



Government of Nepal



***District Transport Master
Plan (DTMP)
Of
Kanchanpur District***



Ministry of Federal Affairs and Local Development

Department of Local Infrastructure Development and
Agricultural Roads (DOLIDAR)

District Development Committee, Kanchanpur



Volume I
Final Report

Prepared by: Project Research and Engineering Associates for the District Development Committee (DDC) and District Technical Office (DTO), with Technical Assistance from the Department of Local Infrastructure and Agricultural Roads (DOLIDAR), Ministry of Federal Affairs and Local Development and grant supported by DFID through Rural Access Programme (RAP3).

Project Research and Engineering Associates

Lagankhel, Lalitpur

Phone: 5539607

Email: prena@wlink.com.np

Ref:

Date: January 26, 2016

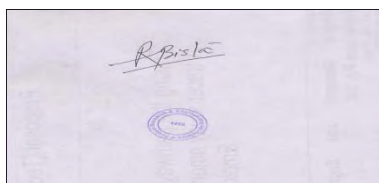
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We would like to express our sincere gratitude to the Project Coordinator Mr. Maheshwor Ghimire (SDE) of DoLIDAR, and Programme Manager Mr. Michael Green, Deputy Programme Manager Mr. Dilli Prakash Sitaula Engineering TL Mr. Bill Seal, Er. Manoj Krishna 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 Local Development Officer Mr. Mohan Poudel, DDC Kanchanpur, Chief District Engineer Mr. Kamal Kumar Adhikari, Planning officer, Program Officer, Information officer, Engineers, Sub-engineers and other staffs of DDC and DTO offices, Kanchanpur for their extended help and regular support.

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

Finally, we would like to our thanks the DTMP team members for their valuable efforts to bring the study report in this stage.



Raghab Bista

Director

Project Research and Engineering Associates

EXECUTIVE SUMMARY

Kanchanpur district is located at Mahakali zone in the Far-Western Development region of Nepal. The district lies between 27° 36" to 28° 29" north latitude and 82° 8' to 82° 5' east longitude in the global position. The District is bordered with Kailali district in the east, Mahakali River with India in the west, Dadeldhura district in the north and India in the south.

The district road inventory identified 745.07 km of roads, including 155.42 km of strategic road, 443.15 km District Road Core Network (DRCN) and 146.50 km of village roads. The discussion with DTICC and DDC, 29 rural roads with a length of 443.15 km were identified as making up the District Road Core Network (DRCN), and the remaining 146.50 km were classified as village roads. The existing DRCN roads link up 4 VDCs headquarters and 8 Municipalities. The existing DRCN roads are almost gravel and earthen roads providing the access as all weather and fair-weather roads.

Table: ES1

Road Class	Total length	Black Top	Gravel	Earthen
Strategic roads	155.42	45.32	88.00	22.10
Urban roads	-	-	-	-
Rural roads	589.65	29.90	326.05	233.70
Total	745.07	75.22	414.05	255.80

Annual conservation costs are estimated at NPR 97.4 million based on the first year, and will be updated in the ARMP based on actual annual maintenance needs as determined in the annual road condition survey. For the full five-year period the conservation costs will come to NPR 487.16 million. An analysis of the road network identified the need for improvement of all the DRCN roads in order to bring them to a maintainable all-weather standard and provide them with a proper road surface in light of existing traffic volumes. The required improvements and their estimated costs are listed below.

Improvement type	Requirement	Cost (NPR)
Bridges	530 m	318,000,000
Slab culverts	87 m	13,050,000
Causeways	604 m	23,680,000
Hume pipes	164 units	1,640,000
Masonry retaining walls	657 m ³	6,570,000
Gabion retaining walls	3,730 m ³	9,325,000
Lined drains	14,610 m	14,610,000
Widening	- m	-
Rehabilitation	- km	-
Gravelling	105.40 km	231,880,000
Blacktopping	274.65 km	1,565,505,000
New construction	- km	-
Total		2,184,260,000

The available budget for the road sector for the coming five years (fiscal year 2072/73 to 2076/78) is estimated to be NPR 1,338.880 million. Allocation to the district road core network was set at 95% 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. This budget is insufficient to cover all the estimated costs of conservation, improvement and new construction. However, it allows all conservation requirements to be covered throughout the DTMP period and almost all improvement works to be completed before the end of the DTMP period. The remaining improvement works will be carried out in the next DTMP. New construction is not possible within this DTMP period and will also be carried out under the next DTMP.

Within the DTMP period 32.37 km of roads will be gravelled and 110.60 km of roads blacktopped, resulting in a total of 142.97 km being brought to a maintainable all-weather standard. VDC headquarters with access to all-weather DRCN roads or the SRN will increase from 3 to 10 (8 municipalities and 2 VDCs), while the percentage of the district population with such access will increase from 45% to 95%. Two VDCs still remains access with fair-weather roads.

ABBREVIATIONS

ARAMP	Annual Road Asset Management Plan
CBS	Central Bureau of Statistics
DDC	District Development Committee
DOLIDAR	Department of Local Infrastructure Development and Agriculture Road
DOR	Department of Road
DIM	District Inventory Map
DTICC	District Transport Infrastructure Coordination Committee
DTO	District Technical Officer
DTMP	District Transport Master Plan
DTPP	District Transport Perspective Plan
DRCN	District Road Core Network
GIS	Geographical Information system
GPS	Global Positioning System
GoN	Government of Nepal
LGCDP	Local Governance and Community Development Programme
MoFALD	Ministry of Federal Affairs and Local Development
RAP	Rural Access Programme
RTI	Rural Transport Infrastructure
SWAP	Sector Wide Approach
VDC	Village Development Committee
VPD	Vehicle Per Day

CONTENTS

FOREWORD.....	IV
ACKNOWLEDGEMENTS	III
EXECUTIVE SUMMARY.....	IV
ABBREVIATIONS.....	VI
1. INTRODUCTION	1
2. DISTRICT ROAD CORE NETWORK (DRCN).....	2
2.1 Total road network	2
2.2 National Highways and Feeder Roads	2
2.3 District Road Core Network.....	3
2.4 Village roads	5
3. DISTRICT TRANSPORT PERSPECTIVE PLAN (DTPP)	8
3.1 Conservation.....	8
3.2 Improvement.....	11
3.3 New construction	15
3.4 District Transport Perspective Plan	16
4. COST ESTIMATION.....	20
4.1 Conservation.....	20
4.2 Improvement.....	21
4.3 New construction	22
4.4 DTPP costs.....	23
5. RANKING	24
5.1 Conservation.....	24
5.2 Improvement.....	25
5.3 New construction	25
6. DISTRICT TRANSPORT MASTER PLAN (DTMP)	26
6.1 Five Year Projected Financial resources	26
6.2 Budget allocation	26
6.3 DTMP outputs.....	32
6.4 DTMP outcome	32
ANNEX 1 TRAFFIC DATA.....	33
ANNEX 2 .POPULATION SERVED.....	34
ANNEX 3 LEVEL OF ACCESS.....	35
ANNEX 4 .LOCATION OF PROPOSED INTERVENTION.....	36
ANNEX 5 .OVERALL ROAD INVENTORY.....	38
ANNEX 6 .VILLAGE ROAD.....	42
ANNEX 7 PHOTOGRAPHS.....	44
ANNEX 8 MINUTES OF MEETING.....	45
ANNEX 9 LIST OF COMMENTS AND SUGGESTIONS FROM THE WORKSHOP.....	52
Volume II - GIS Drawings	
Volume III - CONDITIONAL SURVEY DATA	
A.1: Form 0 (DRCN Survey Format)	
A.2: Form 1(Inventory Survey)	
A.3: Form 2(Rural Road Inventory and Rapid Visual Condition Survey)	

