015	1.00	7.10	-	7.10	-	0.30	-	-	12.00	-	-	-	-	-	-	-	7,100.00	-
24DR016	1.00	7.00	-	7.00	5.00	7.00	-	-	-	-	6.00	-	3.00	-	600.00	8,900.00	11.00	
24DR017	3.00	29.10	-	29.10	-	29.10	24.00	-	-	-	10.00	-	6.00	-	-	28,000.00	15.00	
24DR018	-	12.10	-	12.10	-	12.00	-	-	-	-	-	-	-	-	140.00	4,000.00	6.00	
24DR019	-	2.70	-	2.70	-	0.60	-	-	-	7.00	-	-	2.00	-	-	2,000.00	32.00	
24DR020	3.00	24.60	-	24.60	4.00	11.30	-	-	15.00	-	-	1.00	-	600.00	25,100.00	25.00		
24DR021	3.00	24.50	-	24.50	14.30	24.50	-	-	15.00	8.00	10.00	-	1.00	-	-	22,000.00	4.00	
24DR022	2.00	20.90	-	20.90	5.00	-	11.00	-	15.00	8.00	20.00	-	3.00	200.00	760.00	19,000.00	-	
24DR023	2.00	15.00	-	15.00	3.00	14.00	-	-	-	-	-	-	-	-	460.00	13,000.00	-	
24DR024	3.00	30.40	-	30.40	-	17.20	-	-	-	-	-	8.00	-	-	-	27,500.00	-	

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance (km)	Periodic maintenance (km)	Rehabilitation (km)	Gravelling (km)	Blacktopping (km)	Widening (m)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	pipe culvert (units)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)	New construction (km)
24DR025	1.00	9.90	-	9.90	-	9.90	-	-	12.00	5.00	5.00	10.00	-	-	40.00	9,000.00	14.10
24DR026	1.00	11.80	-	11.80	-	3.30	-	-	-	-	-	-	1.00	-	-	11,000.00	-
24DR027	3.00	30.60	-	30.60	3.00	7.10	-	-	-	-	42.00	10.00	7.00	-	440.00	27,000.00	12.00
24DR028	2.00	19.10	-	19.10	6.00	19.10	13.00	-	-	-	-	1.00	4.00	-	150.00	18,000.00	28.00
24DR029	1.00	10.00	-	10.00	5.00	5.00	-	-	-	-	-	-	1.00	-	370.00	6,000.00	-
24DR030	2.00	20.00	-	-	3.00	20.00	-	-	-	-	-	-	-	-	300.00	6,500.00	-
24DR031	2.00	13.20	-	13.20	2.50	12.20	-	-	-	-	1.00	-	2.00	-	945.00	8,000.00	-
24DR032	3.00	30.20	-	30.20	5.00	28.80	-	-	-	15.00	-	-	-	-	-	30,200.00	4.30
24DR033	3.00	38.70	-	38.70	-	38.70	-	-	-	-	-	-	-	-	-	38,000.00	17.00
24DR034	2.00	23.80	-	23.80	-	23.80	-	-	-	15.00	15.00	-	3.00	-	100.00	23,800.00	8.00
24DR035	2.00	14.40	-	14.40	-	14.40	-	-	-	-	17.00	-	3.00	-	80.00	13,500.00	-
24DR036	2.00	15.50	-	15.50	4.50	14.50	-	-	-	-	-	-	1.00	-	755.00	14,000.00	2.00
24DR037	3.00	20.60	-	20.60	7.00	20.60	-	-	-	-	7.00	15.00	-	-	-	18,500.00	-
24DR038	2.00	12.60	-	12.60	-	12.60	-	-	-	-	15.00	-	4.00	-	100.00	12,000.00	-
Total	82.00	681.60	-	661.60	95.90	498.50	63.80	-	69	65	195	44	82	300	9,945	537,900	194.40

Figure 4 District Transport Perspective Plan (DTPP)



4. COST ESTIMATION

With the DTPP providing the full list of required interventions to bring the DRCN to a maintainable all-weather standard and keep it there, the costs of these interventions can be calculated using the standard costs determined.

The conservation, improvement, new construction costs are calculated for the first year as an indication of the amount of funding required. The costs are estimated by multiplying the length of roads requiring conservation, improvement, new construction by the relevant standard cost, taking into account the surface type for recurrent and periodic maintenance. These estimated costs reflect the costs for the first year of keeping the existing DRCN in good condition. A cost for later years is varying due to changes to the road network in terms of upgrading and new construction.

4.1 CONSERVATION

The conservation costs are calculated for the first year to arrive at the amount of funding required. The costs are calculated by multiplying the lengths of roads requiring conservation by the relevant standard costs for different types of surfaces and type of maintenance. The Standard unit costs for conservation are listed in table 4.1..

Table 4.1.1 Standard unit costs for conservation

Activity	Unit	Unit cost (NPR/km)
Emergency maintenance	km	30,000
Routine maintenance	km	20,000
Recurrent maintenance (blacktop)	km	500,000
Recurrent maintenance (gravel)	km	400,000
Recurrent maintenance (earthen)	km	250,000
Periodic maintenance (blacktop)	km	200,000
Periodic maintenance (gravel)	km	250,000

The total conservation costs for the first year is Rs 278,565,000 the total estimated conservation cost for the five year is Rs1,392,825,000.Due to the road length and road surface the cost will change in later year.

Table 4.1.2 Estimated conservation costs for the first year (NPR '000)

Code	Total length (km)	Blacktop (km)	Gravel (km)	Earthen (km)	Emergency	Routine	Recurrent (blacktop)	Recurrent (gravel)	Recurrent (earthen)	Periodic (blacktop)	Periodic (gravel)	Total annual cost	Total 5-year cost
24DR001	4.30	-	-	4.30	129	86	-	-	1,075	-	-	1,650	8,250
24DR002	19.60	10.70	6.90	2.00	588	392	5,350	2,760	500	-	1,725	1,290	6,450
24DR003	9.40	-	4.80	4.60	282	188	-	1,920	1,150	5,350	1,200	13,990	69,950
24DR004	10.00	-	3.00	7.00	300	200	-	1,200	1,750	-	750	4,740	23,700
24DR005	7.30	0.40	6.90	-	219	146	200	2,760	-	-	1,725	4,200	21,000
24DR006	38.90	-	18.40	20.50	1,167	778	-	7,360	5,125	200	4,600	5,050	25,250

