



Government of Nepal
Ministry of Federal Affairs and Local Development
District Development Committee (DDC)
Udaypur

Ref. No:

FOREWORD

It is my great pleasure to introduce this revised District Transport Master Plan (DTMP) of Udaypur district which was concurred by the district stakeholders meeting. Based on the DTMP Guideline 2012, all together 22 District Road Core Network (DRCN) aiming to connect all Village Development Committee (VDC) headquarters with the district headquarters, either directly or through strategic road network (SRN) has been selected. By bringing the DRCN to a maintainable and all- weather standard, year-round access to all VDCs headquarters can be ensured.

I believe this document will be helpful in sustainable planning, resources mobilization, implementation and monitoring of the road development. The document is anticipated to generate substantial employment opportunities for rural people through conversation, improvement activities of the existing road network including new construction requirements. DRCN plays an important role to strengthen and promote overall economic growth of the district through established and improved year round transport services reinforcing intra and inter district linkages. It is most crucial to expand DRCN in a planned way as per the DTMP recommendations by considering the framework of available resources in DDC. This document is very essential in lobbying the donor agencies through central government to attract fund gap. Furthermore, this document will be supportive in avoiding prevailing duplication in resources allocation in road network development by considering basket fund approach.

I would, firstly like to express my gratitude to RAP3 for technical support. Secondly, my thanks go to Chief District Engineer (CDE) Mr. Nabin Kumar Singh, Er. Basant Thapa and other DDC/DTO Staff for their valuable efforts in the process of producing this document. My Special thank goes to all the representatives of political parties, who played crucial role in providing constructive feedbacks and valuable support in preparing this document successfully.

Last but not least, I would like to express my heartfelt gratitude to Ministry of Federal Affairs and Local Development (MoFALD) and Department of Local Infrastructure Development and Agriculture Road (DoLIDAR/MoFALD) for providing valuable suggestions and cooperation to produce this report. Any pioneering and constructive suggestions regarding this document will be highly appreciated.

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We would like to express our sincere gratitude to the Project Coordinator Mr. Maheshwor Ghimire (SDE) of DoLIDAR and Programme Manager Mr. Michael Green, DTL Mr. Dilli Prakash Sitaula, Engineering Team Leader Mr. Bill Seal, Er. Manoj Krishna Shrestha and Er. Laxman Bhakta Dahi Shrestha of (RAP 3) whose valuable co-operation and suggestions guided us to accomplish this stage of work. We would also like to express our sincere thanks to LDO of Udayapur DDC Mr. Pitambar Adhikari, DTO Chief Mr. Nabin Kumar Singh (SDE), DTO Er. Mr. Gopal Raj Raya and Er. Mr. Basant Thapa, Planning Officer, Program Officer, Information Officer, Sub-engineers and other staffs of DDC and DTO Office, Udayapur for their extended help and regular support.

The local leaders and local people from Udayapur district are also thankful for their help and suggestion for the selection and identification of the DRCN. We hope, this prepared DTMP of Udayapur District will be very helpful and a valuable guideline for the planning and development of effective and systematic transport network in Udayapur District.

Finally, we would like to thank our DTMP team members Er. Rohit Kumar Shrestha Team Leader, Er. Sanjay Kumar Jha, Er. Subarna Shrestha and GIS expert Er. Yadu Kishor Shrestha for their valuable efforts to bring the study report in this stage.

Er. Hare Ram Shrestha
Project Director
SIDeF

EXECUTIVE SUMMARY

Udaypur District is located in Sagarmatha Zone; Eastern Region of Nepal. It is one of the southern terai district of Nepal. It covers 2063 square kilometers and it borders with Bhojpur, Khotang and Okhaldhunga to the north, Sunsari and Dhankuta to the east, Dhanusha and Sindhuli to the west and Siraha and Saptari to the south.

Udaypur is situated between Mahabharat and Chure or Siwalik Hills. So it has very slopy and hilly area where population desity is very less and fewer agriculture land in Mahabharat Hill range and it has plain areas, covered with agricultural land and forest surrounding Siwalik Hills.

Most of the people living in this district are farmers. The district headquarters Triyuga lies on souther parts of the district.

Major languages spoken in the Udaypur district are: Nepali, Rai, Magar and Tharu. Udaypur District is connected by Mahendra highway and district headquater Triyuga is connected to East- West Highway by Kadmaha –Triyuga Road.

As per the census of 2011, total population of the district is 3, 17,532 comprising 1, 49,712 male and 1, 67,820 female clustered in 66,557 households with household size of 4.7 and annual population growth rate of 1.03%. Average population density of district is 153.9 per sq. km.

The district is served by surface transport facilities linking the district with the national strategic road network through Chatara-Phattepur-Murkuchha-Gaighat-Katari, Gaighat-MathilloMalbase, and Katari-Harkapur (Sunkoshi). The network of feeder roads, district roads and village roads are increasing significantly in the district. However, district and village roads are mostly in poor condition that requires upgrading/rehabilitation and proper maintenance.

Total length of road in Udaypur district is 743.01 km where 243.36 km is SRN roads, no urban roads, and 375.52 km is a DRCN road which is approved by Udaypur DTICC in 22 Baisakh 2072 and 124.13 km is Village roads.

TABLE ES1.

Road Class	Total length	Black Top	Gravel	Earthen
Strategic road network	243.36	89.96	44.40	109.00
Urban roads	-	-	-	-
District road core network	375.52	-	58.22	317.30
Village roads	124.13	0.81	16.79	106.52
Total	743.01	90.77	119.42	532.82

Source of urban road: TriyugaMunicipality

The total estimated cost for conservation, improvement and new construction for selected DRCN road is **NPR2,512,014,000**as per present condition. The present cost for conservation is **NPR391,315,000.00**,cost for improvement is **NPR 1,524,830,000.00**and cost for new construction is **NPR 595,869,000.00**. Budget is worked out for DRCN roads. The cost for conservation may vary in consequent year with respect to improvement of the road. Improvement of blacktop done where the traffic exceeds 100CPU while traffic surveying.

Table ES2.

Improvement type	Requirement	Cost (NPR)
Bridges	660 m	528,000,000
Slab culverts	235 m	47,000,000
Causeways	42 m	6,300,000
Hume pipes	85 units	1,275,000
Masonry retaining walls	- m ³	-
Gabion retaining walls	1,083 m ³	3,249,000
Lined drains	32,309 m	48,463,500
Widening	- m	-
Rehabilitation	34.40 km	34,400,000
Gravelling	317.30 km	698,053,281
Blacktopping	26.35 km	158,089,086
New construction	104.54 km	595,869,199
Total		2,120,699,066

The available funding resource on road sector for the coming five years (fiscal year 2072/73 to 2076/77) is estimated to be NPR 1,100,068,000.00. Allocation to the district road core network (DRCN) was set at 80% of the total road sector budget, which was subsequently allocated firstly to the annual maintenance needs, secondly to the improvement needs and lastly to new construction. Since DDC/DTICC meeting decided to allocate 85% of total road sector budget which comes to **NPR935,058,000.00**. However, Budget has been allocated as table **6.2.1(MANUAL)** in this report.

Within the DTMP period, the percentage changes of road condition are seen. The fair weather road length is reduced from 84% to 64%, all weather gravel road is improved from 16% to 29%.

ABBREVIATIONS

DDC	District Development Committee
CC	Cement Concrete
DoLIDAR	Department of Local Infrastructure Development and Agriculture Road
DOR	Department of Road
DRCN	District Road Core Network
DRILIP	Decentralized Rural Infrastructure And livelihood Project
DTICC	District Transport Infrastructure Coordination Committee
DTMP	District Transport Master Plan
DTO	District Technical Office
DTPP	District Transport Perspective Plan
GIS	Geographical Information system
GON	Government of Nepal
GPS	Global Positioning System
LGCDP	Local Governance and Community Development Programme
MFALD	Ministry of Federal Affairs and Local Development
PAF	Poverty Alleviation Fund
RAIDP	Rural Access Improvement and Decentralization Project
RCIW	Rural community Infrastructure Work
SWAp	Sector Wide Approach
VDC	Village Development Committee
VPD	Vehicle per Day

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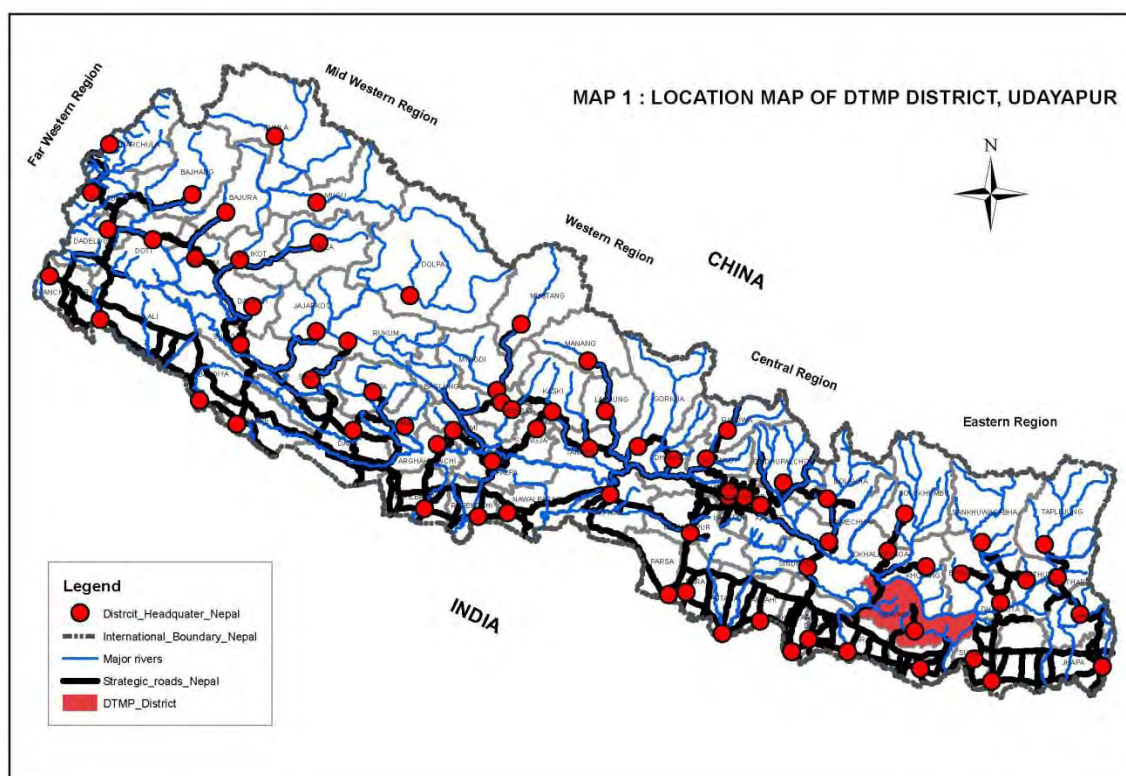
1. INTRODUCTION

Udaypur district is located in Sagarmatha zone, Eastern Region of Nepal. It is situated at mid of Sagarmatha Zone. It covers 2063 square kilometers and it borders with Bhojpur, Khotang and Okhaldhunga to the north, Sunsari and Dhankuta to the east, Dhanusha and Sindhuli to the west and Siraha and Saptari to the south. Topographically, Udayapur district entails 36° 39'' – 27° 11'' latitude and 86° 09' - 87° 01' longitude. The district represents different agro-climate zone comprising of river valleys, flat land to middle and high hills. Geopolitically, the district is administratively divided into three electoral constituencies 13 Illakas which consist of 40 VDCs and 3 municipalities (one existing Triyuga and two newly formed namely Beltar Bashaha and Katari) whereas new two municipalities recently declared with merging four VDCs by Nepal Government. Each VDC and municipality is further divided into Wards.

The total area of the district is 2063 sq. km. View on land use pattern, 53.8% of area is covered by forest, 34.4% area covered by agricultural land, 4.5% pasture land and remaining 7.3% area covered by others. Elevation of District headquarter of Udayapur, Gaighat is 103 m from mean sea level. Major rivers of the district are Sunkoshi, Saptakoshi, Kamala, Triyuga etc. Rivers forms the Northern, Western and Eastern Borders of the district. Other rivers of the district are Badyanath Khola, Tawa Khola, Kakaru Khola, Chari Khola, Raankula Khola, Baruwa Khola, Ansheri Khola, Seti Khola and Bahadur Khola.

The annual rainfall is about 1699.90 mm and average temperatures vary from 20°C to 30°C (the maximum temperature is 31°C and minimum temperature 20°C). Subsistence agriculture farming, as the main source of occupation and livelihood of the majority of the population, with more than 70% of the population active in this sector. Similarly 8% in Industry, 6.5% in Business and 15.5% in others. Paddy, Wheat, Maize, oil seed, millet, pulses and fruits are the main agricultural production in this district for the domestic use and export to nearby districts. Seasonal and off-season vegetables are other major farming activity of the district.

Figure 1 Map of Nepal Showing Location of the Udaypur District



According to the National Census 2011, the population of the district is 317,532 comprising 167,820 female (52.85%) and 149,712 male (47.15%) residing in 66,557 households. Udaypur district has an average population density of 610 people per square kilometer. Udaypur district has multi-ethnicity with majority of Chhetri, Rai, Magar, Tharu, Bramin, Tamang, Kami, and Newar. Major languages spoken in the Udaypur district are Nepali, Rai, Magar and Tharu.