TABLES

Table 2.1.1	Road length in Kanchanpur district (km).....	2
Table 2.2.1	National Highways and Feeder Roads in Kanchanpur district (km)	3
Table 2.3.2	District road core network in Kanchanpur district (km).....	3
Table 3.1.1	Conservation requirements	9
Table 3.2.1	Sections of the district road core network requiring gravelling	11
Table 3.2.2	Required cross drainage structures	12
Table 3.2.3	Required protective structures.....	14
Table 3.2.4	Sections of the district road core network requiring blacktopping.....	15
Table 3.4.1	District Transport Perspective Plan	17
Table 4.1.1	Standard unit costs for conservation	20
Table 4.1.2	Estimated conservation costs for the first year (NPR '000)	20
Table 4.2.1	Standard unit costs for improvement activities.....	21
Table 4.2.2	Cost estimate for improvement measures (NPR '000).....	22
Table 4.4.1	DTPP costs (NPR '000).....	23
Table 5.1.1	Ranking of conservation works (NPR '000)	24
Table 5.2.1	Ranking of improvement works (NPR '000).....	24
Table 6.1.1	Estimated funding levels (roads) for next five years (in NPR '000)	26
Table 6.2.1	Investment plan.....	28
Table 6.3.1	DTMP output.....	32
Table 6.4.1	Standard of DRCN roads.....	32
Table 6.4.2	Population with access to road network.....	32

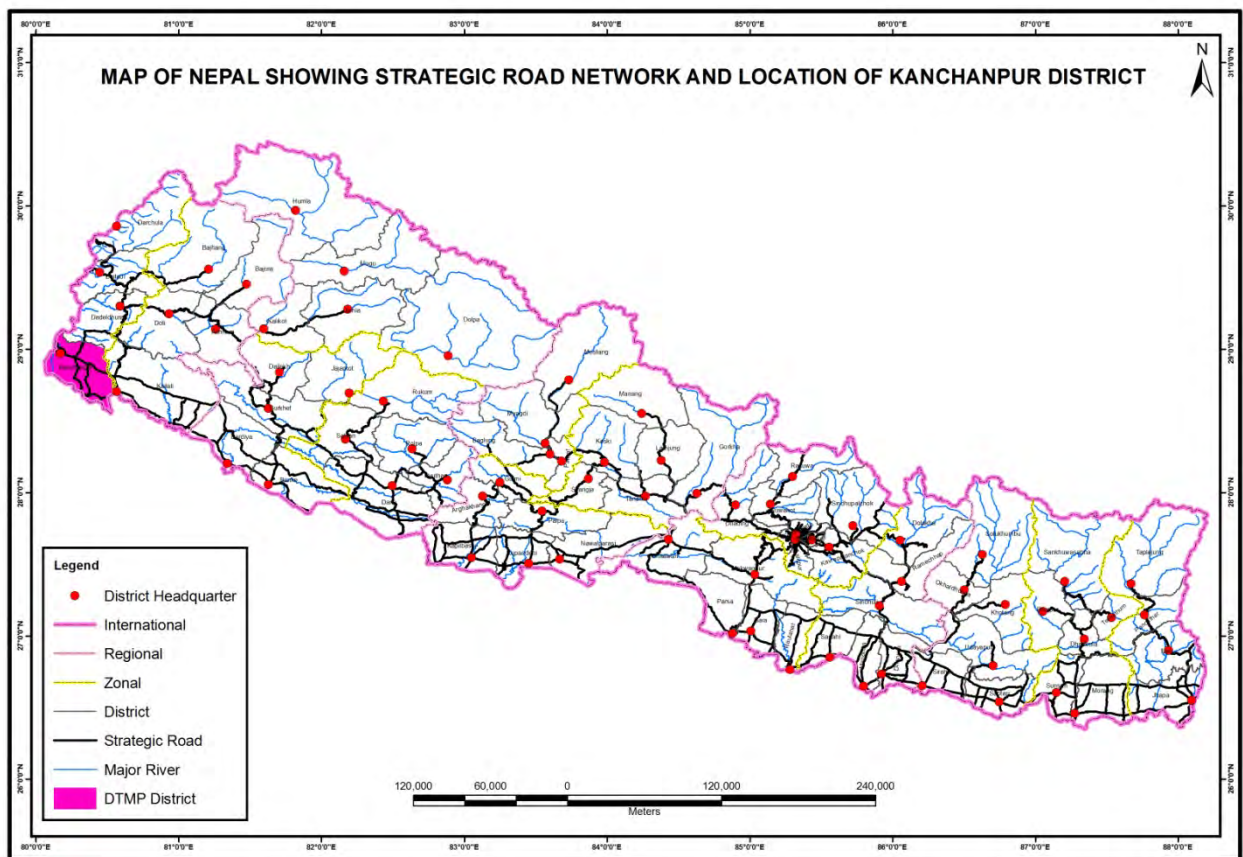
FIGURES

Figure 1	Map of Nepal indicating Kanchanpur district.....	1
Figure 2	Total road inventory map for Kanchanpur district	6
Figure 3	District Road Core Network (DRCN) map.....	7
Figure 4	District Transport Perspective Plan (DTPP).....	19
Figure 5	District road sector budget allocation.....	27
Figure 6	District Transport Master Plan (DTMP).....	31

1. INTRODUCTION

Kanchanpur district is one of the Terai district located in Mahakali zone in the Far-Western Development region of Nepal. The district lies on latitude of $28^{\circ} 32'$ to $29^{\circ} 08'$ North and longitude of $80^{\circ} 32'$ to $80^{\circ} 33'$ East in the global position. The District is bordered with Kailali district in the East, Mahakali River with India in the West, Dadeldhura district in the North and India in the south.

The district is administratively divided into 4 VDCs, 8 municipalities and 4 electoral constituencies. The topographical settings of the district comprises mostly with Terai plain and few hill parts in northern part. The total area of the district is 1610 sq.km. The elevation of the district varies from 176m to 1528m above mean sealevel. The annual rainfall of the district is 1575 mm.