Code	Total length (km)	Blacktop (km)	Gravel (km)	Earthen (km)	Emergency	Routine	Recurrent (blacktop)	Recurrent (gravel)	Recurrent (earthen)	Periodic (blacktop)	Periodic (gravel)	Total annual cost	Total 5-year cost
24DR007	18.20	-	9.30	8.90	546	364	-	3,720	2,225	-	2,325	19,030	95,150
24DR008	11.40	-	-	11.40	342	228	-	-	2,850	-	-	4,900	24,500
24DR009	14.50	-	10.00	4.50	435	290	-	4,000	1,125	-	2,500	9,180	45,900
24DR010	6.00	-	6.00	-	180	120	-	2,400	-	-	1,500	3,420	17,100
24DR011	18.40	-	-	18.40	552	368	-	-	4,600	-	-	8,350	41,750
24DR012	13.20	-	-	13.20	396	264	-	-	3,300	-	-	4,200	21,000
24DR013	7.50	-	-	7.50	225	150	-	-	1,875	-	-	5,520	27,600
24DR014	59.10	-	8.90	50.20	1,773	1,182	-	3,560	12,550	-	2,225	3,960	19,800
24DR015	7.10	-	6.80	0.30	213	142	-	2,720	75	-	1,700	3,780	18,900
24DR016	7.00	-	-	7.00	210	140	-	-	1,750	-	-	2,250	11,250
24DR017	29.10	-	-	29.10	873	582	-	-	7,275	-	-	21,290	106,450
24DR018	12.10	0.10	-	12.00	363	242	50	-	3,000	-	-	4,850	24,250
24DR019	2.70	-	2.10	0.60	81	54	-	840	150	-	525	2,100	10,500
24DR020	24.60	0.20	13.10	11.30	738	492	100	5,240	2,825	-	3,275	8,730	43,650
24DR021	24.50	-	-	24.50	735	490	-	-	6,125	50	-	3,655	18,275
24DR022	20.90	-	20.90	-	627	418	-	8,360	-	400	5,225	18,460	92,300
24DR023	15.00	-	1.00	14.00	450	300	-	400	3,500	-	250	5,000	25,000
24DR024	30.40	-	13.20	17.20	912	608	-	5,280	4,300	-	3,300	2,970	14,850
24DR025	9.90	-	-	9.90	297	198	-	-	2,475	-	-	14,630	73,150
24DR026	11.80	-	8.50	3.30	354	236	-	3,400	825	-	2,125	5,730	28,650
24DR027	30.60	0.80	22.70	7.10	918	612	400	9,080	1,775	-	5,675	7,350	36,750
24DR028	19.10	-	-	19.10	573	382	-	-	4,775	100	-	12,670	63,350
24DR029	10.00	-	5.00	5.00	300	200	-	2,000	1,250	-	1,250	6,940	34,700
24DR030	20.00	-	-	20.00	600	400	-	-	5,000	-	-	14,400	72,000
24DR031	13.20	-	1.00	12.20	396	264	-	400	3,050	-	250	6,180	

Code	Total length (km)	Blacktop (km)	Gravel (km)	Earthen (km)	Emergency	Routine	Recurrent (blacktop)	Recurrent (gravel)	Recurrent (earthen)	Periodic (blacktop)	Periodic (gravel)	Total annual cost	Total 5-year cost
										-			30,900
24DR032	30.20	-	1.40	28.80	906	604	-	560	7,200	-	350	6,000	30,000
24DR033	38.70	-	-	38.70	1,161	774	-	-	9,675	-	-	4,360	21,800
24DR034	23.80	-	-	23.80	714	476	-	-	5,950	-	-	9,620	48,100
24DR035	14.40	-	-	14.40	432	288	-	-	3,600	-	-	11,610	58,050
24DR036	15.50	-	1.00	14.50	465	310	-	400	3,625	-	250	7,140	35,700
24DR037	20.60	-	-	20.60	618	412	-	-	5,150	-	-	4,320	21,600
24DR038	12.60	-	-	12.60	378	252	-	-	3,150	-	-	5,050	25,250
Total	681.60	12.20	170.90	498.508	20,442	13,632	6,100	68,360	124,625	6,100	42,725	278,565	1,392,825

4.2 IMPROVEMENT

The improvement costs are calculated by multiplying the length of roads requiring to the standard cost provide by the DDC Kavreplanchock, taking into account the surface type for recurrent and periodic maintenance.

Table 4.2.1 Standard unit costs for improvement activities

Activity	Unit	Unit cost (NPR)
Rehabilitation	km	800,000
Widening	m	25,000
Gravelling	km	1,800,000
Blacktopping	km	5,700,000
Bridge construction	m	620,000
Slab culvert construction	m	175,000
CC Causeway construction	m	100,000
Stone Causeway construction	m	15,000
Pipe culvert placement	unit	10,000
Masonry wall construction	m^3	10,000
Gabion wall construction	m^3	3,000
Lined drain construction	m	1,500

The estimated cost for the improvement of the existing DRCN is the cost to maintain the DRCN to a maintainable all-weather standard. The total cost for improvement is NPR 2,252,500,000 as shown in table 4.2.2 as below.

Table 4.2.2 Cost estimate for improvement measures (NPR '000)

Code	Total length (km)	Rehabilitation	Widening	Gravelling	Blacktopping	Bridges	Slab culverts	CC causeways	Stone causeways	Pipe culvert	Masonry walls	Gabion walls	Lined drains	Total cost
24DR001	4.30	800	-	7,740	-	-	-	-	-	-	-	-	-	5,325
24DR002	19.60	-	-	3,600	-	-	-	-	-	-	-	-	-	8,540
24DR003	9.40	1,200	-	8,280	50,73 0	-	-	500	-	-	-	300	13,950	54,330
24DR004	10.00	720	-	12,600	-	-	1,225	1,300	-	60	-	1,830	4,200	24,230
24DR005	7.30	-	-	-	-	-	-	-	-	-	-	-	-	21,935
24DR006	38.90	6,080	-	36,900	39,33 0	-	-	2,000	-	60	-	2,835	43,800	39,330
24DR007	18.20	5,360	-	16,020	-	-	-	400	-	120	1,000	1,500	6,000	91,675
24DR008	11.40	2,400	-	20,520	-	-	-	-	-	30	-	-	-	48,480
24DR009	14.50	2,400	-	8,100	-	-	-	-	-	30	-	300	21,000	30,400
24DR010	6.00	-	-	-	-	-	-	500	-	-	-	-	8,250	22,950
24DR011	18.40	3,200	-	33,120	-	-	-	-	-	20	-	4,050	11,250	31,830
24DR012	13.20	720	-	23,760	-	-	-	-	-	80	-	1,500	12,750	8,750
24DR013	7.50	-	-	13,500	-	-	-	-	-	-	-	-	10,500	51,640
24DR014	59.10	-	-	90,360	-	-	-	-	-	-	-	-	87,000	38,810
24DR015	7.10	-	-	540	7,440	-	-	-	-	-	-	-	10,650	42,520
24DR016	7.00	4,000	-	12,600	-	-	-	600	-	30	-	1,800	13,350	24,000
24DR017	29.10	-	-	52,380	136,8 00	-	-	1,000	-	60	-	-	42,000	314,160
24DR018	12.10	-	-	21,600	-	-	-	-	-	-	-	420	6,000	18,630
24DR019	2.70	-	-	1,080	-	-	1,225	-	-	20	-	-	3,000	32,380
24DR020	24.60	3,200	-	20,340	-	9,300	-	-	-	10	-	1,800	37,650	95,440
24DR021	24.50	11,440	-	44,100	-	9,300	1,400	1,000	-	10	-	-	33,000	28,020
24DR022	20.90	4,000	-	-	62,70 0	9,300	1,400	2,000	-	30	2,000	2,280	28,500	124,120
24DR023	15.00	2,400	-	25,200	-	-	-	-	-	-	-	1,380	19,500	23,120