Gaighat is the district headquarters of Udaypur which is connected to East – West highway by Sagarmatha highway Kadmaha(MRM)–Gaighat. The district is further served by other surface transport facilities with the national strategic road network (feeder roads) namely Chatara-Phattepur-Murkuchha-Gaighat-Katari, Gaighat-Mathillo Malbase and Katari-Harkapur (Sunkoshi District Border). There are numerous district and village roads in the district. From the field study, it has been observed that most of them are fair-weather status and only 72.35 km is gravelled which can be treated as all-weather condition. Most of these roads have been constructed using excavator without proper planning and engineering design. These rural roads are in poor condition and need to be improved /upgraded for safe and reliable journey. Since the road construction activities are rapidly growing stage in the district, the network of feeder roads, district roads and village roads are increasing significantly in the district.

2. DISTRICT ROAD CORE NETWORK (DRCN)

This chapter gives an overview of the existing roads in Udaypur District, distinguishing between strategic roads, urban roads and rural roads. It goes 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.

2.1 STRATEGIC ROAD NETWORK

Udaypur district has an estimated road network length of 743.01 kilometres, including 243.36 kilometres of strategic roads (SRN) managed by DOR, no urban roads and 499.65 kilometres of rural roads managed by Udaypur DDC and almost all VDCs in the district. SRN have 89.96 km blacktopped, 44.40 km gravelled and are 109.00 km are earthen. Similarly, among the total 499.65 km of rural roads, 375.52 km is DRCN roads identified and approved by DDC, DTICC meeting (minutes of meeting are attached in Annex 5) and 124.13 km as village roads. In total 28.289 % roads are either gravelled or blacktopped and 71.72% are earthen. A map of the total road network in Udaypur is shown in Figure 2 at the end of this chapter.

Table 2.1.1 Total road length (km)

Road Class	Total length	Black Top	Gravel	Earthen
<i>Strategic roads</i>	243.36	89.96	44.40	109.00
<i>Urban roads</i>	-	-	-	-
<i>Rural roads</i>	499.65	0.81	75.02	423.82
Total	743.01	90.77	119.42	532.82

2.2 NATIONAL HIGHWAYS AND FEEDER ROAD

Udaypur district has two highway (69.86 km) and two feeder roads (173.50 km) totalling to 243.36 km. Of which, 89.96 km is blacktop, 44.40 km is gravel and 109.00 km is earthen surface. The SRN (main highway and feeder roads) are listed below:

Table 2.2.1 National Highways and Feeder Roads (km)

Code	Name of Road	Total length	Black Top	Gravel	Earthen
H09	Siswari Bridge - Cement Factory	8.62	8.62		
H09	Cement Factory - Gaighat	7.24	7.24		
H09	Gaighat- Ranibas	31.50	5.10	26.40	
H09	Ranibas - Phoksing Tar(Sunkoshi, District Border)	21.50			21.50
F052	Jyamire (District Border) - Katari	20.00	20.00		
F052	Katari - Harikapur(Sunkoshi)	49.00	49.00		
F057	Chatara - Phattepur - Murkucha - Gaighat - Katari	103.00		18.00	85.00
F057	Katari(F052) - Baireni	1.50			1.50
H18	Ghurmi(District Border) - Nayasthan(Bhadaure Khola)(Midhil)	1.00			1.00
Total		243.36	89.96	44.40	109.00

2.3 DISTRICT ROAD CORE NETWORK

As a part of the preparation of this DTMP, the District Road Core Network (DRCN) identified together with DTICC/DDC. This DRCN is the minimum network that allows all VDC headquarters to be connected with the strategic road network and the district headquarter, 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.

In the course of DTMP preparation, the entire inventory of existing roads in the district has been listed and consultation meeting conducted with DDC/DTO engineers and technician for the primary workout in identifying list of DRCN. In the process of selecting DRCN, some roads are extended beyond the VDC headquarters and some roads are added to provide access to agriculturally potential areas as well as tourism/culturally potential areas as such DDC/DTICC meeting recommended to incorporate those road length in the DRCN. On 7 July 2015, DDC/DTICC meeting was organized by DDC Udaypur to finalize DRCN list and approval from the DDC meeting.

The resulting District Road Core Network (DRCN) in Udaypur district is shown in Figure 3 at the end of this chapter. The DRCN covers all 40 VDCs and the DRCN consists of 22 district roads with a total length of 375.52 km. most of the DRCN roads are either graveled or earthen surface. Five roads still need to be extended to link up with other road network in order to complete the network cycle. The blacktopped and gravel roads are considered as all weather and earthen surface as fair weather roads. (See Table 2.3.1). A complete list of the DRCN roads and their characteristics is provided in Table 2.3.2

Table 2.3.1 Total road length (km)

Road Class	Total length	Black Top	Gravel	Earthen
Strategic road network	243.36	89.96	44.40	109.00
Highways	69.86	20.96	26.40	22.50
Feeder roads	173.50	69.00	18.00	86.50
Urban roads	-	-	-	-
	-			
	-			
District road core network	375.52	-	58.22	317.30
Village roads	124.13	0.81	16.79	106.52
Total	743.01	90.77	119.42	532.82

Source: DoR and Municipality

Table 2.3.2 District road core network (km)

Code	Name of Road	Total length	Black Top	Gravel	Earthen	All weather	Fair weather	New Construction
Total		375.52	-	58.22	317.30	58.22	317.30	
Percentage			0%	16%	84%	16%	84%	104.54
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54			6.54	-	6.54	18.08
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18			5.18	-	5.18	
14DR003A	Betini-Majkharka-	45.03			45.03	-	45.03	

	Dillibar- Puwarebhanjya ng- Rautapokhari Road (Betini to Majhkharka)							
14DR003B	Betini- Majhkharka- Dillibar- Puwarebhanjya ng- Rautapokhari Road (Majhkharka to Rauta)	29.31			29.31	-	29.31	
14DR004	Nunthala- Madale- Rupatar- Thanagauun- Basbote Road	23.09			23.09	-	23.09	7.98
14DR005	Katari - Bahunitar-Barre Road	26.44		3.71	22.72	3.71	22.72	
14DR006	Nepaltar- Udayapur Gadi- Dumre-Barre Road	14.46			14.46	-	14.46	
14DR007	Nagare-Baraha- Basbote Road	15.54			15.54	-	15.54	5.30
14DR008	Baraha-Tamilsa Road	3.63			3.63	-	3.63	0.90
14DR009	Barah-Balamta Road	7.73			7.73	-	7.73	5.26
14DR010	Majhkharka- Jante-Lafagaun Road	13.31			13.31	-	13.31	11.02
14DR011	Butatar- Bhijepani- Dahar- Majhkharka Road	3.51			3.51	-	3.51	11.06
14DR012	Murkuche- Puware- Bhutatar- Bhandare Ghat Road	20.07			20.07	-	20.07	
14DR013	Mohanpur- Kakani-Biralitar- Hadebas Kolte Road	20.96		5.28	15.67	5.28	15.67	
14DR014	Ranibas-	20.20			20.20	-	20.20	4.05

	Rautapokhari-Salle-Kuletar Road							
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53			5.53	-	5.53	4.44
14DR016	Sukaure-Chilaune Bhanjyang-Beldoban Road	10.66			10.66	-	10.66	16.13
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35		26.35		26.35	-	
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99			13.99	-	13.99	
14DR019	Basaha-Chaudandi-Ranitar Road	22.80		1.14	21.66	1.14	21.66	
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98		2.89	9.09	2.89	9.09	
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45		18.84	2.61	18.84	2.61	
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76			7.76	-	7.76	20.32

Note: Following 6 DRCN Roads lies within below mentioned municipalities. These roads will later converts to Urban Roads once MTMP prepares and takes responsibility by respective municipality. This will results in reduced DRCN length to 347.95 km only:

I) DRCN Roads lies within Katari Municipality

Road Code	Road Name	Total Length-Km	BT	GR	ER	Length within Municipality
14DR005	Katari - Bahunitar-Barre Road	26.44		3.71	2.76	6.47
1	Sub-Total	26.44	-	3.71	2.76	6.47

II) DRCN Roads lies within Triyuga Municipality

Road	Road Name	Total	BT	GR	ER	Length within
------	-----------	-------	----	----	----	---------------

Code		Length-Km				Municipality
14DR016	Sukaura - Chilaune Bhanjyang - Beldoban Road	10.66			1.84	1.84
14DR013	Mohanpur - kakani - Biralitar - Hadebas Kolte Road	20.96		5.11	4.67	9.78
14DR017	Gaighat(Motigada) - Gogidaha - Hadiya - Sundarpur(Fattepur) Road	26.35		5.48		5.48
3	Sub-Total	57.97	-	10.59	6.51	17.10

III) DRCN Roads lies within Beltar - Basaha Municipality

Road Code	Road Name	Total Length-Km	BT	GR	ER	Length within Municipality
14DR018	Beltar - Birendra Bazar - Buwajhorgat Road	13.99			0.68	0.68
14DR019	Basaha - Chaudandi - Ranitar Road	22.80			3.32	3.32
2	Sub-Total	36.79	-	-	4.00	4.00
6	Total of All three municipalities	121.20	-	14.30	13.27	27.57

Note: Though the Road14DR003 (Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari) is total 74.34 km and passes through Sirise, Nametar, Limpatar, Okhale, Lekhgau, Iname, Bhutar and Rauta. As it is one of the important roads of the district and having very long route it has been spilited in two parts having same name and code. First section of 14DR003A passes through Sirise, Nametar, Limpatar, Okhale, Lekhgau settlement having length 45.03 km and second section 14DR003Bpasses through Lekhgau, Iname, Bhutar,and Rautasettlement having length 29.31 km. Total 6.47 km length of 14DR005 road lies within Katari municipality, total 17.10 km length of 14DR013, 14DR016 and 14DR017 road lies within Triyuga municipality , total 4.00 km length of 14DR0018 and 14DR019 road lies within Bashaha municipality. If they are converted into urban roads total 27.57 km length will be reduced in DRCN roads. Hence in this case the DRCN Length will be 347.95 km.

2.4 VILLAGE ROADS

The 124.13km 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 40 VDCs in Udaypur district. On average each VDC will thus be responsible for 3.10 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, plus community contribution. Some district funding will also be allocated to the village roads. However, priority will be given to the use of this district funding for maintenance, especially emergency maintenance and routine/recurrent maintenance to keep the village roads open.