Mahakali River is the main river bordered with India. There are number of rivulets are located in different parts of the district having the watershed areas like; Jogbudha, Choudhar, Mohana, Syali, Banhara, Sanhora, Dodha Rivers etc.

Demographic

According to the National Census 2011, the total population of the district is 451,248 comprising 235,206 female (52.1%) and 216,042 male (47.9%). The demographic characteristics of the district is given below;

Table 1: Population status of the Kanchanpur District

Particulars	2001 Census	2011 Census
Total Population	377,899	451,248
Male	191,910	216,042
Female	185,989	235,206
Sex Ratio	103.2	103.18
Total Households	60,158	82,152
Average Household Size	6.28	5.49
Population Density per sq.km.	235	280
Literacy Rate %	80.0	90.0

Source: Population Census 2001 and 2011, CBS

The accessibility of transport services is improving rapidly on rural roads construction from DDC funding and project funding. The district has access to the East-West Mahendra Highway (Mohana Bridge to Gaddachauki) 44.32 km which linked to district headquarter at Mahendranagar.

2. DISTRICT ROADCORE NETWORK (DRCN)

This chapter gives an overview of the existing roads in Kanchanpur 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 be incorporated in DTPP and DTMP. The remaining rural roads are classified as village roads.

2.1 TOTAL ROAD NETWORK

Kanchanpur district has an estimated road network of 745.07 kilometres, including 155.42 km of strategic roads managed by DOR and 589.65 km of rural roads managed by DDC and the VDCs. The strategic roads has about 45.32 km are black topped and 88.00 km gravel and 22.10 km earthen road which provides services as all weather and fair weather condition. The DRCN roads constitutes 22.90 km black top, 326.05 km gravel and 233.70 km earthen condition A map of the total road network in Kanchanpur district is shown at the end of this chapter.

Table 2.1.1 Road length in Kanchanpur district (km)

Road Class	Total length	Black Top	Gravel	Earthen
Strategic roads	155.42	45.32	88.00	22.10
Urban roads	-			
Rural roads	589.65	29.90	326.05	233.70
Total	745.07	75.22	414.05	255.80

2.2 NATIONAL HIGHWAYS AND FEEDER ROADS

Kanchanpur district has connected with East-West Mahindra Highway (Mohana Bridge to Gadda chauki) with 44.32 km. The existing highway has been serving east –west part of the district. Highway has already been blacktopped by DOR and some portion are gravel and earthen, that will be treated as strategic roads in this DTMP.

Table 2.2.1 National Highways and Feeder Roads in Kanchanpur district (km)

Code	Name of Road	Total length	Black Top	Gravel	Earthen
H0167	Mahendra Raj Marg (Mohana River- Daiji)	28.16	28.16		
H0168	Daiji-Sukhanala	6.90	6.90		
H0167	Sukhanala-GaddaChauki	9.26	9.26		
F15001	Kaluwapur(MRM)-Shreepur-Belaury (IB)	30.00	-	27.00	3.00
F15101	Daiji (MRM)-Naula	22.60	1.00	9.00	12.60
H1732	Dhangadhi-Beldandi chowk (Postal)	42.00	-	42.00	
H1733	Daiji - Beldandi Chowk(Postal)	20.00	-	10.00	6.50
H19001	Shabha(MRM)-Bramhadev (UC = 13.30 km)	-	-	-	-
H15501	Bramhadev-Karali (UC = 8.00 km)	-	-	-	-
Total		155.42	45.32	88.00	22.10

2.3 DISTRICT ROADCORE 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 Kanchanpur district is shown in at the end of this chapter. The DRCN consists of 29 district roads with a total length of 443.15 km. The remaining 146.50 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). There are existing 19.70 km blacktopped, 318.05 km gravel and 105.40 km earthen roads. 76% of DRCN roads are either gravel or blacktopped treated as all weather and remaining 24% earthen roads are thus considered fair-weather (see Table 2.3.1). A complete list of the DRCN roads and their characteristics is provided in Table 2.3.1

Table 2.3.2 District Road Core Network (DRCN) in Kanchanpur District (km)

Code	Name of Road	Total length	Black Top	Gravel	Earthen	All weather	Fair weather
Total		443.15	19.70	318.05	105.40	337.75	105.40
Percentage			4%	72%	24%	76%	24%
72DR001	Gaddachauki-Brahamadev-Kheliamachhedi-Jhilmila Tal Road	19.40	3.80	8.40	7.20	12.20	7.20
72DR002	Babathan-Chandani-Bailbandh Road	12.60		12.60		12.60	
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10	0.30	11.30	0.50	11.60	0.50
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50		10.50		10.50	
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10			12.10	-	12.10
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65		6.65		6.65	
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55	0.35	4.30	3.90	4.65	3.90
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00	0.50	12.50		13.00	-
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70	3.20	12.50		15.70	
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10		13.80	4.30	13.80	4.30
72DR011	Daiji-Bedkot-Jogbudha Road	22.50		22.50		22.50	

Code	Name of Road	Total length	Black Top	Gravel	Earthen	All weather	Fair weather
72DR012	Daiji-Beldandi Road	23.40		23.40		23.40	
72DR013	Beldandi-Rauteli Bichuwa Road	6.10		4.70	1.40	4.70	1.40
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25	0.15	7.60	2.50	7.75	2.50
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90		14.90		14.90	
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90		7.30	4.60	7.30	4.60
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10		3.60	7.50	3.60	7.50
72DR018	Kaluwapur-Belaury-Border (Madan Asrit Marga)	31.10	7.80	23.30		31.10	
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20	3.60	36.60		40.20	
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60			6.60	-	6.60
72DR021	Jhapi 1 Banshaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40		3.10	4.30	3.10	4.30
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90		9.90		9.90	
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00		19.00	16.00	19.00	16.00
72DR024	Vurakot-Baijudada-Gokulpur Road	6.60		6.60		6.60	
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20		14.10	12.10	14.10	12.10
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00		1.60	7.40	1.60	7.40
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00		1.70	8.30	1.70	8.30
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00		22.00		22.00	
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30		3.60	6.70	3.60	6.70

Government of Nepal recently declared additional seven new municipalities on the top of existing one in Kanchanpur district. All together there are 8 municipalities and only four VDCs remains in the district. Most of the DRCN roads are lies withinthe municipality areas and some are heads towards VDCs. The number of DRCN roads and sections lying within the municipality areas are 370.65km as enlisted below. Once the Municipal Transport Master Plan (MTMP) prepares and takes responsibility of improving those roads by respective municipalities, it will later converts to Urban Roads and net DRCN remains 72.50km only:

Road Code	Road Name	Total Length	Municipal Length	BT	GR	ER	Municipality
72DR001	Gaddachauki-Brahamadev-Khallamachhedi-Jhilmila Tal-Rautela-Bedkot tal-Modkadham Tourist	19.40	18.60	3.00	7.20	8.40	Bhimdutta
72DR002	Babathan – Chandni - Bailbandha Road	12.60	12.60		12.60		Chandani Dodhara
72DR003	Multispan Suspension Bridge - Kutakabar Road	12.10	12.10	0.20	11.40	0.50	Chandani Dodhara
72DR006	Suda(MRM)-Jhajpura-Gauji-Bridhasram Road	6.65	6.65		5.70	0.95	Bedkot
72DR007	Suda(MRM)-Ghatal HSS-Gauji-Mushepani-Bandaa Taal Road	8.55	8.50	4.30	3.90	0.30	Bedkot
72DR008	Mahendranagar-RedCross-Baghphata-Sundarpur-Nayagaun - Harpal-Sishaya Road	13.00	12.50		12.50		Bhimdutta
72DR009	Bhasi-Ultakham- Bagphata-Chaurahi Road	15.70	15.70	3.20	12.50		Bhimdutta
72DR010	Daiji, Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Samaa(Daiji) "	18.10	18.10		13.80	4.30	Bedkot
72DR011	Daiji-Bedkot-Jogbudha Road	22.50	22.50		22.50		Bedkot
72DR012	Daiji-Beldandi Road	23.40	23.40		23.40		Bedkot

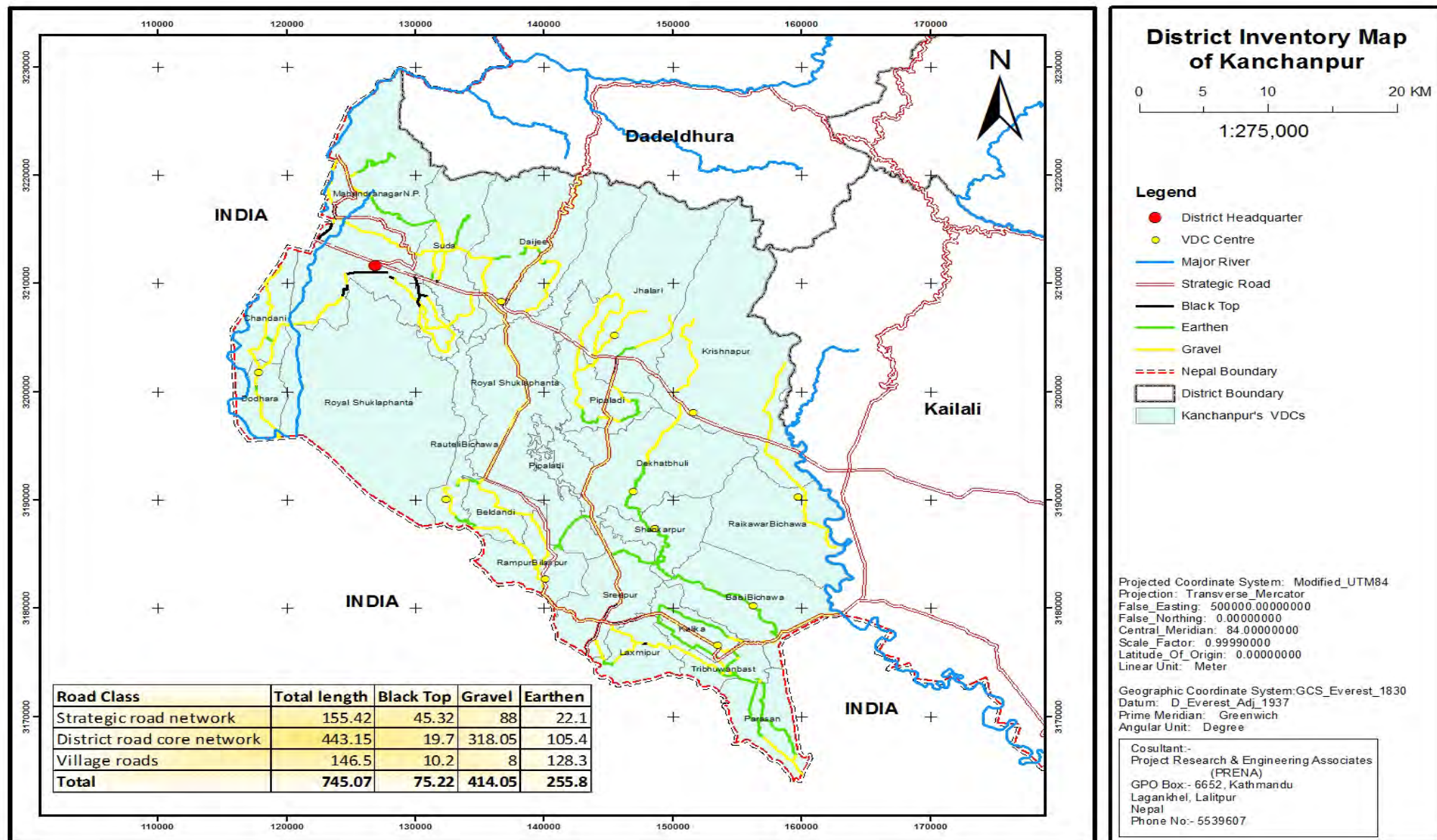
Road Code	Road Name	Total Length	Municipal Length	BT	GR	ER	Municipality
72DR013	Beldandi-Rauteli Bichuwa Road	6.10	6.10		4.70	1.40	Beldandi
72DR014	Ratauli (Baibaha) -Shivanagar (sugarmill)-Kalkatta bazar Road	10.25	10.10		7.60	2.50	Beldandi
72DR015	Jhalari- Stationpur – Kalapani - Simalphata-Bansamittee (Ring Road)	14.90	14.90		14.90		Jhalari Pipladi
72DR016	Jhalari-Phuleli-pariphaata-Beldandi - Kaluwapur(MRM) Road	11.90	11.90		10.00	1.90	Jhalari Pipladi
72DR017	Bansamittee-Pipaladi-Jonapuri-Ranipur-Bansaha “	11.10	11.10		8.00	3.10	Jhalari Pipladi
72DR018	Kaluwapur-Belauri - Border (Madan Asrit Marg) “	31.10	31.10		23.30	7.80	Jhalari Pipladi
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IBRD–Dodha bridge-Doke Bazaar–Mohana Bridge(Hulaki Sadak)	40.20	40.20	2.90	37.30		Beldandi and Punarbas
72DR021	Jhapi 1, Banshaha (police post)-Janajagriti Ma. Bi, Ganeshpur-Tallo Chauraha Road	7.40	7.40		3.10	4.30	Jhalari Pipladi
72DR022	Bank(ward-2)(MRM) – Nigali-Pahariya-Dumila-Nile - Budar Road	9.90	9.90		9.90		Krishnapur
72DR023	Bani –Dekhatbhuli - Kanja, Shankarpur-Panchagadiya, Baisebichawa -Dodha Bridge Road	35.00	7.00		7.00		Krishnapur
72DR024	Vurakot-Baijukot-Gokulpur Road	6.60	6.50		5.00	1.50	Belauri
72DR025	Bichphaata(India border)-Police Station(Tribhuvanbasti)- Laxmipur-Shreepur Road	26.18	12.50	0.40	12.10		Belauri
72DR026	Ganeshbasti (Petrol pump)-Amariya-Dasharathbasti (sugarmill)-Simari Road	9.00	9.00		7.40	1.60	Punarbas
72DR027	Petrol pump(Ganesh basti)-Punarbas-Durgachowk-Town bazar Road	10.00	10.00		1.70	8.30	Punarbas
72DR028	Malubela(Krishnapur) – M R M(Krishnapur)-Rajghaat(Raikawarbichawa) Road	22.00	22.00		22.00		Kishanpu
72DR029	Tribhuvanbasti-Aabas Compani- Parasan(2)-Parasan(8) Road	10.30	10.30		3.60	6.70	Punarbas
	Total	413.94	370.65	14.00	303.10	53.55	