Code	Total length (km)	Rehabilitation	Widening	Gravelling	Blacktopping	Bridges	Slab culverts	CC causeways	Stone causeways	Pipe culvert	Masonry walls	Gabion walls	Lined drains	Total cost
24DR024	30.40	-	-	30,960	-	-	-	-	120	-	-	-	41,250	40,405
24DR025	9.90	-	-	17,820	-	7,440	875	500	150	-	-	120	13,500	49,510
24DR026	11.80	-	-	5,940	-	-	-	-	-	10	-	-	16,500	66,685
24DR027	30.60	2,400	-	12,780	-	-	-	4,200	150	70	-	1,320	40,500	100,250
24DR028	19.10	4,800	-	34,380	74,100	-	-	-	15	40	-	450	27,000	146,400
24DR029	10.00	4,000	-	9,000	-	-	-	-	-	10	-	1,110	9,000	22,450
24DR030	20.00	2,400	-	36,000	-	-	-	-	-	-	-	900	9,750	72,330
24DR031	13.20	2,000	-	21,960	-	-	-	100	-	20	-	2,835	12,000	71,355
24DR032	30.20	4,000	-	51,840	-	-	2,625	-	-	-	-	-	45,300	49,050
24DR033	38.70	-	-	69,660	-	-	-	-	-	-	-	-	57,000	38,915
24DR034	23.80	-	-	42,840	-	-	2,625	1,500	-	30	-	300	35,700	103,765
24DR035	14.40	-	-	25,920	-	-	-	1,700	-	30	-	240	20,250	126,660
24DR036	15.50	3,600	-	26,100	-	-	-	-	-	10	-	2,265	21,000	82,995
24DR037	20.60	5,600	-	37,080	-	-	-	700	225	-	-	-	27,750	48,140
24DR038	12.60	-	-	22,680	-	-	-	1,500	-	40	-	300	18,000	52,975
Total	681.60	76,720	-	897,300	363,660	42,780	11,375	19,500	660	820	3,000	29,835	806,850	2,252,500

4.3 NEW CONSTRUCTION

New constructions are required those VDC's which are not connected by the road. In Kavreplanchock District most the VDC's which lies in the Dada Pari sections are not connected by the road.

Table 4.3.1 Standard unit costs for new construction

Activity	Unit	Unit cost (NPR)
Opening up	km	4,000,000
Gravelling	km	1,800,000
Bridge construction	m	620,000

The new construction required to complete the DRCN is identified. In Kvreplanchock District 10 DRCN road selected requires new construction as only some sections of such roads are opened.

The new construction cost calculated is NPR 1,127,520,000 which is shown in table 4.3.2 as below.

Table 4.3.2 Cost estimate for new construction (NPR '000)

Code	Description	Length (km)	Opening up	Gravelling	Bridges	Total cost
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	15.00	60,000	27,000	-	87,000
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour) - Nayagaun	-	-	-	-	-
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	11.00	44,000	19,800	-	63,800
24DR014	Khopasi-Kamidanda-Taaldhunga	15.00	60,000	27,000	-	87,000
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	32.00	128,000	57,600	-	185,600
24DR017	Milche Borang Danda-Taal Dhunga-Banakhu	25.00	100,000	45,000	-	145,000
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	4.00	16,000	7,200	-	23,200
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	28.00	112,000	50,400	-	162,400
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote-Mahadevtar-Sisakhani (Pota Dhovan)	12.00	48,000	21,600	-	69,600
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat	4.30	17,200	7,740	-	24,940
24DR022	Katunje-Sipali-Budakhani-Banakhu	14.10	56,400	25,380	-	81,780
24DR026	Tinipple-Baluwa-Bhedabhari	-	-	-	-	-
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	1.00	4,000	1,800	-	5,800
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali - Madankudari	8.00	32,000	14,400	-	46,400
24DR033	Dolalghat-Sallebhumlu-Chaubas-Lauredeurali-Nagregagarche	-	-	-	-	-
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	2.00	8,000	3,600	-	11,600
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)- Betini - Ahale Banspur	17.00	68,000	30,600	-	98,600
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	6.00	24,000	10,800	-	34,800
Total		194.40	777,600	349,920	-	1,127,520

4.4 DTPP COSTS

The DTPP cost is the required cost for long list of conservation, improvement and new construction for DRCN selected in the district. Projected 5-year Budget will not be sufficient to meet all the cost. The total DTPP cost calculated is NPR 4,772,845,000 which is shown in the table 4.4.1 as below.

Table 4.4.1 DTPP costs (NPR '000)

Code	Conservation	Improvement	New construction	Total
24DR001	6,450	8,540	-	14,990
24DR002	69,950	54,330	-	124,280
24DR003	23,700	24,230	-	47,930
24DR004	21,000	21,935	-	42,935
24DR005	25,250	39,330	-	64,580
24DR006	95,150	91,675	-	186,825
24DR007	45,900	30,400	-	76,300
24DR008	17,100	22,950	-	40,050
24DR009	41,750	31,830	-	73,580
24DR010	21,000	8,750	-	29,750
24DR011	27,600	51,640	87,000	166,240
24DR012	19,800	38,810	-	58,610
24DR013	11,250	24,000	63,800	99,050
24DR014	106,450	314,160	87,000	507,610
24DR015	24,250	18,630	34,800	77,680
24DR016	10,500	32,380	185,600	228,480
24DR017	43,650	95,440	145,000	284,090
24DR018	18,275	28,020	23,200	69,495
24DR019	8,250	5,325	-	13,575
24DR020	63,350	146,400	162,400	372,150
24DR021	36,750	100,250	69,600	206,600
24DR022	73,150	49,510	81,780	204,440
24DR023	24,500	48,480	5,800	78,780
24DR024	72,000	72,330	-	144,330
24DR025	14,850	40,405	-	55,255
24DR026	34,700	22,450	-	57,150
24DR027	92,300	124,120	-	216,420
24DR028	28,650	66,685	-	95,335
24DR029	25,000	23,120	-	48,120
24DR030	30,000	49,050	24,940	103,990
24DR031	21,800	38,915	98,600	159,315
24DR032	48,100	103,765	46,400	198,265
24DR033	58,050	126,660	-	184,710
24DR034	35,700	82,995	11,600	130,295
24DR035	21,600	48,140	-	69,740
24DR036	25,250	52,975	-	78,225
24DR037	30,900	71,355	-	102,255
24DR038	18,900	42,520	-	61,420
Total	1,392,825	2,252,500	1,127,520	4,772,845

5. RANKING

Once the costs of the different interventions are known, the roads can be ranked according to priority. Prioritization is according to the cost per capita, whereby a separate ranking is carried out for conservation, improvement and new construction. The cost of all the interventions under conservation, improvement or new construction is summed up for each road, and this total cost is divided by the population served by the road. The population served is defined as the total population of all VDCs linked by the road (excluding VDCs of which the headquarters are linked directly to the strategic road network)

5.1 CONSERVATION

For ranking of conservation, “Cost/person” and selecting “Sort smallest to largest”, the roads will be ranked in order of increasing cost per capita. The road with the highest priority (most benefit in relation to cost) will be at the top and the road with the lowest priority at the bottom. Then actual allocation to the different maintenance types will be determined in the ARMP.