Figure 2: Total road inventory

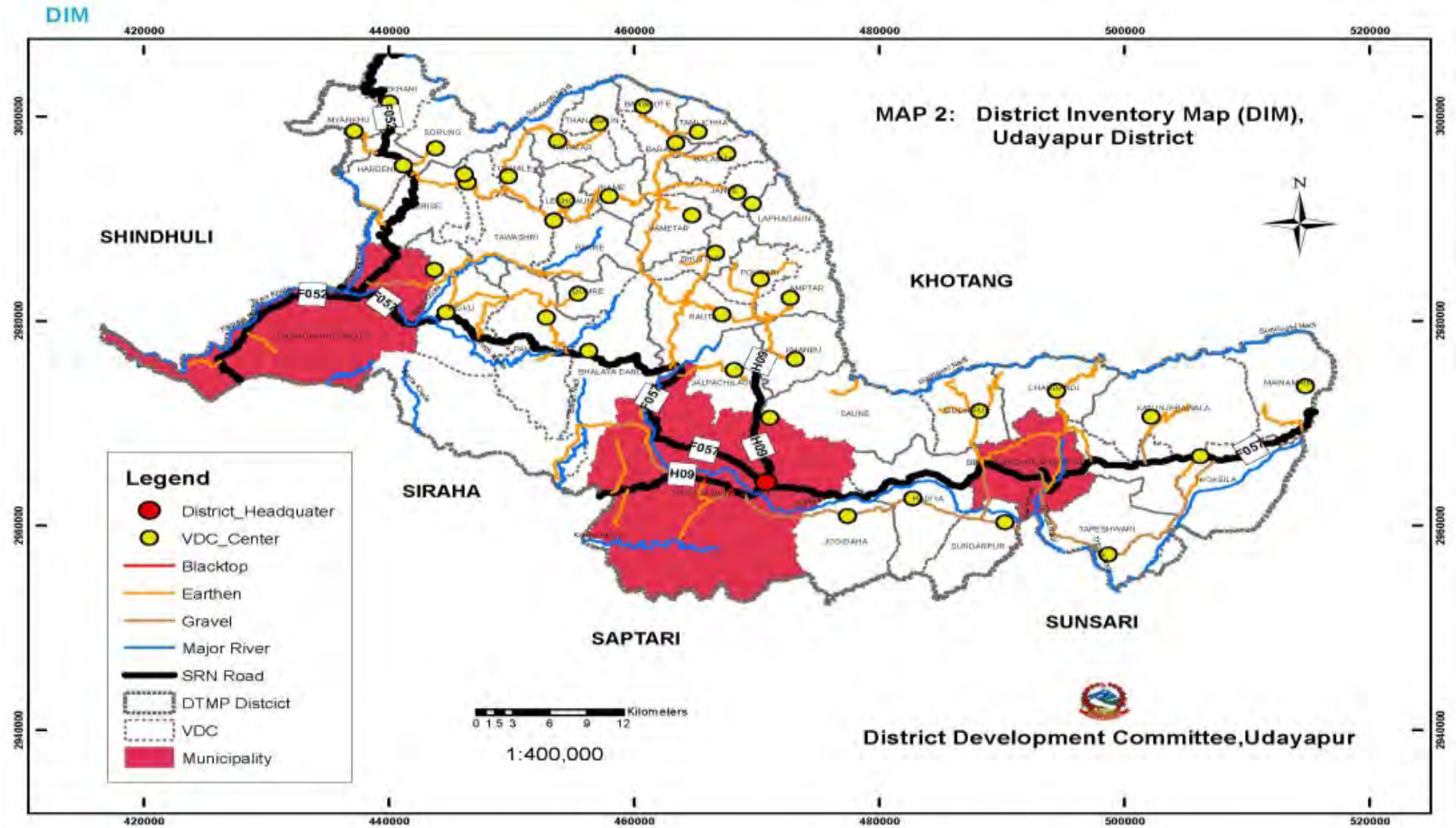
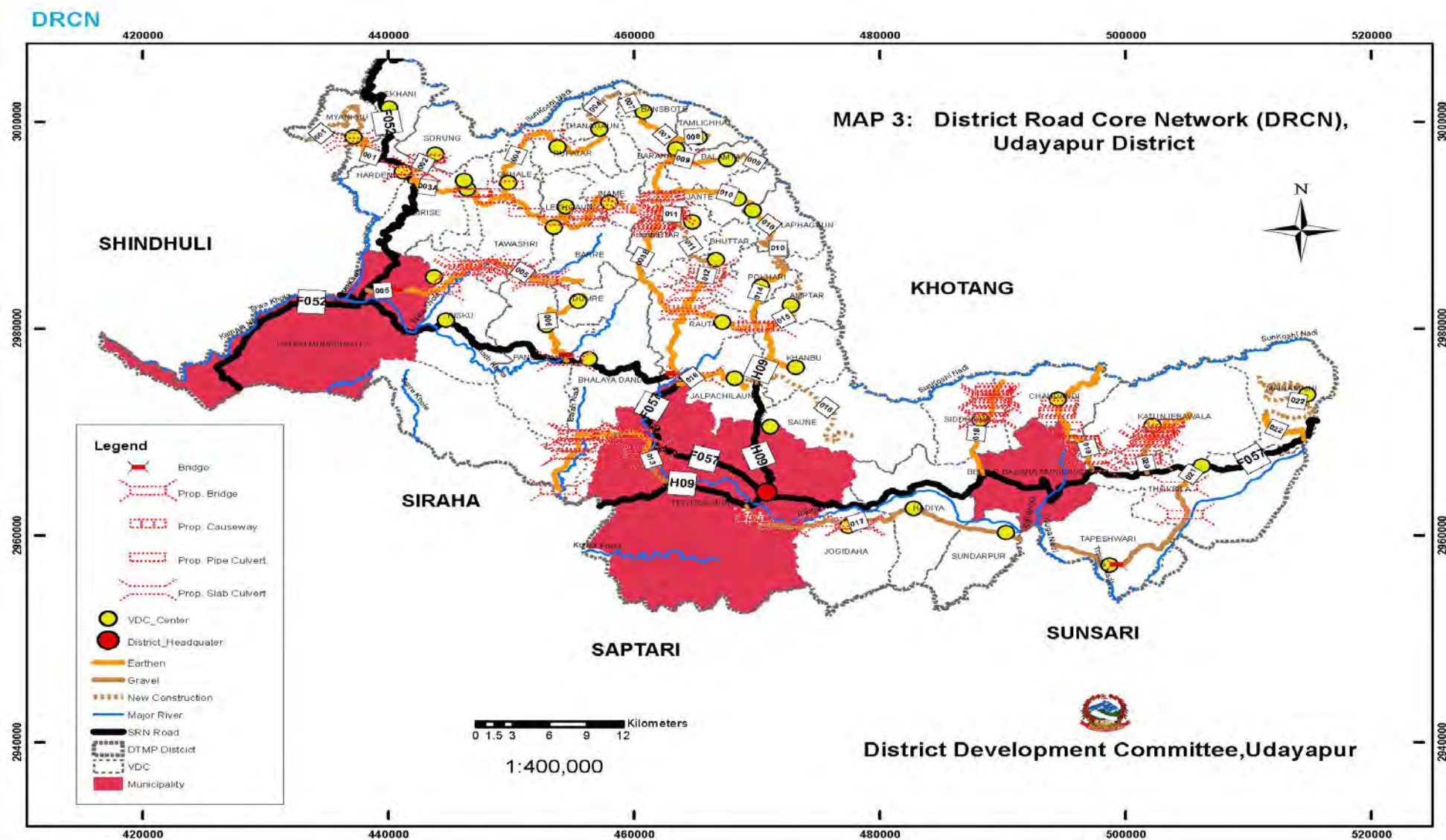


Figure 3 : District Core Road Network (DRCN)



District Transport Perspective Plan (DTPP)

This chapter looks at the required interventions regarding conservation, improvement and new construction of the district road core network. It provides a complete list of all works required in the DRCN, which together form the District Transport Perspective Plan (DTPP). For the works forming part of the DTPP, chapter 4 will subsequently provide cost estimation, while chapter 5 will rank the works according to priority and chapter 6 will select those priority works that can be carried out in the next 5 years and thus form part of the District Transport Master Plan (DTMP).

The DTPP 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.

2.5 CONSERVATION

Conservation refers to the actions required to repair a road and keep it in good and passable condition. For DTMP planning purposes standard costs per kilometre for each maintenance type are applied to the entire district road core network, whereby for certain maintenance type's distinction is made according to the surface type of the road. Identification of the actual maintenance requirements of each road is made annually in the ARMP. Conservation activities include:

1. Emergency maintenance - Basic repairs aimed at removing landslides and repairing damage to the road that inhibit the proper use of the road and make it impassable. This mainly takes place during and after the rainy season. A provisional lump sum is reserved for the entire district road core network based on the network length. Allocation to specific road sections is based on the actual need for clearing landslides or repairing washouts and cuts in the road.
2. Routine maintenance - General maintenance of the road aimed at preventing damage by ensuring the proper working of the different road elements (retaining walls, drainage system, carriageway, etc.) and cutting vegetation. This is carried out each year on a more or less continuous basis. Routine maintenance is required for the entire district road core network. The specific requirements for routine maintenance are determined on an annual basis through the road condition survey and defined in the ARMP.
3. Recurrent maintenance - Repairs of minor damage to the road surface and road structures to bring them back to good condition. This is generally carried out once or twice a year. Recurrent maintenance is required for the entire district road core network, whereby distinction is made according to the surface type. The specific requirements for recurrent maintenance are determined on an annual basis through the road condition survey and defined in the ARMP.
4. Periodic maintenance - Larger repairs to the road largely aimed at renewing the road surface through re-gravelling, resealing or overlays. It is generally carried out with several years interval. Although periodic maintenance is only required for specific sections of the district road core network, a lump sum allocation is made for the entire district road core network based on average annual requirements, distinguishing between different surface types. The specific periodic maintenance requirements are determined on an annual basis through the annual road condition survey and defined in the ARMP.

The length of roads to be included under each conservation type for the first year is indicated below. This is basically the entire district road core network in maintainable condition as far as it does not require rehabilitation. A table (Table 3.1.1) below is prepared to show the length of DRCN roads that require conservation, differentiating between emergency, routine, recurrent and periodic maintenance. The specific roads to receive emergency and periodic maintenance each year are determined in the ARMP

Table 2.5.1 Conservation requirements

Code	Name of road	Total length (km)	Black Top (km)	Gravel (km)	Earthen (km)	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance blacktop (km)	Recurrent maintenance gravel (km)	Recurrent maintenance earthen (km)	Periodic maintenance blacktop (km)	Periodic maintenance gravel (km)
Total		375.52	-	58.22	317.30	375.52	375.52	-	58.22	317.30	-	58.22
14DR001	Gaunbari-Mayankhu-Chitrnagi Road	6.54	-	-	6.54	6.54	6.54	-	-	6.54	-	-
14DR002	Betini-Hattisude-Sorong Chiptar Road	5.18	-	-	5.18	5.18	5.18	-	-	5.18	-	-
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majkharka)	45.03	-	-	45.03	45.03	45.03	-	-	45.03	-	-
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majkharka to Rauta)	29.31	-	-	29.31	29.31	29.31	-	-	29.31	-	-
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	-	-	23.09	23.09	23.09	-	-	23.09	-	-
14DR005	Katari -Bahunitar-Barre Road	26.44	-	3.71	22.72	26.44	26.44	-	3.71	22.72	-	3.71
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	-	-	14.46	14.46	14.46	-	-	14.46	-	-
14DR007	Nagare-Baraha-Basbote Road	15.54	-	-	15.54	15.54	15.54	-	-	15.54	-	-
14DR008	Baraha-Tamilsa Road	3.63	-	-	3.63	3.63	3.63	-	-	3.63	-	-

14DR009	Barah-Balamta Road	7.73	-	-	7.73	7.73	7.73	-	-	7.73	-	-
14DR010	Majhkharka-Jante-Lafagaun Road	13.31	-	-	13.31	13.31	13.31	-	-	13.31	-	-
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51	-	-	3.51	3.51	3.51	-	-	3.51	-	-
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	-	-	20.07	20.07	20.07	-	-	20.07	-	-
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	-	5.28	15.67	20.96	20.96	-	5.28	15.67	-	5.28
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	-	-	20.20	20.20	20.20	-	-	20.20	-	-
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53	-	-	5.53	5.53	5.53	-	-	5.53	-	-
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	-	-	10.66	10.66	10.66	-	-	10.66	-	-
14DR017	Gaighat(Motigada) - Gogidaha-Hadiya-Sundarpur(Fattepu r) Road	26.35	-	26.35	-	26.35	26.35	-	26.35	-	-	26.35
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	-	-	13.99	13.99	13.99	-	-	13.99	-	-
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	-	1.14	21.66	22.80	22.80	-	1.14	21.66	-	1.14
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	-	2.89	9.09	11.98	11.98	-	2.89	9.09	-	2.89
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	-	18.84	2.61	21.45	21.45	-	18.84	2.61	-	18.84
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	-	-	7.76	7.76	7.76	-	-	7.76	-	-

2.6 IMPROVEMENT

Improvement refers to actions required to improve a road to bring it to a maintainable all-weather standard. It includes the following actions, which for Udaypur district are described in more detail in the subsequent sections.

1. Rehabilitation - Significant repairs required to bring a very poor road back to a maintainable standard. This does not include any changes to the original surface type.
2. Gravelling - Placement of a gravel layer to make it all-weather and ensure that the road remains passable during the rainy season.
3. Cross drainage - Placement of suitable cross-drainage structures with the aim of making the road all-weather and ensuring that the road remains passable even during the rainy season
4. Protective structures - Placement of retaining walls and lined side drains to avoid excessive damage to the road during the rainy season and bring it to a maintainable standard.
5. Blacktopping - Placement of a blacktop layer in roads with traffic volumes exceeding 150 passenger car units (PCU) to reduce damage to the road surface.
6. Widening - Increase of the road width in roads with traffic volumes exceeding 500 passenger car units (PCU) to ensure the proper flow of traffic.

For the road improvements, separate tables are prepared to show the required interventions for rehabilitation, gravelling, cross drainage, protective structures, widening and blacktopping. For this purpose, the Tables 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 and 3.2.6 are prepared.

2.6.1 REHABILITATION

Rehabilitation refers to upgrading the existing road network where the roads are found to be in poor condition, to require technical improvement (curves, gradients, etc.). During field survey/ assessment, the rehabilitation of some road sections were identified as listed below in Table 3.2.1.

Table 2.6.1 Sections of the district road core network requiring rehabilitation

Code	Name of Road	Total length (km)	Rehabilitation (km)
Total		375.52	34.40
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54	1.00
14DR002	Betini-Hattisude-Sorong Chiptar Road	5.18	4.00
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)	45.03	
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)	29.31	2.00
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	1.00
14DR005	Katari -Bahunitar-Barre Road	26.44	3.00
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	1.50
14DR007	Nagare-Baraha-Basbote Road	15.54	2.50
14DR008	Baraha-Tamilsa Road	3.63	2.50
14DR009	Barah-Balamta Road	7.73	3.50
14DR010	Majhkharka-Jante-Lafagaun Road	13.31	2.00
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51	2.00
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	2.00
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	1.50

14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	1.00
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53	0.50
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	0.50
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35	0.50
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	0.50
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	0.50
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	0.80
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	0.80
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	0.80

2.6.2 GRAVELLING

As the entire district road core network needs to be brought to an all-weather status, gravelling of the road surface is required for all the remaining earthen sections in the DRCN. For Udaypur, this concerns the total 317, 30 km of DRCN roads.

Table 2.6.2 Sections of the district road core network requiring gravelling

Code	Name of Road	Total length (km)	Gravelling (km)
Total		375.52	317.30
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54	6.54
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18	5.18
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majkharka)	45.03	45.03
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majkharka to Rauta)	29.31	29.31
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	23.09
14DR005	Katari -Bahunitar-Barre Road	26.44	22.72
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	14.46
14DR007	Nagare-Baraha-Basbote Road	15.54	15.54
14DR008	Baraha-Tamilsa Road	3.63	3.63
14DR009	Barah-Balamta Road	7.73	7.73
14DR010	Majkharka-Jante-Lafagaun Road	13.31	13.31
14DR011	Butatar-Bhijepani-Dahar-Majkharka Road	3.51	3.51
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	20.07
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	15.67
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	20.20
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53	5.53
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	10.66
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35	-
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	13.99
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	21.66
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	9.09

14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	2.61
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	7.76

2.6.3 CROSS DRAINAGE

The need for cross drainage was identified during field survey for the different DRCN roads. The total length of 660 m bridge, 259 m total length of slab culvert, 28 m of causeway and 90 numbers of pipe culvert were identified as being required which is shown in table below:

Table 2.6.3 Required cross drainage structures

Code	Name of Road	Total length (km)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)
Total		375.52	660	235	42	-	85
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54		10			
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18		15			3
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majkharka)	45.03					4
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majkharka to Rauta)	29.31		15	21		13
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	30				1
14DR005	Katari -Bahunitar-Barre Road	26.44	140	30			9
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	50				
14DR007	Nagare-Baraha-Basbote Road	15.54					1
14DR008	Baraha-Tamilsa Road	3.63					
14DR009	Barah-Balamta Road	7.73		10			
14DR010	Majkharka-Jante-Lafagaun Road	13.31					5
14DR011	Butatar-Bhijepani-Dahar-Majkharka Road	3.51		10			5
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	80	10			4
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	85	65			4
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20					2
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53		5	7		1
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban	10.66	25				

	Road						
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35	75	5	7		
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	20	30			10
14DR019	Basaha-Chaudandi-Ranitar Road	22.80		20			10
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	105	10	7		13
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	50				
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76					

Note: In total 660mbridge are required. But these Bridge cost NRs. 528,000,000 are too high and seems beyond the capacity of DDC to construct those bridges considering the available budgets in DDC, Udaypur. Hence, in spite of its necessity, are excluded from the estimate in improvement of those roads. We consider those bridges need to be planned and constructed from the national level planning.