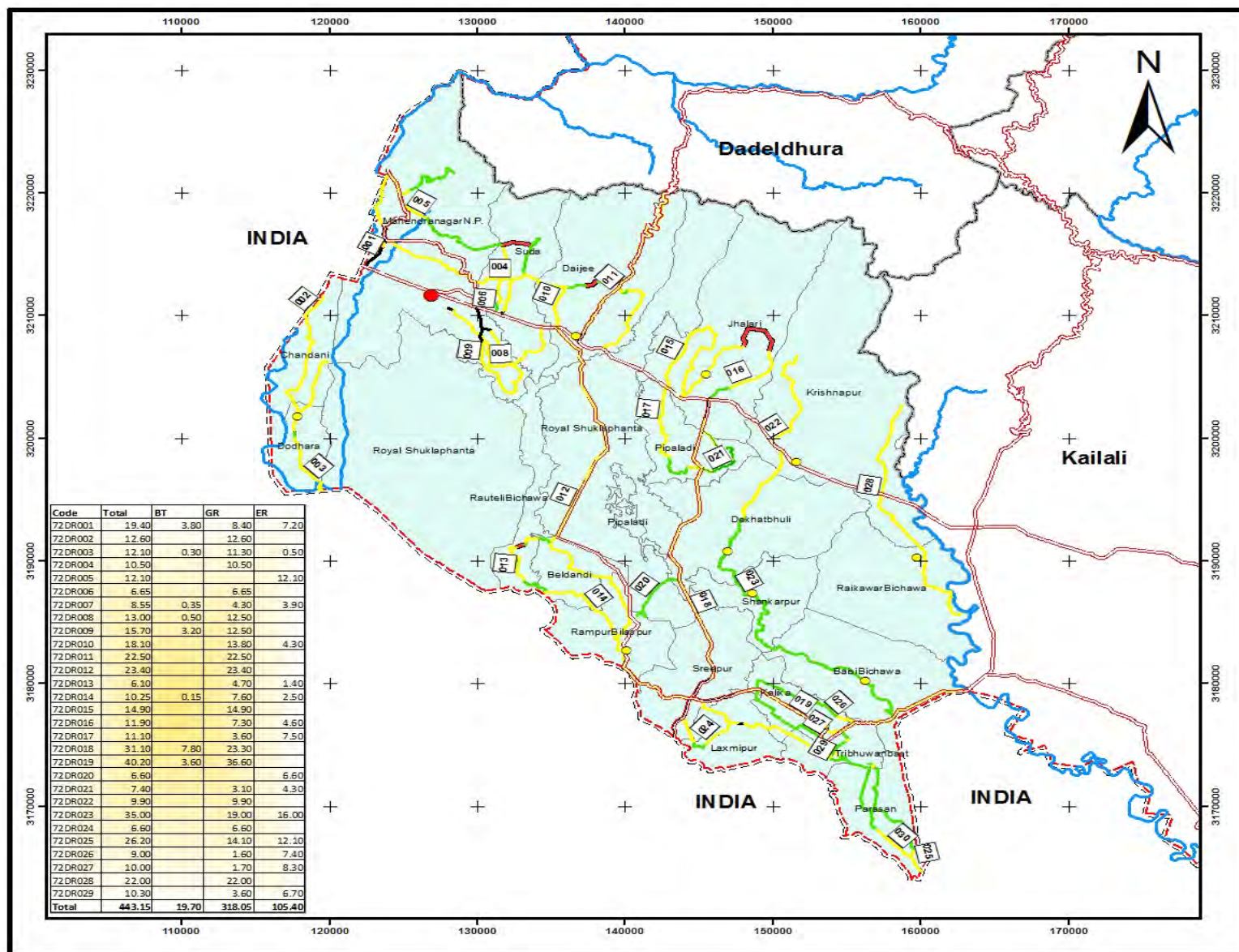
2.4 VILLAGE ROADS

The 146.52 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 8 municipalities and 4 VDCs in Kanchanpur 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 VDC/municipality will thus be responsible for 12.30 km of village roads. It is recommended that the VDC/municipalities organise maintenance works 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 VDC/municipalities.

Funding for these roads will mainly come from the VDC/municipality grants. Some district funding will also be allocated to the village roads (see also chapter 6). However, this district funding will be mainly for maintenance, especially emergency maintenance and routine/recurrent maintenance to keep the village roads open.





District Road Core Network DRCN Map of Kanchanpur District

0 5 10 20 KM

1:275,000

Legend

- District Headquarter
- VDC Centre
- Dang_DRCN_for_label1
- Strategic Road
- Black Top
- Earthen
- Gravel
- New Road
- Major River
- - - Nepal Boundary
- District Boundary
- Kanchanpur's VDCs

Projected Coordinate System: Modified_UTM84
 Projection: Transverse_Mercator
 False_Easting: 500000.00000000
 False_Northing: 0.00000000
 Central_Meridian: 84.00000000
 Scale_Factor: 0.99990000
 Latitude_Of_Origin: 0.00000000
 Linear Unit: Meter

Geographic Coordinate System: GCS_Everest_1830
 Datum: D_Everest_Adj_1937
 Prime_Meridian: Greenwich
 Angular Unit: Degree

Cosultant:-
 Project Research & Engineering Associates
 (PRENA)
 GPO Box:- 6652, Kathmandu
 Lagankhel, Lalitpur
 Nepal
 Phone No:- 5539607

3 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 a 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).

3.1 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 types 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 lumpsum 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 lumpsum 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 as far as it require rehabilitation.