Table 5.1.1 Ranking of conservation works (NPR '000)

Code	Total length (km)	1. Emergency	2. Routine	3. Recurrent (paved)	4. Recurrent (gravel)	5. Recurrent (earth)	6. Periodic (blacktop)	7. Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)
24DR013	7.50	225	150	-	-	1,875	-	-	2,250	25,462	88
24DR008	11.40	342	228	-	-	2,850	-	-	3,420	34,098	100
24DR015	7.10	213	142	-	2,720	75	-	1,700	4,850	45,854	106
24DR025	9.90	297	198	-	-	2,475	-	-	2,970	23,486	126
24DR010	6.00	180	120	-	2,400	-	-	1,500	4,200	30,996	136
24DR005	7.30	219	146	200	2,760	-	-	1,725	5,050	36,888	137
24DR030	20.00	600	400	-	-	5,000	-	-	6,000	33,918	177
24DR012	13.20	396	264	-	-	3,300	-	-	3,960	18,484	214
24DR018	12.10	363	242	50	-	3,000	-	-	3,655	16,474	222
24DR004	10.00	300	200	-	1,200	1,750	-	750	4,200	18,128	232
24DR016	7.00	210	140	-	-	1,750	-	-	2,100	8,744	240
24DR026	11.80	354	236	-	3,400	825	-	2,125	6,940	24,198	287
24DR019	2.70	81	54	-	840	150	-	525	1,650	5,740	287
24DR009	14.50	435	290	-	4,000	1,125	-	2,500	8,350	28,308	295
24DR001	4.30	129	86	-	-	1,075	-	-	1,290	4,302	300
24DR002	19.60	588	392	5,350	2,760	500	2,675	1,725	13,990	45,965	304
24DR017	29.10	873	582	-	-	7,275	-	-	8,730	22,167	394
24DR011	18.40	552	368	-	-	4,600	-	-	5,520	13,211	418
24DR035	14.40	432	288	-	-	3,600	-	-	4,320	10,269	421
24DR020	24.60	738	492	100	5,240	2,825	-	3,275	12,670	30,060	421
24DR024	30.40	912	608	-	5,280	4,300	-	3,300	14,400	31,809	453
24DR003	9.40	282	188	-	1,920	1,150	-	1,200	4,740	10,423	455
24DR036	15.50	465	310	-	400	3,625	-	250	5,050	10,268	492
24DR007	18.20	546	364	-	3,720	2,225	-	2,325	9,180	18,606	493
24DR021	24.50	735	490	-	-	6,125	-	-	7,350	14,118	521
24DR028	19.10	573	382	-	-	4,775	-	-	5,730	10,817	530
24DR037	20.60	618	412	-	-	5,150	-	-	6,180	10,199	606
24DR006	38.90	1,167	778	-	7,360	5,125	-	4,600	19,030	29,832	638
24DR027	30.60	918	612	400	9,080	1,775	-	5,675	18,460	27,814	664

Code	Total length (km)	1. Emergency	2. Routine	3. Recurrent (paved)	4. Recurrent (gravel)	5. Recurrent (earth)	6. Periodic (blacktop)	7. Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)
24DR032	30.20	906	604	-	560	7,200	-	350	9,620	14,155	680
24DR023	15.00	450	300	-	400	3,500	-	250	4,900	6,953	705
24DR029	10.00	300	200	-	2,000	1,250	-	1,250	5,000	6,807	735
24DR031	13.20	396	264	-	400	3,050	-	250	4,360	5,524	789
24DR022	20.90	627	418	-	8,360	-	-	5,225	14,630	17,865	819
24DR034	23.80	714	476	-	-	5,950	-	-	7,140	8,412	849
24DR038	12.60	378	252	-	-	3,150	-	-	3,780	4,385	862
24DR033	38.70	1,161	774	-	-	9,675	-	-	11,610	11,588	1,002
24DR014	59.10	1,773	1,182	-	3,560	12,550	-	2,225	21,290	15,224	1,398

5.2 IMPROVEMENT

For ranking of improvement, “Cost/person” and selecting “Sort smallest to largest”, the roads will be ranked in order of increasing cost per capita. The road with the highest priority will be at the top and the road with the lowest priority at the bottom. Then actual allocation to the different maintenance types will be determined in the ARMP.

Table 5.2.1 Ranking of improvement works (NPR '000)

Code	Total length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
24DR010	6.00	8,750	30,996	282
24DR015	7.10	18,630	45,854	406
24DR008	11.40	22,950	34,098	673
24DR019	2.70	5,325	5,740	928
24DR026	11.80	22,450	24,198	928
24DR013	7.50	24,000	25,462	943
24DR005	7.30	39,330	36,888	1,066
24DR009	14.50	31,830	28,308	1,124
24DR002	19.60	54,330	45,965	1,182
24DR004	10.00	21,935	18,128	1,210
24DR030	20.00	49,050	33,918	1,446
24DR007	18.20	30,400	18,606	1,634
24DR018	12.10	28,020	16,474	1,701
24DR025	9.90	40,405	23,486	1,720
24DR001	4.30	8,540	4,302	1,985
24DR012	13.20	38,810	18,484	2,100
24DR024	30.40	72,330	31,809	2,274
24DR003	9.40	24,230	10,423	2,325
24DR022	20.90	49,510	17,865	2,771
24DR006	38.90	91,675	29,832	3,073
24DR029	10.00	23,120	6,807	3,397
24DR016	7.00	32,380	8,744	3,703
24DR011	18.40	51,640	13,211	3,909
24DR017	29.10	95,440	22,167	4,305
24DR027	30.60	124,120	27,814	4,463
24DR035	14.40	48,140	10,269	4,688
24DR020	24.60	146,400	30,060	4,870
24DR036	15.50	52,975	10,268	5,159
24DR028	19.10	66,685	10,817	6,165
24DR023	15.00	48,480	6,953	6,973
24DR037	20.60	71,355	10,199	6,996
24DR031	13.20	38,915	5,524	7,045
24DR021	24.50	100,250	14,118	7,101
24DR032	30.20	103,765	14,155	7,331
24DR038	12.60	42,520	4,385	9,697
24DR034	23.80	82,995	8,412	9,866
24DR033	38.70	126,660	11,588	10,930
24DR014	59.10	314,160	15,224	20,636

5.3 NEW CONSTRUCTION

For ranking of new construction, “Cost/person” and selecting “Sort smallest to largest”, the roads will be ranked in order of increasing cost per capita. The road with the highest priority will be at the top and the road with the lowest priority at the bottom.

Table 5.3.1 Ranking of construction works (NPR '000)

Code	Length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
24DR030	4.30	24,940	33,918	735
24DR015	6.00	34,800	45,854	759
24DR023	1.00	5,800	6,953	834
24DR034	2.00	11,600	8,412	1,379
24DR018	4.00	23,200	16,474	1,408

Code	Length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
24DR013	11.00	63,800	25,462	2,506
24DR032	8.00	46,400	14,155	3,278
24DR022	14.10	81,780	17,865	4,578
24DR021	12.00	69,600	14,118	4,930
24DR020	28.00	162,400	30,060	5,403
24DR014	15.00	87,000	15,224	5,715
24DR017	25.00	145,000	22,167	6,541
24DR011	15.00	87,000	13,211	6,585
24DR031	17.00	98,600	5,524	17,849
24DR016	32.00	185,600	8,744	21,226

6. DISTRICT TRANSPORT MASTER PLAN (DTMP)

The balancing of the available budget and the estimated costs of the required interventions, to determine which interventions can be carried out in the 5-year is the district transport master plan (DTMP). The 80% budget is allocated for the DRCN roads of Kavreplanchowk District and left 20% budget is allocated for village roads.

In the allocation of the DTMP budget, priority is given to conservation works, followed by improvement works and finally new construction. That is to say, any DTMP funding is first allocated to conservation, and remaining funds is allocated for improvement of the existing DRCN roads for maintainable all weather standards, and remaining allocated for new construction of DRCN roads, if there is still funding left over at the end of this process, this may be allocated to village roads. But in case of Kavreplanchowk district expected outcomes cannot be reach due to insufficient funding source. At the end of DTMP 72% of roads become maintainable all weather standards.