2.6.4 PROTECTIVE STRUCTURES

To maintain the DRCN roads all-weather condition various protective structures might be required. Based on the road survey carried out in Udaypur, protective structures are required to ensure the protection of the district road core network.

Table 2.6.4 Required protective structures

Code	Name of Road	Total length (km)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)
Total		375.52	-	1,083	32,309
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54			2,000
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18			2,000
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)	45.03			1,502
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)	29.31			1,503
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09			1,504
14DR005	Katari -Bahunitar-Barre Road	26.44			1,500
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46			2,000
14DR007	Nagare-Baraha-Basbote Road	15.54		20	1,000
14DR008	Baraha-Tamilsa Road	3.63			800
14DR009	Barah-Balamta Road	7.73		253	800
14DR010	Majhkharka-Jante-Lafagaun Road	13.31		100	1,500
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51			800
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07			1,000
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96			1,200
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20			3,000
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53		400	1,000
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66			1,500
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35			1,000
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99		50	1,200
14DR019	Basaha-Chaudandi-Ranitar Road	22.80		40	2,500
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98		100	1,200
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45		20	800
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76		100	1,000

Note: in the above roads existing earthen drain seems not stable and sufficient. Hence, 32,309 m lined drains are considered and estimated

2.6.5 WIDENING

To maintain the road in all weather condition, the required widening of each DRCN roads are listed during the DRCN survey. The required widening lengths to overcome the necking of the roads are shown in table below.

Table 2.6.5 Sections of the district road core network requiring widening

Code	Name of Road	Total length (km)	VPD	Widening (m)
Total		375.52		-
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54	7	
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18	2	
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)	45.03	26	
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)	29.31	25	
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	21	
14DR005	Katari -Bahunitar-Barre Road	26.44	11	
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	8	
14DR007	Nagare-Baraha-Basbote Road	15.54	5	
14DR008	Baraha-Tamilsa Road	3.63	4	
14DR009	Barah-Balamta Road	7.73	5	
14DR010	Majhkharka-Jante-Lafagaun Road	13.31	5	
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51	2	
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	8	
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	17	
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	14	
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53	2	
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	6	
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35	44	
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	9	
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	6	
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	6	
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	22	
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	5	

2.6.6 BLACKTOPPING

An analysis of the traffic data for the different roads making up the district road core network shows that there are no any roads that are eligible for blacktopping (traffic volume exceeds 100 PCU). The maximum traffic (PCU) was noted to 99 and therefore no any roads proposed for blacktopping.

Table 2.6.6 Sections of the district road core network requiring blacktopping

				PCU threshold	100
Code	Name of Road	Total length (km)	Blacktop (km)	Traffic (PCU)	Blacktopping (km)
Total		375.52	-		26.35
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54	-	19	-
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18	-	8	-
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majkharka)	45.03	-	53	-
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majkharka to Rauta)	29.31	-	47	-
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	-	48	-
14DR005	Katari -Bahunitar-Barre Road	26.44	-	26	-
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	-	22	-
14DR007	Nagare-Baraha-Basbote Road	15.54	-	13	-
14DR008	Baraha-Tamilsa Road	3.63	-	10	-
14DR009	Barah-Balamta Road	7.73	-	13	-
14DR010	Majhkharka-Jante-Lafagaun Road	13.31	-	12	-
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51	-	5	-
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	-	19	-
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	-	38	-
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	-	38	-
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	5.53	-	7	-
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	-	16	-
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur)	26.35	-	111	26.35

	Road				
14DR018	Beltar-Birendra Bazar-Buwajhorgat Road	13.99	-	21	-
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	-	16	-
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	-	16	-
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	-	53	-
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	-	13	-

2.7 NEW CONSTRUCTION

New construction/extension of three DRCN roads is required to link up with another roadnetwork in order to complete cycle of road networks.

Table 2.7.1 Sections of the district road core network requiring new construction

Code	Name of Road	New VDCs	Existing length (km)	New length (km)	Bridge (m)
Total			375.52	104.54	-
14DR001	Gaunbari-Mayankhu-Chitrnagi Road	Mayankhu	6.54	18.08	
14DR002	Betini-Hattisude-Sorong Chiptar Road		5.18		
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)		45.03		
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)		29.31		
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	Thanagaun	23.09	7.98	
14DR005	Katari -Bahunitar-Barre Road		26.44		
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road		14.46		
14DR007	Nagare-Baraha-Basbote Road	Basbote	15.54	5.30	
14DR008	Baraha-Tamilsa Road	Tamilsa	3.63	0.90	
14DR009	Barah-Balamta Road		7.73	5.26	
14DR010	Majhkharka-Jante-Lafagaun Road	Lafagaun	13.31	11.02	
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	Nametar	3.51	11.06	

14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road		20.07		
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road		20.96		
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	Pokhari	20.20	4.05	
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	Aptar	5.53	4.44	
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	Saune	10.66	16.13	
14DR017	Gaighat(Motigada)-Gogidaha-Hadiya-Sundarpur(Fattepur) Road		26.35		
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road		13.99		
14DR019	Basaha-Chaudandi-Ranitar Road		22.80		
14DR020	Lal bazar-Lamidada-Puware-Babala road		11.98		
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road		21.45		
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	Mainamaini	7.76	20.32	

2.8 DISTRICT TRANSPORT PERSPECTIVE PLAN

The DTPP foresees bringing the entire existing district road core network to maintainable all-weather status as well as construction of new roads considered necessary to complete the DRCN are identified. For this purpose, 317.30 km will be gravelled and a number of different cross drainage and protective structures will be constructed. The district road core network will subsequently consist of 320.29km of maintainable all-weather roads. The following table lists the required interventions, while the proposed network is shown in the DTPP map in figure 4.

Table 2.8.1 District Transport Perspective Plan

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance; gravel (km)	Periodic maintenance; gravel (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)
Total	375.52	375.52	58.22	58.22	34.40	317.30	26.35	-	660	235	42	-	85	-	1,083	32,309	104.54
14DR001	6.54	6.54	-	-	1.00	6.54	-	-	-	10	-	-	-	-	-	2,000	18.08
14DR002	5.18	5.18	-	-	4.00	5.18	-	-	-	15	-	-	3	-	-	2,000	-
14DR003A	45.03	45.03	-	-	-	45.03	-	-	-	-	-	-	4	-	-	1,502	-
14DR003B	29.31	29.31	-	-	2.00	29.31	-	-	-	15	21	-	13	-	-	1,503	-
14DR004	23.09	23.09	-	-	1.00	23.09	-	-	30	-	-	-	1	-	-	1,504	7.98
14DR005	26.44	26.44	3.71	3.71	3.00	22.72	-	-	140	30	-	-	9	-	-	1,500	-
14DR006	14	14.4	-	-	1.50	14.46	-	-	50	-	-	-	-	-	-	2,000	-

	.4 6	6															
14DR007	15 .5 4	15.5 4	-	-	2.50	15.54	-	-	-	-	-	-	1	-	20	1,000	5.30
14DR008	3. 63	3.63	-	-	2.50	3.63	-	-	-	-	-	-	-	-	-	800	0.90
14DR009	7. 73	7.73	-	-	3.50	7.73	-	-	-	10	-	-	-	-	253	800	5.26
14DR010	13 .3 1	13.3 1	-	-	2.00	13.31	-	-	-	-	-	-	5	-	100	1,500	11.02
14DR011	3. 51	3.51	-	-	2.00	3.51	-	-	-	10	-	-	5	-	-	800	11.06
14DR012	20 .0 7	20.0 7	-	-	2.00	20.07	-	-	80	10	-	-	4	-	-	1,000	-
14DR013	20 .9 6	20.9 6	5.28	5.28	1.50	15.67	-	-	85	65	-	-	4	-	-	1,200	-
14DR014	20 .2 0	20.2 0	-	-	1.00	20.20	-	-	-	-	-	-	2	-	-	3,000	4.05
14DR015	5. 53	5.53	-	-	0.50	5.53	-	-	-	5	7	-	1	-	400	1,000	4.44

14DR016	10 .6 6	10.6 6	-	-	0.50	10.66	-	-	25	-	-	-	-	-	-	1,500	16.13
14DR017	26 .3 5	26.3 5	26.35	26.35	0.50	-	26.35	-	75	5	7	-	-	-	-	1,000	-
14DR018	13 .9 9	13.9 9	-	-	0.50	13.99	-	-	20	30	-	-	10	-	50	1,200	-
14DR019	22 .8 0	22.8 0	1.14	1.14	0.50	21.66	-	-	-	20	-	-	10	-	40	2,500	-
14DR020	11 .9 8	11.9 8	2.89	2.89	0.80	9.09	-	-	105	10	7	-	13	-	100	1,200	-
14DR021	21 .4 5	21.4 5	18.84	18.84	0.80	2.61	-	-	50	-	-	-	-	-	20	800	-
14DR022	7. 76	7.76	-	-	0.80	7.76	-	-	-	-	-	-	-	-	100	1,000	20.32



3.COST ESTIMATION

For the cost estimation, use has been made of standard costs (data make available from DTO Udaypur) for the different activities required. For the conservation activities this results in an estimation of annual costs, while for improvement and new construction activities this result in an estimation of the total costs required.

3.1 CONSERVATION

The costs of the required conservation measures have been calculated using the following standard costs. These standard costs have been applied to the entire district road core network, whereby distinction is made based on the surface type in the case of recurrent and periodic maintenance. It must be noted here that the standard costs for periodic maintenance are the average annual costs, but that the cost for applying periodic maintenance in a specific section every several years will be higher (the cumulative cost of several years). The estimated costs for the first year are presented below, while the costs for subsequent years will vary slightly as road surface types change as a result of improvements. Detailed cost estimations for the actual maintenance needs in any given year will be presented in the ARMP

Table 3.1.1Standard unit costs for conservation

Activity	Unit	DTMP unit cost (NPR)
Emergency maintenance	km	30,000
Routine maintenance	km	35,000
Recurrent maintenance (blacktop)	km	250,000
Recurrent maintenance (gravel)	km	150,000
Recurrent maintenance (earthen)	km	120,000
Periodic maintenance (blacktop)	km	250,000
Periodic maintenance (gravel)	km	250,000

For the first year the estimated costs for conservation of the DRCN come to NPR 78,263,000.00. Based on this cost for the first year, the costs for conservation of the DRCN for the next 5 years are estimated at NPR 391,315,000.00(details in table 4.1.2). These costs will change slightly as the roads are improved and the standard conservation costs change. This will be updated in the ARMP on an annual basis.

Table 3.1.2 Estimated conservation costs for the first year (NPR '000)

Code	Total length (km)	Blacktop (km)	Gravel (km)	Earthen (km)	Emergency maintenance	Routine maintenance	Recurrent maintenance (blacktop)	Recurrent maintenance (gravel)	Recurrent maintenance (earthen)	Periodic maintenance (blacktop)	Periodic maintenance (gravel)	Total first year cost	Total 5-year cost
Total	375.52	-	58.22	317.30	7,510	9,388	-	8,733	38,076	-	14,556	78,263	391,315
14DR001	6.54	-	-	6.54	131	163	-	-	785	-	-	1,079	5,394
14DR002	5.18	-	-	5.18	104	130	-	-	622	-	-	855	4,274
14DR003A	45.03	-	-	45.03	901	1,126	-	-	5,404	-	-	7,430	37,152
14DR003B	29.31	-	-	29.31	586	733	-	-	3,517	-	-	4,836	24,181
14DR004	23.09	-	-	23.09	462	577	-	-	2,770	-	-	3,809	19,046
14DR005	26.44	-	3.71	22.72	529	661	-	557	2,727	-	929	5,402	27,011
14DR006	14.46	-	-	14.46	289	361	-	-	1,735	-	-	2,385	11,927
14DR007	15.54	-	-	15.54	311	389	-	-	1,865	-	-	2,564	12,822
14DR008	3.63	-	-	3.63	73	91	-	-	436	-	-	600	2,999
14DR009	7.73	-	-	7.73	155	193	-	-	927	-	-	1,275	6,377
14DR010	13.31	-	-	13.31	266	333	-	-	1,597	-	-	2,196	10,982
14DR011	3.51	-	-	3.51	70	88	-	-	422	-	-	580	2,900
14DR012	20.07	-	-	20.07	401	502	-	-	2,408	-	-	3,311	16,557
14DR013	20.96	-	5.28	15.67	419	524	-	793	1,881	-	1,321	4,938	24,691
14DR014	20.20	-	-	20.20	404	505	-	-	2,424	-	-	3,332	16,662
14DR015	5.53	-	-	5.53	111	138	-	-	663	-	-	912	4,560
14DR016	10.66	-	-	10.66	213	267	-	-	1,280	-	-	1,760	8,798
14DR017	26.35	-	26.35	-	527	659	-	3,952	-	-	6,587	11,725	58,625
14DR018	13.99	-	-	13.99	280	350	-	-	1,679	-	-	2,308	11,541
14DR019	22.80	-	1.14	21.66	456	570	-	171	2,599	-	285	4,082	20,409
14DR020	11.98	-	2.89	9.09	240	299	-	434	1,090	-	723	2,786	13,931
14DR021	21.45	-	18.84	2.61	429	536	-	2,826	313	-	4,711	8,815	44,074
14DR022	7.76	-	-	7.76	155	194	-	-	932	-	-	1,281	6,406

3.2 IMPROVEMENT

The costs of the required improvement measures have been calculated using the following standard costs. These standard costs have been applied to the identified improvement requirements presented in the previous chapter.