Table 3.1.1 Conservation requirements

Code	Name of road	Total length (km)	Black Top (km)	Gravel (km)	Earth (km)	Emergency maintenance	Routine maintenance (km)	Recurrent maintenance blacktop (km)	Recurrent maintenance gravel (km)	Recurrent maintenance earthen (km)	Periodic maintenance blacktop (km)	Periodic maintenance gravel
Total		443.15	19.70	318.05	105.40	443.15	443.15	19.70	318.05	105.40	19.70	318.05
72DR001	Gaddachauki-Brahamadev-Kheliamachhedi-Jhilmila Tal Road	19.40	3.80	8.40	7.20	19.40	19.40	3.80	8.40	7.20	3.80	8.40
72DR002	Babathan-Chandani-Bailbandh Road	12.60		12.60		12.60	12.60		12.60			12.60
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10	0.30	11.30	0.50	12.10	12.10	0.30	11.30	0.50	0.30	11.30
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50		10.50		10.50	10.50		10.50			10.50
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10			12.10	12.10	12.10			12.10		
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65		6.65		6.65	6.65		6.65			6.65
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55	0.35	4.30	3.90	8.55	8.55	0.35	4.30	3.90	0.35	4.30
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00	0.50	12.50	-	13.00	13.00	0.50	12.50		0.50	12.50
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70	3.20	12.50		15.70	15.70	3.20	12.50		3.20	12.50
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10		13.80	4.30	18.10	18.10		13.80	4.30		13.80
72DR011	Daiji-Bedkot-Jogbudha Road	22.50		22.50		22.50	22.50		22.50			22.50
72DR012	Daiji -Beldandi Road	23.40		23.40		23.40	23.40		23.40			23.40
72DR013	Beldandi-Rauteli Bichuwa Road	6.10		4.70	1.40	6.10	6.10		4.70	1.40		4.70
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25	0.15	7.60	2.50	10.25	10.25	0.15	7.60	2.50	0.15	7.60
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90		14.90		14.90	14.90		14.90			14.90
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90		7.30	4.60	11.90	11.90		7.30	4.60		7.30
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10		3.60	7.50	11.10	11.10		3.60	7.50		3.60
72DR018	Kaluwapur-Belaury-Border (Madan Asrit Marga)	31.10	7.80	23.30		31.10	31.10	7.80	23.30		7.80	23.30
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20	3.60	36.60		40.20	40.20	3.60	36.60		3.60	36.60
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60			6.60	6.60	6.60			6.60		
72DR021	Jhapi 1 Banshaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40		3.10	4.30	7.40	7.40		3.10	4.30		3.10
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90		9.90		9.90	9.90		9.90			9.90

Code	Name of road	Total length (km)	Black Top (km)	Gravel (km)	Earth (km)	Emergency maintenance	Routine maintenance (km)	Recurrent maintenance blacktop (km)	Recurrent maintenance gravel (km)	Recurrent maintenance earthen (km)	Periodic maintenance blacktop (km)	Periodic maintenance gravel
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00		19.00	16.00	35.00	35.00		19.00	16.00		19.00
72DR024	Vurakot-Baijudada-Gokulpur Road	6.60		6.60		6.60	6.60		6.60			6.60
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20		14.10	12.10	26.20	26.20		14.10	12.10		14.10
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00		1.60	7.40	9.00	9.00		1.60	7.40		1.60
72DR027	Petrol Pump (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00		1.70	8.30	10.00	10.00		1.70	8.30		1.70
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00		22.00		22.00	22.00		22.00	-		22.00
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahuschool-PurnoBhansar Road	10.30		3.60	6.70	10.30	10.30		3.60	6.70		3.60

Source: DTMP study, 2015

The emergency maintenance of all DRCN is 443.15km, routine maintenance 443.15km, recurrent maintenance black top is 19.70km, recurrent maintenance gravel is 318.05km, recurrent maintenance earthen is 105.40km and periodic maintenance black top is 19.70km and periodic maintenance gravel is 318.05km of existing roads to be carried out for the conservation works.

3.2 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 Kanchanpur 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.

3.2.1 REHABILITATION

No Rehabilitation of DRCN is required.

3.2.2 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 earthen sections in the DRCN. For Kanchanpur this concerns the total of 105.40 km of DRCN roads.

Table 3.2.1 Sections of the district road core network requiring gravelling

Code	Name of Road	Total length (km)	Gravelling (km)
Total		443.15	105.40
72DR001	Gaddachauki-Brahamadev-Kheliamachhedi-Jhilmila Tal Road	19.40	7.20
72DR002	Babathan-Chandani-Bailbandh Road	12.60	-
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10	0.50
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50	-
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10	12.10
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65	-
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55	3.90
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00	-
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70	-
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10	4.30
72DR011	Daiji-Bedkot-Jogbudha Road	22.50	-
72DR012	Daiji -Beldandi Road	23.40	-
72DR013	Beldandi-Rauteli Bichuwa Road	6.10	1.40
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25	2.50
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90	-

Code	Name of Road	Total length (km)	Gravelling (km)
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90	4.60
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10	7.50
72DR018	Kaluwapur-Belaury-Border (Madan Asrit Marga)	31.10	-
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20	-
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60	6.60
72DR021	Jhapi 1 Bansaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40	4.30
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90	-
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00	16.00
72DR024	Vurakot-Baijudada-Gokulpur Road	6.60	-
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20	12.10
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00	7.40
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00	8.30
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00	-
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30	6.70

The improvement of the DRCN roads is proposed for gravel standard of the existing earthen roads of 105.40 km.

3.2.3 CROSS DRAINAGE

The number of cross drainages were identified for the different DRCN roads. Cement Concrete causeway with a total length of 196m, slab culvert with total length of 87m, stone causeways totaling to 408m and 164 unitsof pipe culverts were identified as being required. The need for cross drainage was identified for the different DRCN roads. Also Bridges with a total length of 530m, were identified as being required.

Table 3.2.2 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		443.15	530	87	196	408	164
72DR001	Gaddachauki-Brahamadev-Kheliarmachhedi-Jhilmila Tal Road	19.40			85	28	-
72DR002	Babathan-Chandani-Bailbandh Road	12.60	40				7
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10					2
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50	60	12			4
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10	60				5
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65			5	30	
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55		6			5
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00			-		11
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70			10	215	12
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji	18.10			16	5	5
72DR011	Daiji-Bedkot-Jogbudha Road	22.50		6			
72DR012	Daiji -Beldandi Road	23.40					10
72DR013	Beldandi-Rauteli Bichuwa Road	6.10		6			12

Code	Name of Road	Total length (km)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25	30	-			24
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90	-	-	-	130	7
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90		5	40		3
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10	110				-
72DR018	Kaluwapur-Belaury-Border (Madan Asrit Marga)	31.10	65				8
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20		-	15		-
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60		47			
72DR021	Jhapi 1 Bansaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40	25				2
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90	-		25		10
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00	120				5
72DR024	Vurakot-Baijudada-Gokulpur Road	6.60					2
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20		-			8
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00					4
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00					8
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00	20	-			-
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30		5			10

Besides these, the required motorable bridges are proposed by DDC for the LRBP funding and DoR funding as follows;