6.1 FIVE YEAR PROJECTED FINANCIAL RESOURCES

The financial resource is projected by taking the growth rate in particular funding source from the last three- year's budget. The total estimated amount of funding is NRS 939,345,000 for the 5-years DTMP period.

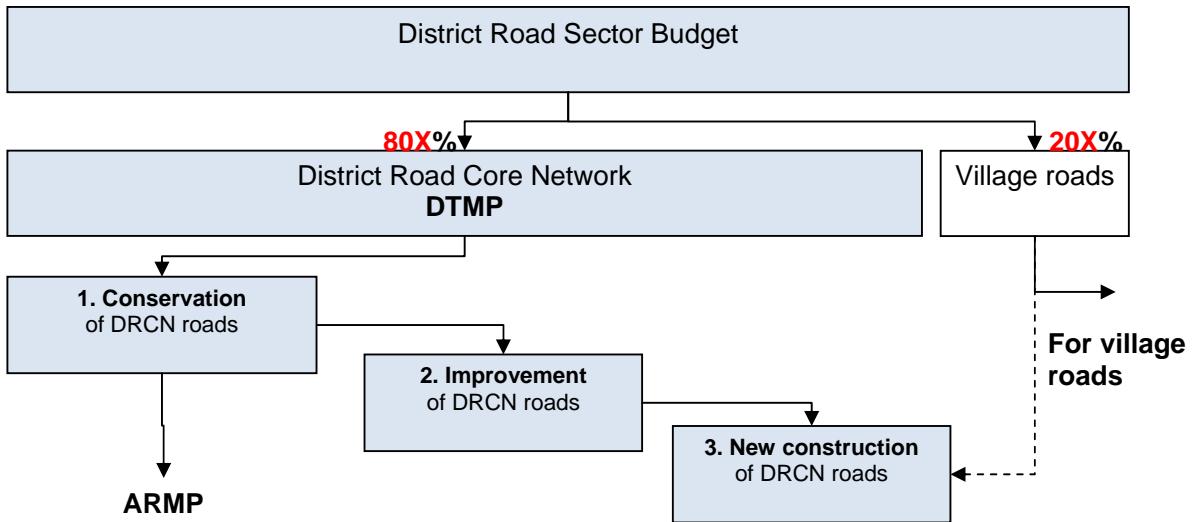
Table 6.1.1 Estimated funding levels (roads) for next five years (in NPR '000)

Funding source	2070/71	2071/72	2072/73	2073/74	2074/75
Internal Revenue	15,925	17,586	20,073	22,934	27,225
Agricultural Road	16,000	18,000	20,000	25,000	38,021
DDC Grant	8,682	10,500	12,075	14,886	16,696
LGCDP	9,575	11,005	13,650	15,457	17,729
DRSP	5,658	7,503	8,457	9,596	118,885
Road Board Nepal	3,500	4,500	5,025	6,628	7,323
RRRSDP	53,594	61,250	70,000	80,000	90,000
Central Road	8,761	9,628	10,580	12,638	14,801
Total	121,695	139,972	159,860	187,139	330,680
Grand total	939,345				

6.2 BUDGET ALLOCATION

In the Kavreplanchowk district, 80% of the total estimated budget is allocated for the DRCN roads for the DTMP and rest 20% of the total budget is allocated for the village roads

Figure 5 District road sector budget allocation



The budget allocation for next five year is done based on the ranking of the road and the priority given by DDC authority. Due to budget constraint, full budget for conservation of DRCN roads could not be allocated. Few roads are subjected to improve into gravel surface condition and budget is allocated to complete new construction which will complete the DRCN. Thus this will make all the VDCs accessible by road network in next five years. The detail of allocation of budget for next five year is shown in the table 6.2.1 as below.

Table 6.2.1 DTMP investment plan

Item	Year				
	2070/71	2071/72	2072/73	2073/74	2074/75
Fiscal year					
Total budget	121,695	139,972	159,860	187,139	330,680
Non-DRCN roads	24,339	27,994	31,972	37,428	66,136
DRCN budget	97,356	111,977	127,888	149,711	264,544
Core network length (km)	681.60	681.60	681.60	681.60	681.60
Blacktop (km)	12.20	12.20	12.20	12.20	12.20
Gravel (km)	170.90	178.76	194.92	209.82	228.70
Earthen (km)	498.50	490.64	474.48	459.58	440.70
Conservation (NPR '000)	44,000	55,440	66,072	44,080	36,520
Emergency	8,000	10,000	10,000	20,448	20,448
Routine	10,000	13,000	13,632	13,632	13,632
Recurrent (blacktop)					
Recurrent (gravel)					
Recurrent (earthen)					
Periodic (blacktop)	1,000	2,440	2,440		2,440
Periodic (gravel)	25,000	30,000	40,000	10,000	
Improvement	Cost	BT	GR	BT	GR
		BT	GR	BT	GR
24DR010	8,750	-	-	-	-
24DR015	18,630	-	0.30	-	-
24DR008	22,950	-	11.40	10,000	-
24DR019	5,325	-	0.60	-	-

24DR026	22,45 0	-	3.30		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR013	24,00 0	-	7.50		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR005	39,33 0	6.90	-		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR009	31,83 0	-	4.50		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR002	54,33 0	8.90	2.00		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR004	21,93 5	-	7.00		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR030	49,05 0	-	20.0 0		-	-		-	-	-	-	-	-	-	-	-	-	-	-	10,000	-	4.08		
24DR007	30,40 0	-	8.90		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR018	28,02 0	-	12.0 0		-	-		12,000	-	5.1 4	8,000	-	3.4 3	10,400	-	4.4 5								
24DR025	40,40 5	-	9.90		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR001	8,540	-	4.30		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR012	38,81 0	-	13.2 0		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24DR024	72,33 0	-	17.2 0		-	-		12,000	-	2.8 5	20,000	-	4.7 6	26,453	-	6.2 9	2,500	-	0.59					
24DR003	24,23 0	-	4.60		-	-		-	-	7,000	-	1.3 3	-	-	-	-	-	-	-	-	-	-	-	-
24DR022	49,51 0	-	-	30,000	-	-		8,000	-	-	-	-	-	-	-	-	-	-	2,000	-	-	-	-	-
24DR006	91,67 5	-	20.5 0	5,000	-	1.12	8,537	-	1.9 1	12,000	-	2.6 8	35,000	-	7.8 3	-	-	-	-	-	-	-	-	-
24DR029	23,12 0	-	5.00		-	-		-	-	-	-	-	-	-	-	-	-	-	4,000	-	0.87			
24DR016	32,38 0	-	7.00	8,356	-	1.81	6,000	-	1.3 0	11,866	-	2.5 7	3,778	-	0.8 2									
24DR011	51,64 0	-	18.4 0		-	-		-	-	-	-	-	-	-	-	-	-	-	12,000	-	4.28			