Table 3.2.1 Standard unit costs for improvement activities

Activity	Unit	DTMP unit cost (NPR)
Rehabilitation	km	1,000,000
Widening	m	30,000
Gravelling	km	2,200,000
Blacktopping	km	6,000,000
Bridge construction	m	800,000
Slab culvert construction	m	200,000
CC Causeway construction	m	150,000
Stone Causeway construction	m	15,000
Pipe culvert placement	unit	15,000
Masonry wall construction	m ³	10,000
Gabion wall construction	m ³	3,000
Lined drain construction	m	1,500

The resulting estimated costs come to NPR 1,524,830,000.00 as indicated in the table 4.2.2 below.

Table 3.2.2 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
Total	375.52	34,400	-	698,053	158,089	528,000	47,000	6,300	-	1,275	-	3,249	48,464	1,524,830
14DR001	6.54	1,000	-	14,385	-	-	2,000	-	-	-	-	-	3,000	20,385
14DR002	5.18	4,000	-	11,396	-	-	3,000	-	-	45	-	-	3,000	21,441
14DR003A	45.03	-	-	99,071	-	-	-	-	-	60	-	-	2,253	101,384
14DR003B	29.31	2,000	-	64,482	-	-	3,000	3,150	-	195	-	-	2,255	75,082
14DR004	23.09	1,000	-	50,788	-	24,000	-	-	-	15	-	-	2,256	78,059
14DR005	26.44	3,000	-	49,989	-	112,000	6,000	-	-	135	-	-	2,250	173,374
14DR006	14.46	1,500	-	31,804	-	40,000	-	-	-	-	-	-	3,000	76,304
14DR007	15.54	2,500	-	34,192	-	-	-	-	-	15	-	60	1,500	38,267
14DR008	3.63	2,500	-	7,997	-	-	-	-	-	-	-	-	1,200	11,697
14DR009	7.73	3,500	-	17,004	-	-	2,000	-	-	-	-	759	1,200	24,463
14DR010	13.31	2,000	-	29,285	-	-	-	-	-	75	-	300	2,250	33,910
14DR011	3.51	2,000	-	7,732	-	-	2,000	-	-	75	-	-	1,200	13,007

14DR012	20.0 7	2,000	-	44,152	-	64,000	2,000	-	-	60	-	-	1,500	113,712
14DR013	20.9 6	1,500	-	34,485	-	68,000	13,000	-	-	60	-	-	1,800	118,845
14DR014	20.2 0	1,000	-	44,432	-	-	-	-	-	30	-	-	4,500	49,962
14DR015	5.53	500	-	12,161	-	-	1,000	1,050	-	15	-	1,200	1,500	17,426
14DR016	10.6 6	500	-	23,460	-	20,000	-	-	-	-	-	-	2,250	46,210
14DR017	26.3 5	500	-	-	158,089	60,000	1,000	1,050	-	-	-	-	1,500	222,139
14DR018	13.9 9	500	-	30,777	-	16,000	6,000	-	-	150	-	150	1,800	55,377
14DR019	22.8 0	500	-	47,657	-	-	4,000	-	-	150	-	120	3,750	56,177
14DR020	11.9 8	800	-	19,990	-	84,000	2,000	1,050	-	195	-	300	1,800	110,135
14DR021	21.4 5	800	-	5,732	-	40,000	-	-	-	-	-	60	1,200	47,792
14DR022	7.76	800	-	17,081	-	-	-	-	-	-	-	300	1,500	19,681

3.3 NEW CONSTRUCTION

For new construction, the following standard costs have been applied to estimate the costs involved.

Table 3.3.1 Standard unit costs for new construction

Activity	Unit	DTMP unit cost (NPR)
Track opening	km	700,000
Gravelling	km	1,000,000
Bridge construction	m	800,000

Total 104.54 km new construction is required for three roads in Udaypur District for DTMP. So new construction cost is calculated, as shown in table below:

Table 3.3.2 Cost estimate for new construction (NPR '000)

Code	Name of Road	New length (km)	Opening up (NPR)	Gravelling (NPR)	Bridges (NPR)	Total cost (NPR)
Total		104.54	365,885	229,985	-	595,869
14DR001	Gaunbari-Mayankhu-Chitranagi Road	18.08	63,297	39,786	-	103,083
14DR002	Betini-Hattisude-Sorung Chiptar Road	-	-	-	-	-
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majkharka)	-	-	-	-	-
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majkharka to Rauta)	-	-	-	-	-
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	7.98	27,946	17,566	-	45,512
14DR005	Katari -Bahunitar-Barre Road	-	-	-	-	-
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	-	-	-	-	-
14DR007	Nagare-Baraha-Basbote Road	5.30	18,536	11,651	-	30,187
14DR008	Baraha-Tamilsa Road	0.90	3,145	1,977	-	5,121
14DR009	Barah-Balamta Road	5.26	18,399	11,565	-	29,965
14DR010	Majkharka-Jante-Lafagaun Road	11.02	38,576	24,248	-	62,824
14DR011	Butatar-Bhijepani-Dahar-Majkharka Road	11.06	38,703	24,328	-	63,031
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	-	-	-	-	-
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	-	-	-	-	-

14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	4.05	14,177	8,911	-	23,088
14DR015	Rautapokhari-DadaGaun-Sunkoshi Road	4.44	15,537	9,766	-	25,304
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	16.13	56,440	35,477	-	91,917
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya-Sundarpur(Fattepur) Road	-	-	-	-	-
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	-	-	-	-	-
14DR019	Basaha-Chaudandi-Ranitar Road	-	-	-	-	-
14DR020	Lal bazar-Lamidada-Puware-Babala road	-	-	-	-	-
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	-	-	-	-	-
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	20.32	71,128	44,709	-	115,837

3.4 DTPP COSTS

The total costs for the District Transport Perspective Plan come to NPR 2,512,014,000.00 as indicated in the table below.

Table 3.4.1DTPP costs (NPR '000)

Code	Name of Road	Conservation	Improvement	New construction	Total
Total		391,315	1,524,830	595,869	2,512,014
14DR001	Gaunbari-Mayankhu-Chitranagi Road	5,394	20,385	103,083	128,862
14DR002	Betini-Hattisude-Sorung Chiptar Road	4,274	21,441	-	25,715
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)	37,152	101,384	-	138,536
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)	24,181	75,082	-	99,262
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	19,046	78,059	45,512	142,617
14DR005	Katari -Bahunitar-Barre Road	27,011	173,374	-	200,384
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	11,927	76,304	-	88,231
14DR007	Nagare-Baraha-Basbote Road	12,822	38,267	30,187	81,277
14DR008	Baraha-Tamilsa Road	2,999	11,697	5,121	19,817
14DR009	Barah-Balamta Road	6,377	24,463	29,965	60,804
14DR010	Majhkharka-Jante-Lafagaun Road	10,982	33,910	62,824	107,716
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	2,900	13,007	63,031	78,937
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	16,557	113,712	-	130,269
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	24,691	118,845	-	143,536
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	16,662	49,962	23,088	89,713
14DR015	Rautapokhari-DadaGaun-Sunkoshi	4,560	17,426	25,304	47,290

	Road				
14DR016	Sukaure-Chilaune Bhanjyang-Beldoban Road	8,798	46,210	91,917	146,925
14DR017	Gaighat(Motigada)- Gogidaha-Hadiya- Sundarpur(Fattepur) Road	58,625	222,139	-	280,764
14DR018	Beltar-Birendra Bazar- Buwajhorghat Road	11,541	55,377	-	66,918
14DR019	Basaha-Chaudandi- Ranitar Road	20,409	56,177	-	76,586
14DR020	Lal bazar-Lamidada- Puware-Babala road	13,931	110,135	-	124,065
14DR021	Tappesori(Ambasi Chok)-Bhagalpur- Rampur Road	44,074	47,792	-	91,866
14DR022	Sombare-MainaMaini- Machuntar-Bhojpur Road	6,406	19,681	115,837	141,924
		-	-	-	-

4. RANKING

The ranking of the required interventions determines the order in which they will be carried out. This ranking is done separately for conservation, improvement and new construction. Ranking is done according to the cost per person served, whereby the costs are the estimated costs of the previous chapter. However, the ranking based on these criteria has been modified with the consultation with DDC/DTO and other stakeholders during DTMP workshops to make more practical and implementable DTMP. For the calculation of the population served, use is made of the population data for the VDCs linked by the road concerned.

4.1 CONSERVATION

Ranking of roads for conservation is based on the total conservation costs per person served by the road. This ranking of roads will be updated each year in the ARMP based on the actual cost estimates for the year concerned. An example ranking is provided in the table below based on standard costs for the first year. The ranking for conservation is shown in table 5.1.1 as below.

Table 4.1.1 Ranking of conservation works (NPR '000)

Code	Total length (km)	1. Emergency	2. Routine	3. Recurrent (blacktop)	4. Recurrent (gravel)	5. Recurrent (earth)	6. Periodic (blacktop)	7. Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)	Ranking
14DR013	20.96	419	524	-	793	1,881	-	1,321	4,938	89547	55	1
14DR015	5.53	111	138	-	-	663	-	-	912	12124	75	2
14DR020	11.98	240	299	-	434	1,090	-	723	2,786	27071	103	3
14DR011	3.51	70	88	-	-	422	-	-	580	5231	111	4
14DR008	3.63	73	91	-	-	436	-	-	600	5248	114	5
14DR019	22.80	456	570	-	171	2,599	-	285	4,082	35269	116	6
14DR002	5.18	104	130	-	-	622	-	-	855	7212	119	7
14DR017	26.35	527	659	-	3,952	-	-	6,587	11,725	95074	123	8
14DR018	13.99	280	350	-	-	1,679	-	-	2,308	17582	131	9
14DR003B	29.31	586	733	-	-	3,517	-	-	4,836	35853	135	10
14DR005	26.44	529	661	-	557	2,727	-	929	5,402	37475	144	11
14DR006	14.46	289	361	-	-	1,735	-	-	2,385	16121	148	12
14DR014	20.20	404	505	-	-	2,424	-	-	3,332	19682	169	13
14DR001	6.54	131	163	-	-	785	-	-	1,079	6043	179	14
14DR021	21.45	429	536	-	2,826	313	-	4,711	8,815	41539	212	15

14DR012	20.07	401	502	-	-	2,408	-	-	3,311	13587	244	16
14DR009	7.73	155	193	-	-	927	-	-	1,275	5202	245	17
14DR022	7.76	155	194	-	-	932	-	-	1,281	5163	248	18
14DR010	13.31	266	333	-	-	1,597	-	-	2,196	8002	274	19
14DR007	15.54	311	389	-	-	1,865	-	-	2,564	7362	348	20
14DR003A	45.03	901	1,126	-	-	5,404	-	-	7,430	19869	374	21
14DR004	23.09	462	577	-	-	2,770	-	-	3,809	8877	429	22
14DR016	10.66	213	267	-	-	1,280	-	-	1,760	3864	455	23

The allocation of maintenance funding will follow a specific sequence indicated below, and will be applied to the road ranking as defined in the ARMP. This will be of particular importance where funding is insufficient to cover all conservation costs.

1. Emergency maintenance
2. Routine maintenance
3. Recurrent maintenance paved roads
4. Recurrent maintenance gravel roads
5. Recurrent maintenance gravel roads
6. Periodic maintenance blacktop roads
7. Periodic maintenance gravel roads

4.2 IMPROVEMENT

In the case of improvement activities, ranking is again based on the basis of the total cost per person served. The resulting order of the roads is shown in the table below. In the case of roads requiring blacktopping, the improvement of the road has been split into two phases. The first phase includes all improvements to bring the road to a maintainable all-weather standard (gravelling, widening, cross drainage and protective structures), while the second phase only includes the blacktopping. This has been done to avoid unnecessarily delaying the improvement of such roads to all-weather gravel standard due to the additional cost of blacktopping (increasing the cost per person served). The ranking for improvement is shown in table 5.2.1 as below.