Road Code	Name of Road	Bridge location	Tentative Length
072DR002	Babathan – Chandni - Bailbandha Road	Maleriyanala (2 places)	50m
072DR004	Jimuwa-Tilachour-Tilakpur-Gayalnadi -Dharampur-Polkhari Road	Gayalnadi	60m
072DR005	Matena-Tilkeni-Bhamkeni-BishnuMandir-Rautela-Bandtaal-Bedkottal Road	Rautel , Tilakpur khoal	60m, 40 m
072DR010	Daiji, Champapur-Hatithala-Jadiyapani-Chhela-bagau-Baitada-Polkhari-Dharampur-Samaa(daiji) Road	Musepani 1, Bagenala 1	
072DR012	Daiji-Beldandi Road	Balma River	
072DR014	Rauteuli (Baibaha) -Shivanagar (sugarmill)-Kalkatta bazar Road	Chaudhor Khola Bridge	30m
072DR017	Bansamitee-Pipaladi-Jonapuri-Ranipur-Bansaha Road	Sunsara River	110m
072DR018	Kaluwapur-Belaury - Border (Madan Asrit Marg) Road	Baisakha Nala	65m
072DR023	Bani –Dekhatbhuli - Kanja, Shankarpur- Panchagadiya, Baisebichawa -Dodha Bridge Road	Dodha Bridge	120m
072DR028	Malubela(Krishnapur)–MRM(Krishnapur)-Rajghaat(Raikawarbichawa) Road	Ghalghale Nala	20m

3.2.4 PROTECTIVE STRUCTURES

Based on the road survey carried out in Kanchanpur district, the following retaining walls were identified as being required to ensure the protection of the district road core network. The total masonry walls of 657m³, Gabion wall of 3,730m³ and lined drain of 14,610m are required to bring the DRCN roads in all-weather maintainable status.

Table 3.2.3 Required protective structures

Code	Name of Road	Total length (km)	Masonry walls (m ³)	Gabion walls (m ³)	Lined drain (m)
	Total	443.14	657	3,730	14,610
072DR001	Gaddachauki-Brahamadev-Khallamachhedi- Jhilmila Tal Road	19.40		234	950
072DR002	Babathan – Chandni - Bailbandha Road	12.60	40	50	200
072DR003	Multispan Suspension Bridge - Kutiaakabar Road	12.10		211	600
072DR004	Jimuwa-Tilachour-Tilakpur-Gayalnadi -Dharampur-Polkhari Road	10.50	160	450	400
072DR005	Matena-Tilkeni-Bhamkeni-BishnuMandir-Rautela-Bandtaal-Bedkottal Road	12.10			400
072DR006	Suda(MRM)-Jhajpura-Gauji-Bridhasram Road	6.65		30	200
072DR007	Suda(MRM)-Ghatal HSS-Gauji-Mushepani-Bandaa Taal Road	8.56		70	150
072DR008	Mahendranagar-RedCross-Baghphata-Sundarpur-Nayagaun - Harpal-Sishaya Road	13.00		945	
072DR009	Bhasi-Ultakham- Bagphata-Chaurahi Road	15.70			500
072DR010	Daiji, Champapur-Hatithala-Jadiyapani-Chhela-bagau-Baitada-Polkhari-Dharampur-Samaa(daiji) Road	18.10		130	460
072DR011	Daiji-Bedkot-Jogbudha Road	22.50			500
072DR012	Daiji-Beldandi Road	23.40		180	300
072DR013	Beldandi-Rauteli Bichuwa Road	6.10			500
072DR014	Rauteuli (Baibaha) -Shivanagar (sugarmill)-Kalkatta bazar Road	10.25			750
072DR015	Jhalari- Stationpur – Kalapani - simalphata-Bansamittee (Ring Road)	14.90	62	600	800
072DR016	Jhalari-Phuleli-Pariphaata-Beldandi -Kaluwapur(MRM) Road	11.90		475	600
072DR017	Bansamittee-Pipaladi-Jonapuri-Ranipur-Bansaha Road	11.10			500
072DR018	Kaluwapur-Belaury - Border (Madan Asrit Marg) Road	31.10		125	800
072DR019	Beldandi-Rampur-shripur-Laxmipur – IBRD –Dodha bridge- Doke Bazaar –Mohana Bridge (Hulaki Sadak) Road	40.20			800
072DR020	Shiva Shankar High school-khajuwa-Bhorkunda-Belaury Road	6.60			700
072DR021	Jhapi 1, Banshaha (police post)-Janajagriti Ma. Bi, Ganeshpur-Tallo Chauraha Road	7.40			500
072DR022	Bank(ward-2)(MRM) – Nigali-Pahariya-Dumila-Nile - Budar Road	9.90		180	700
072DR023	Bani –Dekhatbhuli - Kanja, Shankarpur- Panchagadiya, Baisebichawa -Dodha Bridge Road	35.00		50	500
072DR024	Vurakot-Baijudada-Gokulpur Road	6.60			-
072DR025	Bichphaata(India border)-Police Station(Tribhuvanbasti)- Laxmipur-Shreepur Road	26.18			800
072DR026	Ganeshbasti (petrol pump)- Amariya-Dasharathbasti (sugarmill)-Simari Road	9.00			400
072DR027	Petrol pump(Ganesh basti)-Punarbas-Durgachowk-Town bazar Road	10.00			600
072DR028	Malubela(Krishnapur) – M R M(Krishnapur)-Rajghaat(Raikawarbichawa) Road	22.00	395		500
072DR029	Tribhuvanbasti-Aabas Compani- Parasan(2)-Parasan(8) Road	10.30			500

3.2.5 WIDENING

Widening of the district road core network in Kanchanpur required that the standard VPD >100 is considered for widening. There are no roads either meeting this standard for widening or have inadequate width.

3.2.6 BLACKTOPPING

An analysis of the traffic data for the different roads making up the district road core network (see Table 3.2.6) shows that there are 17 roads that are eligible for blacktopping (traffic volume exceeds 150 PCU). The total length for blacktopping is 274.65 km.