24DR017	95,440	-	29.10		-	-	-	-	-	-	-	-	45,000	-	13.72	
24DR027	124,120	11.00	7.10		-	-	-	-	-	-	-	-	-	-	-	
24DR035	48,140	-	14.40		-	-	-	-	-	-	-	-	-	-	-	
24DR020	146,400	13.00	11.30		-	-	-	-	-	-	-	-	-	-	-	
24DR036	52,975	-	14.50		-	-	-	-	-	-	-	-	10,000	-	2.74	
24DR028	66,685	-	19.10		-	-	-	-	-	-	-	-	-	-	-	
24DR023	48,480	-	14.00		-	-	-	-	-	-	-	-	-	-	-	
24DR037	71,355	-	20.60		-	-	-	-	-	-	-	-	25,000	-	7.22	
24DR031	38,915	-	12.20		-	-	-	-	-	-	-	-	-	-	-	
24DR021	100,250	-	24.50		-	-	-	-	-	-	-	-	-	-	-	
24DR032	103,765	-	28.80		-	-	-	-	-	-	-	-	-	-	-	
24DR038	42,520	-	12.60		-	-	-	-	-	-	-	-	-	-	-	
24DR034	82,995	-	23.80		-	-	-	-	-	-	-	-	30,000	-	8.60	
24DR033	126,660	-	38.70		-	-	-	-	-	-	-	-	-	-	-	
24DR014	314,160	24.00	50.20		-	-	-	-	-	-	-	-	-	-	-	
Total improvement																
				53,356	-	7.89	56,537	-	16.	61,816	-	16.	75,631	-	19.	
									17			23		39		
Construction	Cost	GR		GR		GR		GR		GR		GR		GR		
24DR030	24,940	4.30		-		-		-		-		-	17,524		3.02	
24DR015	34,800	6.00		-		-		-		-		-	-		-	
24DR023	5,800	1.00		-		-		-		-		-	-		-	
24DR034	11,600	2.00		-		-		-		-		-	10,000		1.72	

24DR018	23,200	4.00		-		-		-		-	10,000	1.72
24DR013	63,800	11.00		-		-		-		-	-	-
24DR032	46,400	8.00		-		-		-		-	-	-
24DR022	81,780	14.10		-		-		-		-	30,000	5.17
24DR021	69,600	12.00		-		-		-		-	-	-
24DR020	162,400	28.00		-		-		-		-	30,000	5.17
24DR014	87,000	15.00		-		-		-		-	-	-
24DR017	145,000	25.00		-		-		-		-	20,000	3.45
24DR011	87,000	15.00		-		-		-		-	-	-
24DR031	98,600	17.00		-		-		-		-	-	-
24DR016	185,600	32.00		-		-		-		30,000	5.17	30,000
Total new construction			-	-	-	-	-	-	30,000	5.17	87,524	25.42

6.3 DTMP OUTPUTS

The output of the DTMP will be of conservation 681.60 km, improvement to gravel will be 101.76 km and new construction will be 20.26 km as shown in table 6.3.1 below.

Table 6.3.1		DTMP output	
Conservation	Improvement gravel	Improvement blacktop	New construction
681.60	101.76	-	20.26

6.4 DTMP OUTCOME

After DTMP the status of the DRCN roads are somehow changed the fair weather road have decreased by 15% i.e. from 498.5km to 396.74 km. All- weather gravel road is now increased to 101.76 Km ie from 25% to 40%.

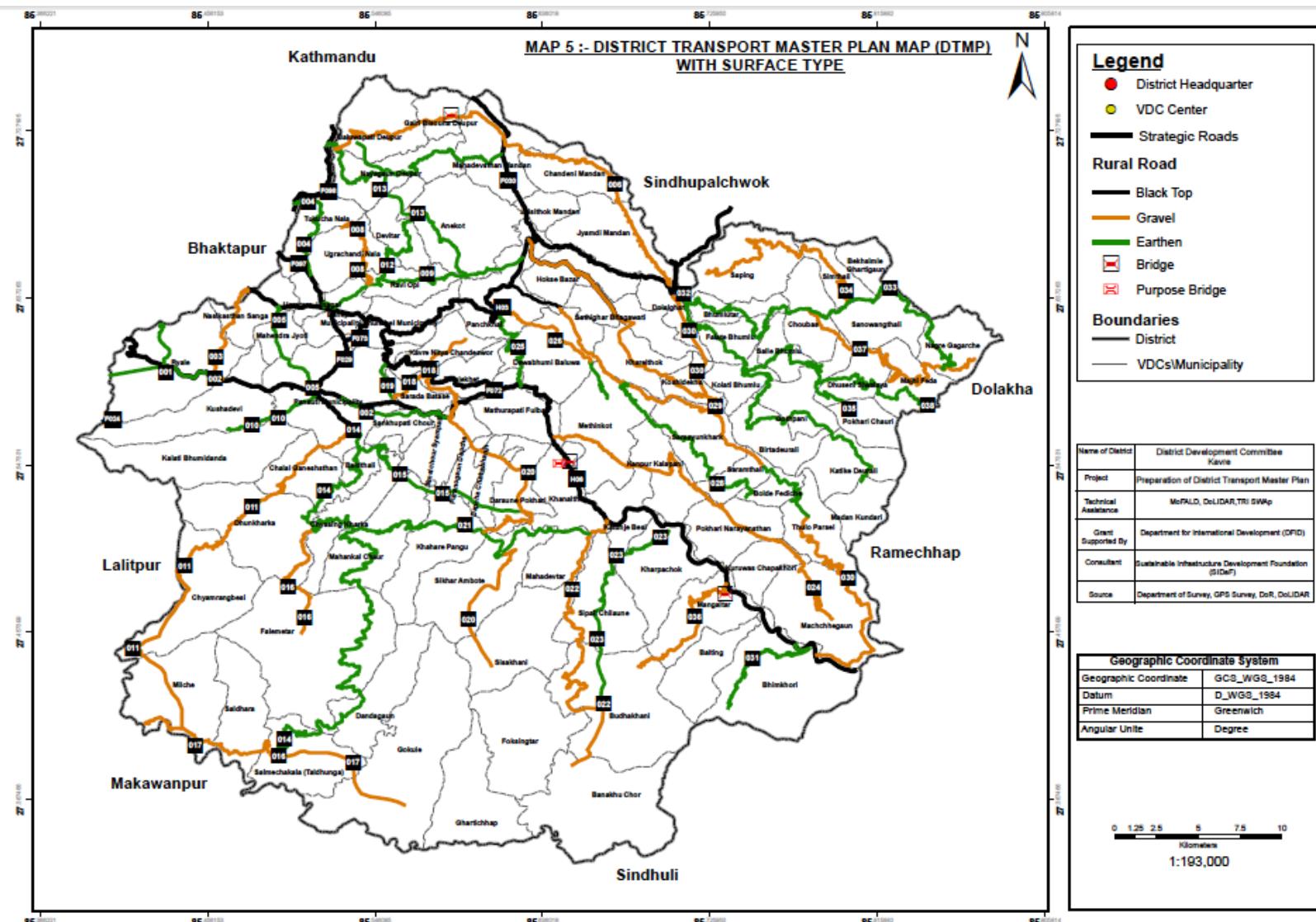
	Total length	Fair-weather		All-weather gravel		All-weather blacktop	
		km	%	km	%	km	%
Start of DTMP	681.60	498.50	73%	170.90	25%	12.20	2%
End of DTMP	681.60	396.74	58%	272.66	40%	12.20	2%
Difference	-	101.76	-15%	101.76	15%	-	0%

7 VDC was not accessed by road at the start of DTMP. 2 VDCs will be not be accessed to DRCN road network at the end of DTMP period. Likewise, 66 VDCs (56% of population) were accessed to fair weather road, will be reduced to 28 VDC (20% of population). Also, 33 VDCs (54 % of population) were accessed to all weather roads, will be accessed to 53 VDCs (72% of population) at the end of DTMP. After DTMP the access condition to VDC population is presented in table 6.4.2 below.