Table 4.2.1 Ranking of improvement works (NPR '000)

Code	Total length (km)	Gravelling (km)	Blacktopping (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)	Ranking
14DR021	21.45	2.61	-	47,792	41539	1,151	1
14DR013	20.96	15.67	-	118,845	89547	1,327	2
14DR015	5.53	5.53	-	17,426	12124	1,437	3
14DR019	22.80	21.66	-	56,177	35269	1,593	4
14DR003B	29.31	29.31	-	75,082	35853	2,094	5
14DR008	3.63	3.63	-	11,697	5248	2,229	6
14DR017	26.35	-	26.35	222,139	95074	2,336	7
14DR011	3.51	3.51	-	13,007	5231	2,487	8
14DR014	20.20	20.20	-	49,962	19682	2,538	9
14DR002	5.18	5.18	-	21,441	7212	2,973	10
14DR018	13.99	13.99	-	55,377	17582	3,150	11
14DR001	6.54	6.54	-	20,385	6043	3,373	12
14DR022	7.76	7.76	-	19,681	5163	3,812	13
14DR020	11.98	9.09	-	110,135	27071	4,068	14
14DR010	13.31	13.31	-	33,910	8002	4,238	15
14DR005	26.44	22.72	-	173,374	37475	4,626	16
14DR009	7.73	7.73	-	24,463	5202	4,703	17
14DR006	14.46	14.46	-	76,304	16121	4,733	18
14DR003A	45.03	45.03	-	101,384	19869	5,103	19
14DR007	15.54	15.54	-	38,267	7362	5,198	20
14DR012	20.07	20.07	-	113,712	13587	8,369	21
14DR004	23.09	23.09	-	78,059	8877	8,793	22
14DR016	10.66	10.66	-	46,210	3864	11,959	23

4.3 NEW CONSTRUCTION

For the road proposed for new construction, ranking is also according to the cost per person served by the new road. There is only one road requiring new construction as indicated in table below.

Table 4.3.1 Ranking of new construction works (NPR '000)

Code	Length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)	Ranking
14DR002	-	-	7212	-	1
14DR003A	-	-	35853	-	2
14DR005	-	-	37475	-	3
14DR006	-	-	16121	-	4
14DR012	-	-	13587	-	5
14DR013	-	-	89547	-	6
14DR017	-	-	95074	-	7
14DR018	-	-	17582	-	8
14DR019	-	-	35269	-	9
14DR020	-	-	27071	-	10
14DR021	-	-	41539	-	11
14DR003B	-	-	19869	-	12
14DR008	0.90	5,121	5248	976	13
14DR014	4.05	23,088	19682	1,173	14
14DR015	4.44	25,304	12124	2,087	15
14DR007	5.30	30,187	7362	4,100	16
14DR004	7.98	45,512	8877	5,127	17
14DR009	5.26	29,965	5202	5,760	18
14DR010	11.02	62,824	8002	7,851	19
14DR011	11.06	63,031	5231	12,049	20
14DR001	18.08	103,083	6043	17,058	21
14DR022	20.32	115,837	5163	22,436	22
14DR016	16.13	91,917	3864	23,788	23

5. DISTRICT TRANSPORT MASTER PLAN (DTMP)

The District Transport Master Plan (DTMP) that covers the next five years is prepared based on the projected financial resources available and the prioritized transport interventions as listed in the DTPP. Year-wise targets are prepared for the different roads and intervention types.

5.1 FIVE YEAR PROJECTED FINANCIAL RESOURCES

The projected financial resources for the next five years are estimated by considering all possible funding sources (make available by DDC). The funding levels are based on the existing trend of funding. An annual increase in funding of 10- 15% is assumed for all funding sources. The total district budget for the road sector is NPR 1,100,068,000 for the five-year period as shown in the table 6.1.1 below.

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

Funding source	Fiscal year				
	2072/73	2073/74	2074/75	2075/76	2076/77
(SNRTP)	38,000	120,000	150,000	112,000	111,930
DDC Internal Revenue	600	600	600	600	600
Local Road Bridge Project (LRBP*)		38,500	42,350	46,585	51,244
RTI SWAp funding	19,500	21,450	23,595	25,955	28,550
Road Board Nepal	3,000	3,000	3,000	3,000	3,000
Members of Parliament	45,000	45,000	45,000	45,000	45,000
People's Contribution	4,620	5,010	5,439	5,911	6,430
Others if any,					
Others if any,					
TOTAL	110,720	233,560	269,984	239,050	246,753
Grand total	1,100,068				

Note I) LRBP* fund 35000 thousand for FY 2072/73 has already been allocated to 1) Rauta Khola Bridge, Mukurchi Bazar; 2) Tawa Khola Bridge-Risku; 3) Kali Khadi khola bridge- Katari- Bahuntar Road; 4) Dhamile Khola bridge @ Mohanpur-Kakani-Handetar-Mainatar Road. Hence budget is not considered on FY 2072/73. After FY 2073/74 it is considered as Basket funding.

Note: II) Budget has been allocated as per data provided by DDC/DTO for this DTMP preparation. SNRTP, DDC Internal Revenue, RTI SWAPs funding, Road Board Nepal , Fund of Member of Parliament and People's Contribution are considered.

Actions Taken for Table

6.2.1

Section A: DTMP Final Workshop/Meeting decided that budget allocation for VRCN to be 20% of total resources. But due to limited funds, the allocation to VDCs has been reduced to 15% only. This can be adjusted as per need and on the decision of DDC during the ARAMP preparation each year.

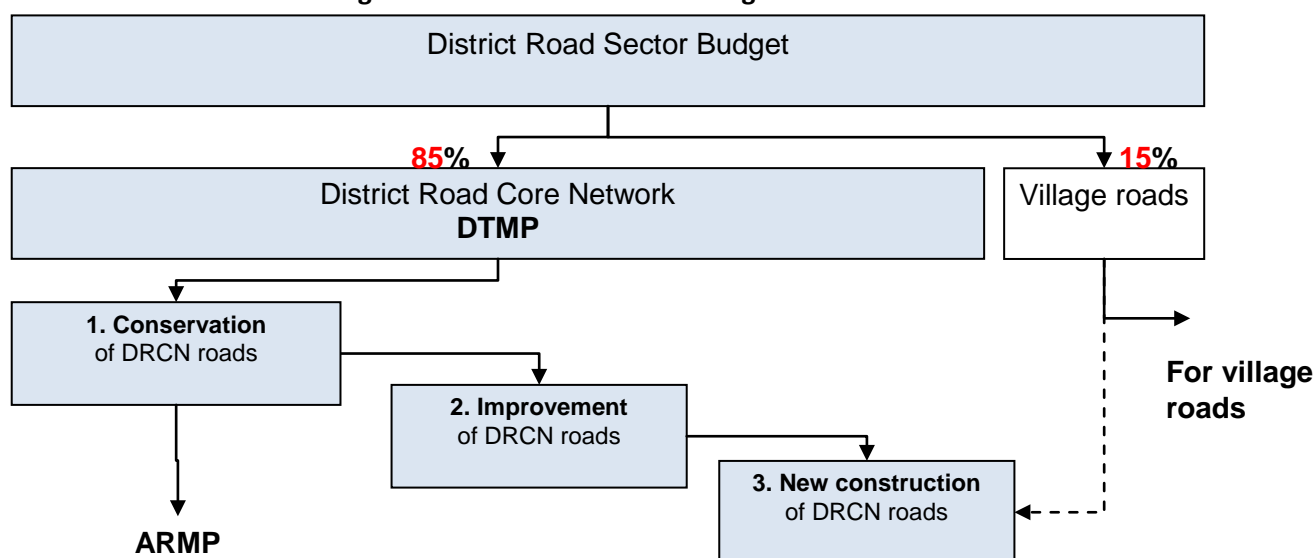
Section B: The exact road length by surface type is calculated for the different years based on starting length and any upgrading in previous years.

<p>Section C: Periodic maintenance of Black topped road is practically done in every 5 years interval. In case of Udayapur district, there is no blacktop road exists.</p>
<p>Section D: Following Roads do not receive the DTMP budget for improvement due to low funding resources/limited funds. Whereas the conservation budget may also use partly for improvement instead of recurrent or periodic maintenance. 14DR001, 14DR002, 14DR003A, 14DR004, 148DR005, 14DR006, 14DR007, 14DR008, 14DR009, 14DR010, 14DR011, 14DR012, 14DR014, 14DR016, 14DR018, 14DR020 and 14DR022 etc. These roads should carry over to next DTMP period.</p>
<p>Section E: New construction budet has allocated for roads: 14DR004, 14DR007, 14DR008, 14DR009, 14DR014 and 14DR015. The remaining roads shall be carried over for next DTMP period.</p>
<p>Section F: No budget remaining due to low funding resources.</p>

5.2 BUDGET ALLOCATION

The distribution of the available district road sector budget is indicated in the figure below. From the Total Budget 15% is allocated for Village roads and 85% is allocated for DRCN Roads. The 85% of the district road sector budget for the DTMP is allocated firstly to conservation, secondly improvement, and any remaining funding is allocated to new construction.

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 on the basis of cost/ person. Due to budget constraint, more budgets is allocated for conservation of DRCN roads in this planning then budget is allocated to improve some road into gravel surface condition. No new construction cost is required to complete the DRCN road due to no new construction road in DRCN. The detail of allocation of budget for next five year is shown in the table 6.2.1 as below.

Table 6.2.1DTMP investment plan

Item	Year					
Fiscal year	2072/73	2073/74	2074/75	2075/76	2076/77	
Total budget	110,720	233,560	269,984	239,050	246,753	
Village roads	16,608	35,034	40,498	35,858	37,013	15%
Core road network budget (DTMP)	94,112	198,526	229,486	203,193	209,740	85%
Core network length (km)	375.52	375.52	375.52	375.52	375.52	375.52
Blacktop (km)	-	-	-	-	9.86	26.35
Gravel (km)	58.22	59.37	71.99	122.82	126.78	110.29
Earthen (km)	317.30	316.15	303.53	252.70	238.88	238.88
Conservation (NRs)	63,500	77,200	61,700	70,800	54,800	328,000
Emergency	7,500	7,500	7,500	7,500	7,500	37,500
Routine	9,300	9,300	9,300	9,300	9,300	46,500
Recurrent (blacktop)	-	-	-	-	-	-
Recurrent (gravel)	8,700	8,700	8,800	10,000	10,000	46,200
Recurrent (earthen)	38,000	37,700	36,100	30,000	28,000	169,800
Periodic (blacktop)		-		-		-

Periodic (gravel)							14,000						14,000						28,000
Improve ment	Cost	BT	GR	21,112	BT	GR	111,326	BT	GR	156,786	BT	GR	120,893	BT	GR	139,040	BT	GR	549,158
14DR021	47,792	-	2.61	21,112	-	1.15	26,680	-	1.45	-	-	-	-	-	-	-	-	-	47,792
14DR013	118,845	-	15.67	-	-	-	84,646	-	11.16	34,199	-	4.51	-	-	-	-	-	-	118,845
14DR015	17,426	-	5.53	-	-	-	-	-	-	17,426	-	5.53	-	-	-	-	-	-	17,426
14DR019	56,177	-	21.66	-	-	-	-	-	-	56,177	-	21.66	-	-	-	-	-	-	56,177
14DR003 B	75,082	-	29.31	-	-	-	-	-	-	48,984	-	19.12	26,097	-	10.19	-	-	-	75,082
14DR008	11,697	-	3.63	-	-	-	-	-	-	-	-	-	11,697	-	3.63	-	-	-	11,697
14DR017	222,139	26.35	-	-	-	-	-	-	-	-	-	-	83,099	9.86	-	139,040	16.49	-	222,139
14DR011	13,007	-	3.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR014	49,962	-	20.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR002	21,441	-	5.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR018	55,377	-	13.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

14DR001	20,385	-	6.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR022	19,681	-	7.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR020	110,135	-	9.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR010	33,910	-	13.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR005	173,374	-	22.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR009	24,463	-	7.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR006	76,304	-	14.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR003 A	101,384	-	45.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR007	38,267	-	15.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR012	113,712	-	20.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR004	78,059	-	23.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14DR016	46,210	-	10.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Total improvement			21,112	-	1.15	111,326	-	12.62	156,786	-	50.82	120,893	9.86	13.82	139,040	16.49	-	549,262
Construc	Cost	GR	9,500	Earthen Track	10,000	GR	11,000	GR	11,500	GR	15,900	GR	57,900					
14DR002	-	-		-		-		-		-		-		-		-		
14DR003 A	-	-		-		-		-		-		-		-		-		
14DR005	-	-		-		-		-		-		-		-		-		
14DR006	-	-		-		-		-		-		-		-		-		
14DR012	-	-		-		-		-		-		-		-		-		
14DR013	-	-		-		-		-		-		-		-		-		
14DR017	-	-		-		-		-		-		-		-		-		
14DR018	-	-		-		-		-		-		-		-		-		
14DR019	-	-		-		-		-		-		-		-		-		
14DR020	-	-		-		-		-		-		-		-		-		
14DR021	-	-		-		-		-		-		-		-		-		
14DR003 B	-	-		-		-		-		-		-		-		-		
14DR008	5,121	0.90	3,150	0.90		-		-		-		-		-		-	3,151	
14DR014	23,088	4.05	3,500	1.00	5,250	1.50	5,425	1.55		-		-		-		-	14,179	

14DR015	25,304	4.44	2,850	0.81	4,750	1.36	5,575	0.98	4,500	1.29		-	17,679
14DR007	30,187	5.30		-	-	-	-	-	7,000	2.00	5,195	1.48	12,198
14DR004	45,512	7.98		-	-	-	-	-	-	-	3,500	1.00	3,501
14DR009	29,965	5.26		-	-	-	-	-	-	-	7,205	2.06	7,207
14DR010	62,824	11.02		-	-	-	-	-	-	-		-	-
14DR011	63,031	11.06		-	-	-	-	-	-	-		-	-
14DR001	103,083	18.08		-	-	-	-	-	-	-		-	-
14DR022	115,837	20.32		-	-	-	-	-	-	-		-	-
14DR016	91,917	16.13		-	-	-	-	-	-	-		-	-
Total new construction			9,500	2.71	10,000	2.86	11,000	2.53	11,500	3.29	15,900	4.54	57,916
Remaining budget													

5.3 DTMP OUTPUTS

Based on the investment plan presented above, all DRCN roads will be conserved for the duration of the DTMP period. A further 78.42km will be improved to gravel standard, 26.35km will be improved to blacktop standards and 15.93km new construction will be done. All of these roads will also receive the cross drainage and protective structures required to make them maintainable all-weather roads.

Table 6.3.1 DTMP output

Conservation	Improvement gravel	Improvement blacktop	New construction
375.52	78.42	26.35	15.93

Total Budget allocation for DTMP is NPR 935,058,000. Out of total budget NPR 328,000,000 will be spent on conservation, NPR 549,158,000 will be spent on improvement and NPR 57,900,000. This will use up the entire DTMP budget for the five-year period.

5.4 DTMP OUTCOME

As a result of the activities planned in this DTMP, the percentage of all-weather maintainable DRCN roads increases by 16% to 29% from 58.22km to 110.29 km. After the DTMP fair weather roads are decreased from 84% to 64%, which is shown in the table 6.4.1 as below.

Table 6.4.1 Standard of DRCN roads

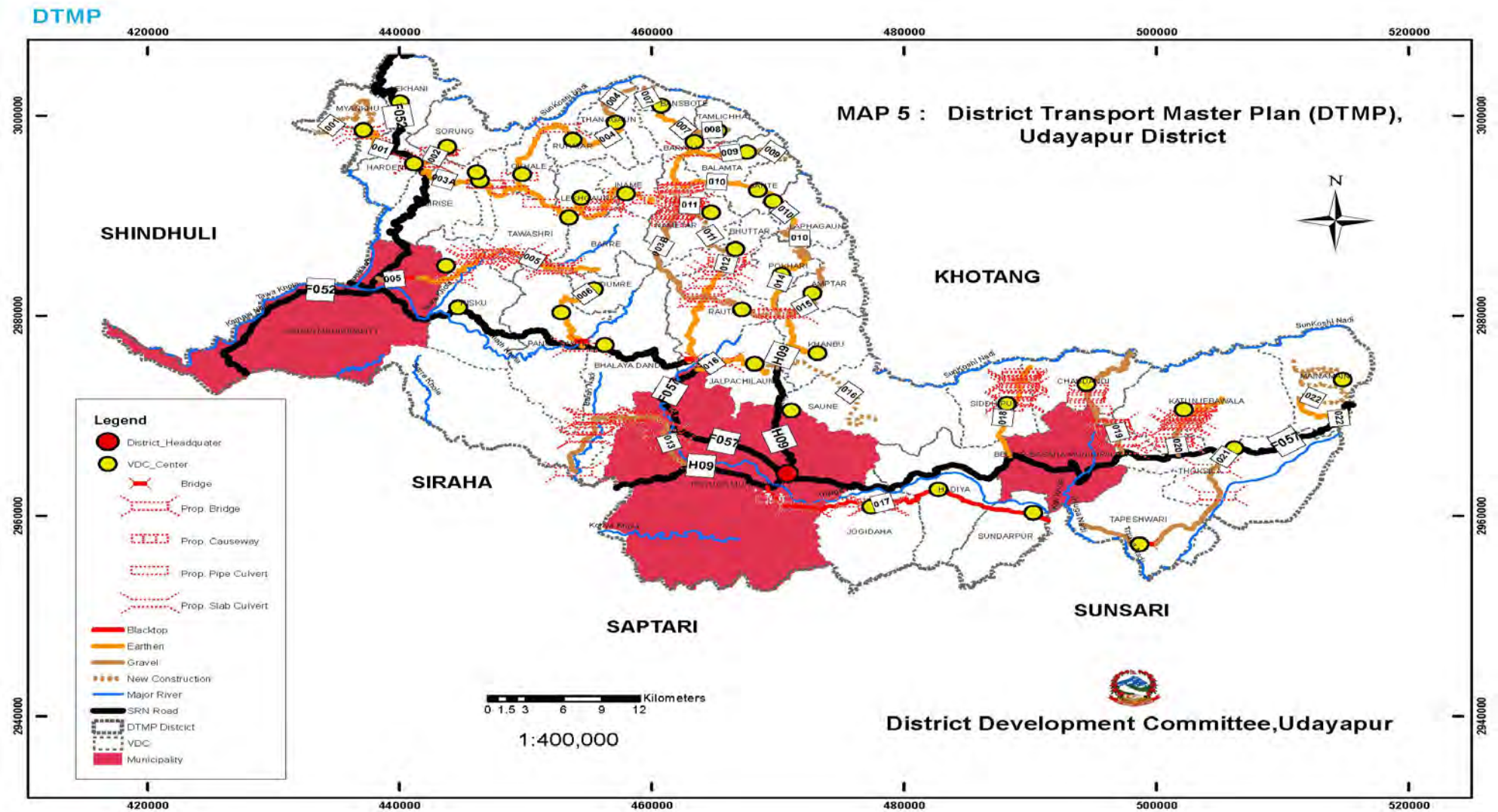
	Total length	Fair-weather		All-weather gravel		All-weather blacktop	
	km	km	%	km	%	km	%
Start of DTMP	375.52	317.30	84%	58.22	16%	-	0%
End of DTMP	375.52	238.88	64%	110.29	29%	26.35	7%
Difference	-	- 78.42	-21%	52.07	14%	26.35	7%

The number of VDC headquarters with direct access to the SRN is 14 with 32% district population. There will be change in number of VDC headquarters with access to all-weather DRCN roads and district population with access to the all-weather DRCN roads (i.e. 11 VDCs and 52% to 44 VDCs and 97% respectively). 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		
	VD Cs	Populat ion	%	VDCs	Popula tion	%	VDCs	Populat ion	%	VDCs	Popula tion	%
Start of DTMP	14	101,927	32 %	-	-	0 %	33	126,657	40 %	11	182,418	58 %
End of DTMP	14	101,927	32 %	-	-	0 %	15	56,367	18 %	30	260,567	82 %
Difference	-	-	0%	-	-	0 %	18	70,290	22 %	19	78,149	25 %

Figure 6 District Transport Master Plan (DTMP)



ANNEX 1 TRAFFIC DATA

Table A1.2 Traffic Data

Code	Description	Total Length (km)	Motorcycle	Car-Jeep-Minibus	Tractor	Truck-Bus	PCU	VPD
14DR001	Gaunbari-Mayankhu-Chitranagi Road	6.54	15	3	4		19	7
14DR002	Betini-Hattisude-Sorung Chiptar Road	5.18	8		2		8	2
14DR003A	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Betini to Majhkharka)	45.03	20	15	8	3	53	26
14DR003B	Betini-Majkharka-Dillibar-Puwarebhanjyang-Rautapokhari Road (Majhkharka to Rauta)	29.31	15	15	8	2	47	25
14DR004	Nunthala-Madale-Rupatar-Thanagauun-Basbote Road	23.09	15	10	7	4	48	21
14DR005	Katari -Bahunitar-Barre Road	26.44	10	5	4	2	26	11
14DR006	Nepaltar-Udayapur Gadi-Dumre-Barre Road	14.46	15	4	3	1	22	8
14DR007	Nagare-Baraha-Basbote Road	15.54	8	1	4		13	5
14DR008	Baraha-Tamilsa Road	3.63	5	1	3		10	4
14DR009	Barah-Balamta Road	7.73	7	1	4		13	5
14DR010	Majhkharka-Jante-Lafagaun Road	13.31	5	1	4		12	5
14DR011	Butatar-Bhijepani-Dahar-Majhkharka Road	3.51	2		2		5	2
14DR012	Murkuche-Puware-Bhutatar-Bhandare Ghat Road	20.07	9	2	6		19	8
14DR013	Mohanpur-Kakani-Biralitar-Hadebas Kolte Road	20.96	15	8	7	2	38	17
14DR014	Ranibas-Rautapokhari-Salle-Kuletar Road	20.20	13	5	5	4	38	14
14DR015	Rautapokhari-	5.53	5		2		7	2

	DadaGaun-Sunkoshi Road							
14DR016	Sukaura-Chilaune Bhanjyang-Beldoban Road	10.66	11	2	4		16	6
14DR017	Gaighat(Motigada)-Gogidaha-Hadiya-Sundarpur(Fattepur) Road	26.35	32	17	15	12	111	44
14DR018	Beltar-Birendra Bazar-Buwajhorghat Road	13.99	15	5	4		21	9
14DR019	Basaha-Chaudandi-Ranitar Road	22.80	12	2	4	0	16	6
14DR020	Lal bazar-Lamidada-Puware-Babala road	11.98	10	1	5	0	16	6
14DR021	Tappesori(Ambasi Chok)-Bhagalpur-Rampur Road	21.45	30	10	10	2	53	22
14DR022	Sombare-MainaMaini-Machuntar-Bhojpur Road	7.76	8	1	4	0	13	5

ANNEX 2 POPULATIONS SERVED

Table A2.1 Population Served

#	VDC/municipality	Population	Connections	SRN	14DR001	14DR002	14DR003A	14DR003B	14DR004	14DR005	14DR006	14DR007	14DR008	14DR009	14DR010	14DR011	14DR012	14DR013	14DR014	14DR015	14DR016	14DR017	14DR018	14DR019	14DR020	14DR021	14DR022
	Total population	316,934		101,927	6,043	7,212	35,853	19,869	8,877	37,475	16,121	7,362	5,248	5,202	8,002	5,231	13,587	89,547	19,682	12,124	3,864	95,074	17,582	35,269	27,071	41,539	5,163
	Total VDCs/municipalities	45		14	2	2	13	8	3	4	3	3	2	2	3	2	3	3	4	2	1	4	2	3	2	3	1
1	Mainamaini	5,163	13	X																							X
2	Rampur Thoksila	21,281	4	X																				X	X	X	
3	Katunje Babala	5,790	1																						X		
4	Chaudandi	3,882	1																					X			
5	Tapeswori	10,152	1																							X	
6	Siddipur	3,770	1																				X				
7	Sundarpur	5,673	1																			X					
8	Hadiya	11,331	2	X																		X					
9	Jogidaha	6,665	2	X																		X					
10	saune	2,678	1	X																							
11	Khanbu	4,350	2	X															X								
12	Jalpa Chilaune	3,864	1																		X						
13	Aaptar	4,494	3	X															x	X							
1	Rauta	7,630	3														X		x	X							

[illegible]

3 1	Risku	7,859	2	X						X																
3 2	Thanagau	2,490	2				x		X																	
3 3	Rupatar	3,665	2				x		X																	
3 4	Sirise	4,409	2	X			X																			
3 5	Okhle	2,722	2				X		X																	
3 6	Limpatar	2,698	1				X																			
3 7	Sorung Chhabise	3,755	1			X																				
3 8	Hardeni	3,457	3	X	X	X																				
3 9	Lekhani	3,259	1	X																						
4 0	Mayankhu	2,586	1		X																					
4 1	Triyuga Municipality	71405	2													X			X							
4 2	Basaha Municipality		-																							
i	Basaha	10106	2																		X			X		
ii	Beltar	13812	1																	X						
4 3	Katari Municipality		-																							
i	Katari	19384	1							X																
ii	Triveni	8839	1	X																						

Source: *Population census 2012*

Table A2.2 - Level of Access

#	VDC/municipality	No access DRCN start DTMP	No access DRCN end DTMP	Fair-weather DRCN start DTMP	Fair-weather DRCN end DTMP	All-weather DRCN start DTMP	All-weather DRCN end DTMP	Direct access to SRN
	Total population	-	-	126,657	56,367	182,418	260,567	211,471
	Total VDCs	0	0	33	15	11	30	17
1	Mainamaini			x	X			
2	Rampur Thoksila					X	X	X
3	Katunje Babala			X	X			
4	Chaudandi			X			X	
5	Tapeswori					X	X	
6	Siddipur					X	X	
7	Sundarpur					X	X	
8	Hadiya					X	X	X
9	Jogidaha					X	X	X
10	saune			X			X	X
11	Khanbu			X			X	X
12	Jalpa Chilaune			X	X			
13	Aaptar			X			X	X
14	Rauta			X	X			
15	Pokhari			X	X			
16	Bhalayadada			X			X	X
17	Lafagau			X	x			
18	Bhutar			X	X			
19	Jaante			X			X	
20	Panchawati			X			X	X
21	Nametar			X			X	
22	Balamta			X			X	
23	Dumre			X	X			
24	Barre			X	X			
25	Iname			X			X	
26	Baraha			X			X	
27	Tamilchha			X			X	
28	Basbote			X			X	
29	Lekhgaau			X			X	
30	Tawashree			X			X	
31	Risku						X	X
32	Thanagau			X	X			
33	Rupatar			X	X			
34	Sirise			X			X	X
35	Okhle			X	X			
36	Limpatar			X	X			
37	Sorung Chhabise			X	X			
38	Hardeni			X			X	X
39	Lekhani			X			X	X
40	Mayankhu			X	X			
41	Triyuga Municipality					X	X	X

42	Basaha Municipality							
i	Basaha					X	X	X
ii	Beltar					X	X	X
43	Katari Municipality							
i	Katari					X	X	X
ii	Triveni					X	X	X