Table 6.4.2 Population with access to road network

	Direct access to SRN			No access to road			Fair-weather core roads			All-weather core roads		
	VDCs	Population	%	VDCs	Population	%	VDCs	Population	%	VDCs	Population	%
Start of DTMP	25	164,507	45%	7	21,402	6%	66	207,998	56%	33	199,362	54%
End of DTMP	25	164,507	45%	2	5,339	1%	28	73,199	20%	53	265,719	72%
Difference	-	-	0%	5	16,063	-4%	38	-134,799	37%	20	66,357	18%

Figure 6 District Transport Master Plan (DTMP)



ANNEX 1 TRAFFIC DATA

ANNEX 1 TRAFFIC DATA

Code	Description	Total length (km)	Motor-cycle	Car-Jeep-Minibus	Tractor	Truck-Bus	PCU
24DR001	Mane Dhovan - Ranikot - Surya Binayak	3	3	2.0	0	0	4
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko (Lalitpur)	150	150	10	5	55	315
24DR003	Sanga - Aashapuri -Ryale	50	50	22	0	2	55
24DR004	Nala-Ghimire Gaun-Nagarkot	28	28	3	0	2	25
24DR005	Bhaisepati (Sanga) - Basdol (Mahendrajyoti)-Panauti	80	80	30	0	38	222
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguawapati-Jogitar-Jyamdi-Dolalghat	56	56	7	2	3	51
24DR007	Kuntabesi-Nayagaun-Nagarkot	156	50	17	2	3	58
24DR008	Dhulikhel - Raviopi - Nagarkot	3	3	3.0	0	0	5
24DR009	Banepa - Raviopi- Panchkhal	50	50	30	3	6	85
24DR010	Panauti-Malpi-Kolati Bhumidanda	60	60	66	0	0	96
24DR011	Khopasi-Dhungkharka-Chyamrangbesi-Milche Borang	55	55	26	0	6	78
24DR012	Ravi Opi (Dundamukh) - Devitar - Anekot (Ghumauni Chour) - Nayagaun	55	55	6	2	0	38
24DR013	Samajkalyan (Panchkhal) -Anekot - Nagarkot	15	15	9	0	0	17
24DR014	Khopasi-Kamidanda-Taaldhunga	46	46	21	15	7	102
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	10	10	3.0	6	2	28
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni (Makwanpur)	8	8	0	0	0	4
24DR017	Milche Borang Danda-Taal Dhunga-Banakhu	9	9	0	0	0	5
24DR018	Kavrebhanjyang - Faskot - Inte-Sankhu Fendi - Shyampati Kuru Gaun - Bhalu Kharka - Baseri	6	6	3	0	2	14
24DR019	BP Highway - Sharda Batase - Inte	6	6	3	0	2	14
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Sikhar Ambote-Sanjhakot-Tara Khase Lekh Gokule	45	45	6	7	15	103
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote- Mahadevtar-Sisakhani (Pota Dhovan)	125	5	3	0	0	6
24DR022	Katunje-Sipali-Budakhani-Banakhu	13	13	4.0	0	2	19
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	3	3	3.0	0	0	5
24DR024	Bhakunde-Pokhari Narayanthan-Mechhe	40	40	25.0	0	4	61
24DR025	Tinipple - Kalchhe- Bela (BP Highway)	35	35	9.0	0	4	43
24DR026	Tinipple-Baluwa-Bhedabhari	2	2	3.0	0	2	12
24DR027	Panchkhal-Bohere Dhovan - Timalbsi - Thulo Parsel	80	80	23.0	0	10	103
24DR028	Bohere Dovan-Aadha Bato - Sarsyunkharka (Danda Gaun)-Saramthali-Maure	12	12	6.0	0	2	20
24DR029	Palanchowk - Kharelthok - Koshi Dekha	55	55	9.0	3	9	79
24DR030	Mamti - Titretar - Chopatar - Thulo	2	2	2.0	0	0	3

Code	Description	Total length (km)	Motor-cycle	Car-Jeep-Minibus	Tractor	Truck-Bus	PCU
	Parshel- Dolalghat						
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhor)- Betini - Ahale Banspur	4	4	-	0	5	22
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali -Madankudari	27.5	27.5	5.0	0	0	19
24DR033	Dolalghat-Sallebhumlu-Chaubas-Lauredeurali-Nagregagarche	20	20	2.0	0	15	72
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	10	10	-	0	11	49
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	4	4	-	0	5	22
24DR036	Chiuribas (Mangaltar)-Dandakharka-Budakhani (Killa)	8	8	9.0	0	0	13
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	11	11	6.0	0	0	12
24DR038	Dhadkharka - Majhifeda - Shailung	5	5	3.0	0	7	34
Total							

ANNEX 2 POPULATION SERVED

#	VDC/municipality	Population				Road			SRN																																																																		
			24DR01	24DR02	24DR03	24DR04	24DR05	24DR06	24DR07	24DR08	24DR09	24DR10	24DR11	24DR12	24DR13	24DR14	24DR15	24DR16	24DR17	24DR18	24DR19	24DR20	24DR21	24DR22	24DR23	24DR24	24DR25	24DR26	24DR27	24DR28	24DR29	24DR30	24DR31	24DR32	24DR33	24DR34	24DR35	24DR36	24DR37	24DR38																																			
70	Puranogau Dabchha	1,988						X																												X																																							
71	Ravi Opi	4,315						X	X		X																								X																																								
72	Ryale	4,302	X	X	X																																																																						
73	Saldhara	2,646																																																																									
74	Salle Bhumlu	1,763																																																																									
75	Salmechakhal (Taaldhuna)	1,721																																																																									
76	Sankhupati Chour	3,372	X																																																																								
77	Sanowangthali	1,509																																																																									
78	Saping	1,509																																				X																																					
79	Sarda batase	2,368																																																																									
80	Saramthali	1,071																																																																									
81	Sarasyunkharya	5,316																																																																									
82	Sathighar Bhagwati	2,657																																																																									
83	Sikharambote	3,711																																																																									
84	Simalchour Shyampati	3,819	X																																																																								
85	Simthali	1,731																																			X																																						
86	Sipali Chilaune	2,878																																																																									
87	Sisakhani	1,754																																																																									
88	Thulo parsal	2,476							X																																																																		
89	Tukucha Nala	4,907																																																																									
90	Ugratara Janagal	1,634																																																																									
	Total population	368,165	1	5	2	3	3	6	3	6	4	2	6	4	4	18,484	3	25,462	5	15,224	8	3	8,744	7	22,167	5	16,474	2	5,740	9	30,060	5	14,118	6	17,865	3	6,953	9	31,809	3	23,486	3	24,198	9	27,814	4	10,817	3	6,807	11	33,918	1	5,524	7	14,155	6	11,588	5	8,412	5	10,269	3	10,268	5	10,199	2	4,385	25	164,507	X					
	Total VDCs/municipalities	90																																																																									