ANNEX3 LOCATION OF PROPOSED INTERVENTIONS

Table A3.1 Location of proposed Interventions

Road code	Road Name	Length (km)	or X- coordinate	(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)
Total		375.52			34.40	317.30	26.35	1,045	660	235	42	-	85	-	1,083	32,309
14DR001	Gaunbari - Mayankhu - Chitrnagi Road	6.54	0+0 00	6+54 0	1.00	6.54	-			10						2000
14DR002	Betini - Hattisude - Sorung Chiptar Road	5.18	0+0 00	5+18 0	4.00	5.18	-			15			3			2000
14DR003A	Betini - Majkharka - Dillibar - Puwarebh anjyang - Rautapok hari Road (Betini to Majhkhar ka)	45.03	0+0 00	45+0 30		45.03	-						4			1502
14DR003B	Betini - Majkharka - Dillibar - Puwarebh	29.31	0+0 00	29+3 10	2.00	29.31	-			15	21		13			1503

	anjyang - Rautapok hari Road (Majhkhar ka to Rauta)															
14DR004	Nunthala - Madale - Rupatar - Thanagau un - Basbote Road	23.09	0+0 00	23+0 90	1.00	23.09	-		30				1			1504
14DR005	Katari - Bahunitar- Barre Road	26.44	0+0 00	26+4 40	3.00	22.72	-		140	30			9			1500
14DR006	Nepaltar - Udayapur Gadi - Dumre - Barre Road	14.46	0+0 00	14+4 60	1.50	14.46	-		50							2000
14DR007	Nagare - Baraha - Basbote Road	15.54	0+0 00	15+5 40	2.50	15.54	-						1		20	1000
14DR008	Baraha - Tamilsa Road	3.63	0+0 00	3+63 0	2.50	3.63	-									800
14DR009	Baraha - Balamta Road	7.73	0+0 00	7+73 0	3.50	7.73	-			10					253	800
14DR010	Majhkhar ka - jante -	13.31	0+0	13+3 10	2.00	13.31	-						5		100	1500

	Lafagaun Road		00													
14DR011	Butatar - Bhijepani-Dahar - Majhkhar ka Road	3.51	0+000	3+510	2.00	3.51	-			10			5			800
14DR012	Murkuche - Puware - Bhutatar - bhandare Ghat Road	20.07	0+000	20+070	2.00	20.07	-		80	10			4			1000
14DR013	Mohanpur - kakani - Biralitar - Hadebas Kolte Road	20.96	0+000	20+960	1.50	15.67	-		85	65			4			1200
14DR014	Ranibas - Rautapok hari - Salle - Kuletar Road	20.20	0+000	20+200	1.00	20.20	-	200					2			3000
14DR015	Rautapok hari - DadaGaun - Sunkoshi Road	5.53	0+000	15+530	0.50	5.53	-			5	7		1		400	1000
14DR016	Sukaura - Chilaune Bhanjyang - Beldoban Road	10.66	0+000	10+660	0.50	10.66	-	145	25							1500
14DR017	Gaighat(M	26.35	0+0	26+3	0.50	-	26.35		75	5	7					1000

	otigada) - Gogidaha - Hadiya - Sundarpur (Fattepur) Road		00	50												
14DR018	Beltar - Birendra Bazar - Buwajhor ghat Road	13.99	0+0 00	13+9 90	0.50	13.99	-	100	20	30			10		50	1200
14DR019	Basaha - Chaudand i - Ranitar Road	22.80	0+0 00	22+8 00	0.50	21.66	-	200		20			10		40	2500
14DR020	Lal bazar - Lamidada - Puware - Babala road	11.98	0+0 00	11+9 80	0.80	9.09	-	300	105	10	7		13		100	1200
14DR021	Tappesori(Ambasi Chok) - Bhagalpur - Rampur Road	21.45	0+0 00	21+4 50	0.80	2.61	-	100	50						20	800
14DR022	Sombare - MainaMai ni - Machunta r - Bhojpur Road	7.76	0+0 00	7+76 0	0.80	7.76	-								100	1000

ANNEX4 OVERALL INVENTORY

Table A4.1 Overall Inventory lists

Road code	Road Name	Length (km)	(km) or XY-coordinate	(km) or XY-coordinate	Surface Type: Black Top	Surface Type : Gravel	Surface Type : Earth	All Weather	Fair Weather	Condition - Good/ Fair	Condition - Poor	Condition - Temporarily Impassable	Condition - Permanently Impassable
Total		499.65			0.81	75.02	423.82	-	-	-	-	-	-
14DR001	Gaunbari - Mayankhu - Chitranagi Road	6.54	0+00 0	6+54 0			6.54		Fair Weather		Poor	Temporary Impassable	
14DR002	Betini - Hattisude - Sorung Chiptar Road	5.18	0+00 0	5+18 0			5.18		Fair Weather		Poor	Temporary Impassable	
14DR003 A	Betini - Majkharka - Dillibar - Puwarebhanjyang - Rautapokhari Road (Betini to Majhkharka)	45.03	0+00 0	45+0 30			45.03		Fair Weather		Poor	Temporary Impassable	
14DR003 B	Betini - Majkharka - Dillibar - Puwarebhanjyang - Rautapokhari Road (Majhkharka to Rauta)	29.31	0+00 0	29+3 10			29.31		Fair Weather		Poor	Temporary Impassable	

14DR004	Nunthala - Madale - Rupatar - Thanagauun - Basbote Road	23.09	0+00 0	23+0 90			23.09		Fair Weather		Poor	Temporary Impassable	
14DR005	Katari - Bahunitar- Barre Road	26.44	0+00 0	26+4 40	3.71		22.72		Fair Weather	Good			
14DR006	Nepaltar - Udayapur Gadi - Dumre - Barre Road	14.46	0+00 0	14+4 60			14.46		Fair Weather	Good			
14DR007	Nagare - Baraha - Basbote Road	15.54	0+00 0	15+5 40			15.54		Fair Weather		Poor	Temporary Impassable	
14DR008	Baraha - Tamilsa Road	3.63	0+00 0	3+63 0			3.63		Fair Weather		Poor	Temporary Impassable	
14DR009	Baraha - Balamta Road	7.73	0+00 0	7+73 0			7.73		Fair Weather		Poor	Temporary Impassable	
14DR010	Majhkharka - jante -Lafagaun Road	13.31	0+00 0	13+3 10			13.31		Fair Weather		Poor	Temporary Impassable	
14DR011	Butatar - Bhijepani- Dahar - Majhkharka Road	3.51	0+00 0	3+51 0			3.51		Fair Weather		Poor	Temporary Impassable	
14DR012	Murkuche - Puware - Bhutatar - bhandare Ghat Road	20.07	0+00 0	20+0 70			20.07		Fair Weather		Poor	Temporary Impassable	

14DR013	Mohanpur - kakani - Biralitar - Hadebas Kolte Road	20.96	0+00 0	20+9 60		5.28	15.67		Fair Weather		Poor	Temporary Impassable	
14DR014	Ranibas - Rautapokhari - Salle - Kuletar Road	20.20	0+00 0	20+2 00			20.20		Fair Weather		Poor	Temporary Impassable	
14DR015	Rautapokhari - DadaGaun - Sunkoshi Road	5.53	0+00 0	15+5 30			5.53		Fair Weather		Poor	Temporary Impassable	
14DR016	Sukaura - Chilaune Bhanjyang - Beldoban Road	10.66	0+00 0	10+6 60			10.66		Fair Weather				
14DR017	Gaighat(Motig ada) - Gogidaha - Hadiya - Sundarpur(Fatt epur) Road	26.35	0+00 0	26+3 50		26.35		All Weather		Good			
14DR018	Beltar - Birendra Bazar - Buwajhorghat Road	13.99	0+00 0	13+9 90			13.99	Fair Weather		Good			
14DR019	Basaha - Chaudandi - Ranitar Road	22.80	0+00 0	22+8 00		1.14	21.66		Fair Weather	Good		Temporary Impassable	
14DR020	Lal bazar - Lamidada - Puware - Babala road	11.98	0+00 0	11+9 80		2.89	9.09		Fair Weather				
14DR021	Tappesori(Amb	21.45	0+00	21+4		18.84	2.61	All		Good	Poor	Temporary	

	asi Chok) - Bhagalpur - Rampur Road		0	50				Weather				Impassable	
14DR022	Sombare - MainaMaini - Machuntar - Bhojpur Road	7.76	0+00 0	7+76 0			7.76		Fair Weather		Poor	Temporary Impassable	
14VR001	Gaighat(Motig ada)-Phattpur Road	0.04	0+00 0	0+04 0	0.04	0.00	0.00		Fair weather		Fair	Temporary Impassable	
14VR002	Basaha- Chaudandi- Ranitar Road	7.06	0+00 0	7+06 0	0.00	0.00	7.06		Fair weather		Poor	Temporary Impassable	
14VR003	Ranibas- Rauta –Salle-Kuletaar Road	3.58	0+00 0	3+58 0	0.00	0.00	3.58		Fair weather		Fair	Temporary Impassable	
14VR004	Beltar - Sundarpur Road	5.73	0+00 0	5+73 0	0.00	5.73	0.00		Fair weather		Poor	Temporary Impassable	
14VR005	Beltar- Sikarmadi-Lal Bazar Road	8.14	0+00 0	8+14 0	0.00	0.00	8.14		Fair weather		Poor	Temporary Impassable	
14VR006	Tapeswari- Bhagalpur- Rampur Road	2.16	0+00 0	2+16 0	0.00	2.16	0.00		Fair weather		Poor	Temporary Impassable	
14VR007	Tapeswari- Bhagalpur- Rampur Road	2.74	0+00 0	2+74 0	0.00	0.00	2.74		Fair weather		Poor	Temporary Impassable	
14VR008	Risku-Bakapati- Nepaltar	11.44	0+00 0	11+4 40	0.00	0.00	11.44		Fair weather		Poor	Temporary Impassable	
14VR009	Phattpur (Basaha)- Barkhedada Road	7.30	0+00 0	7+30 0	0.00	7.30	0.00		Fair weather		Poor	Temporary Impassable	

14VR010	Nepaltar-Udaypurgadhi - Kurkuntar Road	0.80	0+00 0	0+80 0	0.00	0.00	0.80		Fair weather		Poor	Temporary Impassable	
14VR011	Murkuchi - Puware - Bhutatar - Bhandareghat Road	0.19	0+00 0	0+19 0	0.00	0.19	0.00		Fair weather		Poor	Temporary Impassable	
14VR012	Sombare - Risku – Deulikuna-KurKuntar Road	4.68	0+00 0	4+68 0	0.00	0.00	4.68		Fair weather	Good			
14VR013	Rauta-Bolunkha-jayamire Raod	1.49	0+00 0	1+49 0	0.00	0.00	1.49		Fair weather		Poor	Temporary Impassable	
14VR014	Sidipur-Shaune Road	3.80	0+00 0	3+80 0	0.00	0.00	3.80		Fair weather		Poor	Temporary Impassable	
14VR015	Risku -Bihibare -Tapi Road	6.25	0+00 0	6+25 0	0.00	0.00	6.25		Fair weather	Good			
14VR016	Belshrot – kalikhola-Timanahi Road	3.61	0+00 0	3+61 0	0.00	0.00	3.61		Fair weather		Fair	Temporary Impassable	
14VR017	Lalpatta – Ghanchakre-Biralitar Road	5.92	0+00 0	5+92 0	0.00	0.00	5.92		Fair weather		Poor	Temporary Impassable	
14VR018	Rauta (Gogane)-Malmase-Pokhari Road	5.97	0+00 0	5+97 0	0.00	0.00	5.97		Fair weather		Poor	Temporary Impassable	
14VR019	Deuri - Shreepur - Damauti Road	2.94	0+00 0	2+94 0	0.00	0.00	2.94		Fair weather		Poor	Temporary Impassable	

14VR020	Deuri - Shreepur - Damauti Road	0.22	0+00 0	0+22 0	0.22	0.00	0.00		Fair weather		Poor	Temporary Impassable	
14VR021	Garash- Khasibas Road	3.44	0+00 0	3+44 0	0.00	0.00	3.44		Fair weather		Poor	Temporary Impassable	
14VR022	Salghari - Damauti Road	5.08	0+00 0	5+08 0	0.00	0.00	5.08		Fair weather		Poor	Temporary Impassable	
14VR023	Salghari - Damauti Road	0.55	0+00 0	0+55 0	0.55	0.00	0.00		Fair weather		Poor	Temporary Impassable	
14VR024	Salghari - Damauti Road	1.42	0+00 0	1+42 0	0.00	1.42	0.00		Fair weather		Poor	Temporary Impassable	
14VR025	Saune- Dhaplang Road	4.45	0+00 0	4+45 0	0.00	0.00	4.45		Fair weather		Poor	Temporary Impassable	
14VR026	Sahare- Andhaeri Road	1.49	0+00 0	1+49 0	0.00	0.00	1.49		Fair weather		Poor	Temporary Impassable	
14VR027	Sirise- Baseri Road	4.47	0+00 0	4+47 0	0.00	0.00	4.47		Fair weather		Poor	Temporary Impassable	
14VR028	Lalpatta - Kharkhola - Damauti Road	4.20	0+00 0	4+20 0	0.00	0.00	4.20		Fair weather		Poor	Temporary Impassable	
14VR029	Bhutatar - Okhareni - Sinkaule Road	4.66	0+00 0	4+66 0	0.00	0.00	4.66		Fair weather		Poor	Temporary Impassable	
14VR030	Birendrabazar- Sidipur-Chatra- Kathmandu	7.41	0+00 0	7+41 0	0.00	0.00	7.41		Fair weather		Poor	Temporary Impassable	
14VR031	Katari- Dashbighe	0.87	0+00 0	0+87 0	0.00	0.00	0.87		Fair weather		Poor	Temporary Impassable	
14VR032	Panchwati- ghapar-chure- Bhubare-tariga	2.01	0+00 0	2+01 0	0.00	0.00	2.01		Fair weather		Poor	Temporary Impassable	