Source: Nepal population census 2011

ANNEX 3 LOCATIONS OF PROPOSED INTERVENTIONS

ANNEX 3 LOCATION OF PROPOSED INTERVENTIONS

Road code	Road Name	Length (km)	Start chainage (km) or X-coordinate	End chainage (km) or Y-coordinate	Rehabilitation (km)	Gravelling (km)	Blacktopping (km)	Widening (m)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)
24DR001	Ranikot - Mane Dhovan - Suryabinayak	4.3	0+000	4+300	1.00	4.30		-	-	-	-	-	-	-	-	-
24DR002	Namobuddha-Sankhu -Panauti-Kushadevi-Rayale-Gwarko(Lalitpur)	19.6	0+000	19+600	-	2.00	8.9		-	-	-	-	-	-	-	-
24DR003	Sanga - Aashapuri -Ryale	9.4	0+000	9+400	1.50	4.60	0		-	-	5	-	-	-	100	9,300
24DR004	Nala-Ghimire Gaun-Nagarkot	10	0+000	10+000	0.90	7.00	0		-	7	13	-	6	-	610	2,800
24DR005	Bhaisepati (Sanga) - Basdol(Mahendrajyoti)-Panauti	7.3	0+000	7+300	-	-	6.9									-
24DR006	Nagarkot(Kavrechock)-Garibisuna-Hinguwapati-Jogitar-Jyamdi-Dolalghat	38.9	0+000	38+900	7.60	20.50	0		-	-	20	-	6	-	945	29,200
24DR007	Kuntabesi-Nayagaun-Nagarkot	19.2	0+000	19+200	6.70	8.90	0		-	-	-	-	2	-	500	4,000
24DR008	Dhulikhel - Ankot - Nagarkot	11.2	0+000	11+200	3.00	11.40	0		-	-	-	-	-	-	-	-
24DR009	Banepa - Raviopi- Panchkhal	14.5	0+000	14+500	3.00	4.50	0		-	-	-	-	3	-	100	14,000
24DR010	Panauti-Malpi-Kolati Bhumidanda	6	0+000	6+000	-	-	0		-	-	5	-	-	-	-	5,500
24DR011	Khopasi-Dhungkharka-Chyamrangbesi	18.4	0+000	18+400	4.00	18.40	0		-	-	-	-	2	-	1,350	7,500
24DR012	Ravi Opi(Dundamukh) - Devitar - Anekot (Ghumauni Chour)- Nayagau	9.2	0+000	9+200	0.90	13.20	0		-	-	-	-	8	-	500	8,500
24DR013	Samajkalyan(Panchkhal) -Anekot - Nagarkot	7.5	0+000	7+500	-	7.50	0		-	-	-	-	-	-	-	7,000
24DR014	Khopasi-Kamidanda-Taaldhunga	60.6	0+000	60+600	-	50.20	24		-	-	-	-	-	-	-	58,000
24DR015	Katunjebesi-Sikhar Ambote-Roshikinar-Panauti	7.1	0+000	7+100	-	0.30	0		12	-	-	-	-	-	-	7,100
24DR016	Chyalti-Falametar- Taal Dhunga - Bhorleni(Makwanpur)	9.1	0+000	9+100	5.00	7.00	0		-	-	6	-	3	-	600	8,900
24DR017	Milche Borang Danda-Taal Dhunga-Banaku	29.1	0+000	29+100		29.10	0		-	-	10	-	6			28,000
24DR018	Kavrebhanjyang - Faskot - Inte	4.4	0+000	4+400	-	12.00	0		-	-	-	-	-	-	140	4,000
24DR019	BP Highway - Sharda Batase - Inte	2.7	0+000	2+700	-	0.60	0		-	7	-	-	2	-	-	2,000
24DR020	Kavrebhangyang - Dapcha - Pipaltar-Naubise	21.6	0+000	21+600	4.00	11.30	13		15	-	-	-	1	-	600	25,100
24DR021	Kamidanda Bhanjyang-Medhamsu-Falamsangu-Sikhar Ambote-Mahadevtar-Sisakhani(Pota Dhovan)	24.5	0+000	24+500	14.30	24.50			15	8	10		1		-	22,000

Road code	Road Name	Length (km)	Start chainage (km) or X-coordinate	End chainage (km) or Y-coordinate	Rehabilitation (km)	Gravelling (km)	Blacktopping (km)	Widening (m)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)
24DR022	Katunje-Sipali-Budakhani-Banakhu	20.9	0+000	20+900	5.00	-	0		15	8	20	-	3	200	760	19,000
24DR023	Katunje-Thalibesi-Kharpachock-Kalinchock-Sungure-Sipali Bhanjyang	15	0+000	15+000	3.00	14.00	0		-	-	-	-	-	-	460	13,000
24DR024	Bhakunde-Pokhari Narayanthan-Mechhe	30.4	0+000	30+400	-	17.20			-	-	-	8	-	-	-	27,500
24DR025	Tiniple - Kalche- Bela(BP Highway)	9.9	0+000	9+900	-	9.90	0		12	5	5	10	-	-	40	9,000
24DR026	Tiniple-Baluwa-Bhedabhari	11.8	0+000	11+800	-	3.30	0		-	-	-	-	1	-	-	11,000
24DR027	Panchkhal-Bohere Dovan - Timalsi - Thulo Parcel	28.5	0+000	28+500	3.00	7.10	11		-	-	42	10	7	-	440	27,000
24DR028	Bohore Dovan-Aadha Bato - Sarsyunkharka (Danda Gaun)-Saramthali-Maure	19.1	0+000	19+100	6.00	19.10	0		-	-	-	1	4	-	150	18,000
24DR029	Palanchowk - Kharelthok - Koshi Dekha	6.2	0+000	6+200	5.00	5.00	0		-	-	-	-	1	-	370	6,000
24DR030	Mamti - Titretar - Chopatar - Thulo Parshel- Dolalghat	12	0+000	12+000	3.00	20.00	0		-	-	-	-	-	-	300	6,500
24DR031	Piple Deurali - Chisapani - Ghyangdanda (Bhimkhori)	8.4	0+000	8+400	2.50	12.20	0		-	-	-	-	-	-	-	8,000
24DR032	Dolalghat-Falante-Kolati-Birta Deurali-Gothpani-Kattike Deurali Madankudari	30.2	0+000	30+200	5.00	28.80	0		-	15	-	-	-	-	-	30,200
24DR033	Dolalghat-Sallebhumlu-Choubas-Lauredeurali-Nagregagarche	38.7	0+000	38+700	-	38.70	0		-	-	-	-	-	-	-	38,000
24DR034	Dolalghat-Saping-Simthali-Bekhsimle	23.8	0+000	23+800	-	23.80	0		-	15	15	-	3	-	100	23,800
24DR035	Kolati -Dhadkharka - Pokhari Chauri - Gurase	14.4	0+000	14+400	-	14.40	0		-	-	17	-	3	-	80	13,500
24DR036	Chiuribas(Mangaltar)-Dandakharka-Budakhani(Killa)	15.5	0+000	15+500	4.50	14.50	0		-	-	-	-	1	-	755	14,000
24DR037	Chaubas-Gumpati- Salambu Kafle - Kilpubagar	20.6	0+000	20+600	7.00	20.60	0		-	-	7	15	-	-	-	18,500
24DR038	Dhadkharka - Majhifeda - Shailung	12.6	0+000	12+600	-	12.60	0		-	-	15	-	4	-	100	12,000
Total		652.6		95.90	498.50	63.8	0	69	65	190	44	67	200	9000	537700	