Table 3.2.4 Sections of the district road core network requiring blacktopping

Code	Name of Road	Total length (km)	Blacktop (km)	Traffic (PCU)	Blacktopping (km)
	Total	443.15	19.70		274.65
72DR001	Gaddachauki-Brahamadev-Kheli-machhedi-Jhilmila Tal Road	19.40	3.80	205	15.60
72DR002	Babathan-Chandani-Bailbandh Road	12.60	-	151	12.60
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10	0.30	155	11.80
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50	-	58	-
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10	-	86	-
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65	-	152	6.65
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55	0.35	84	-
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00	0.50	158	12.50
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70	3.20	222	12.50
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10	-	175	18.10
72DR011	Daiji-Bedkot-Jogbudha Road	22.50	-	162	22.50
72DR012	Daiji -Beldandi Road	23.40	-	167	15.00
72DR013	Beldandi-Rauteli Bichuwa Road	6.10	-	114	-
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25	0.15	123	-
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90	-	157	14.90
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90	-	249	11.90
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10	-	320	11.10
72DR018	Kaluwapur-Belauri-Border (Madan Asrit Marga)	31.10	7.80	152	12.00
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20	3.60	203	15.00
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60	-	67	-
72DR021	Jhapi 1 Banshaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40	-	70	-
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90	-	165	9.90
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00	-	165	35.00
72DR024	Vurakot-Bajjudada-Gokulpur Road	6.60	-	156	6.60
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20	-	49	-
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00	-	165	9.00
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00	-	101	-
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00	-	159	22.00
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30	-	115	-

3.3 NEW CONSTRUCTION

No new construction of DRCN roads is required as such all VDCs headquarters are already been connected with existing road networks.

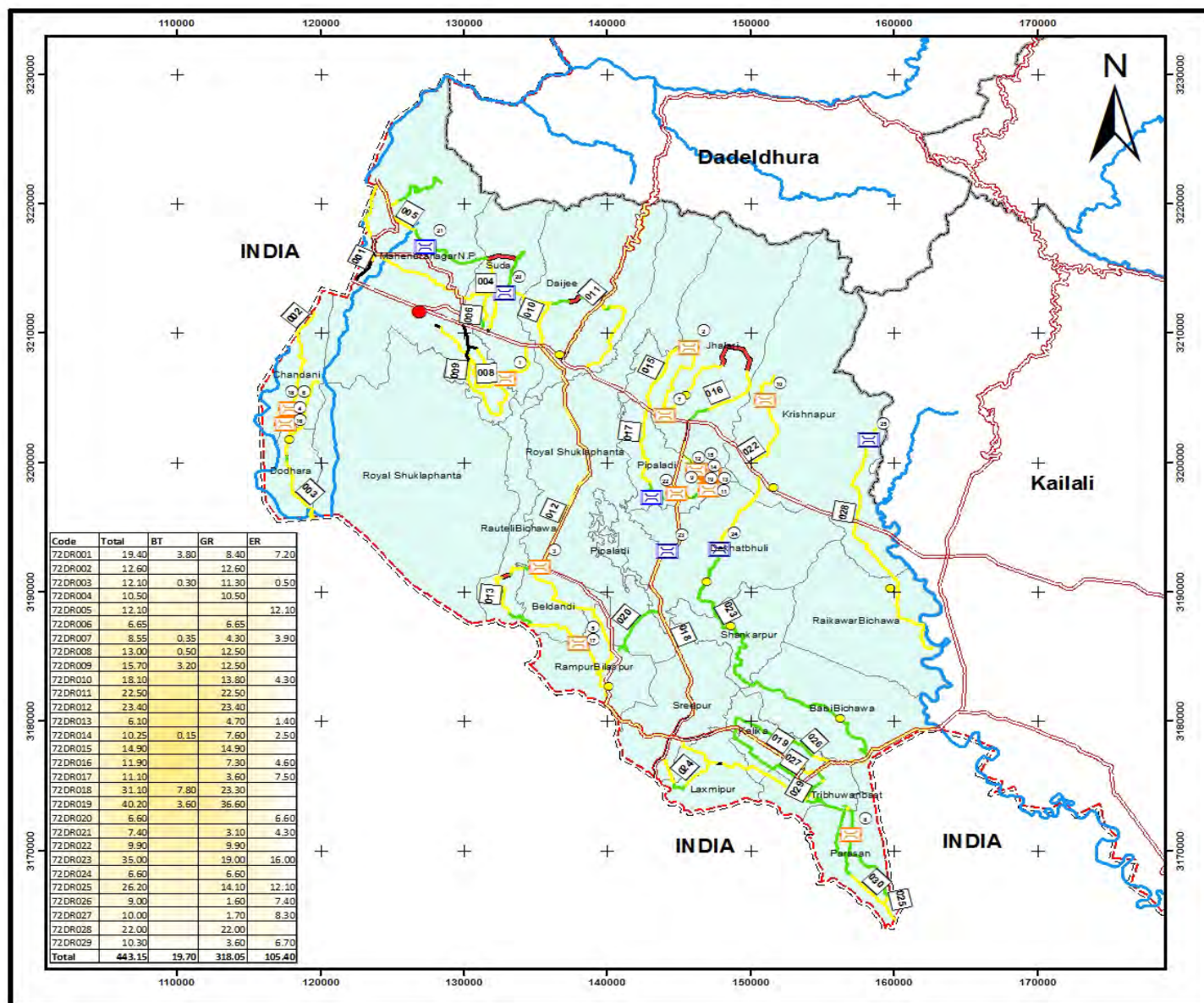
3.4 DISTRICT TRANSPORT PERSPECTIVE PLAN

The DTPP foresees bringing the entire existing district road core network to maintainable all-weather status, and expanding it to provide access to all VDCs headquarters. For this purpose, all 105.40km earthen roads will be gravelled and 274.65 km will be blacktopped and a number of different cross drainage and protective structures will be constructed. The district road core network will subsequently consist of 443.15 km of maintainable all-weather roads. The following table lists the required interventions, while the proposed network is shown in the DTPP map.

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)
Total	443.15	443.15	19.70	19.70		105.40	274.65		530	87	196	408	164	657	3,730	14,610	
72DR001	19.40	19.40	3.80	3.80		7.20	15.60				85	28			234	950	
72DR002	12.60	12.60					12.60		40				7	40	50	200	
72DR003	12.10	12.10	0.30	0.30		0.50	11.80						2		211	600	
72DR004	10.50	10.50							60	12			4	160	450	400	
72DR005	12.10	12.10				12.10			60				5		-	400	
72DR006	6.65	6.65					6.65				5	30			30	200	
72DR007	8.55	8.55	0.35	0.35		3.90	-			6			5		70	150	
72DR008	13.00	13.00	0.50	0.50			12.50						11		945	-	
72DR009	15.70	15.70	3.20	3.20			12.50				10	215	12		-	500	
72DR010	18.10	18.10				4.30	18.10				16	5	5		130	460	
72DR011	22.50	22.50					22.50			6			-		-	500	
72DR012	23.40	23.40					15.00			-			10		180	300	
72DR013	6.10	6.10				1.40				6			12		-	500	
72DR014	10.25	10.25	0.15	0.15		2.50			30				24		-	750	
72DR015	14.90	14.90					14.90					130	7	62	600	800	
72DR016	11.90	11.90				4.60	11.90			5	40	-	3		475	600	
72DR017	11.10	11.10				7.50	11.10		110							500	
72DR018	31.10	31.10	7.80	7.80		-	12.00		65				8		125	800	

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 (m ³)	Gabion walls (m ³)	Lined drain (m)	New construction (km)
72DR019	40.20	40.20	3.60	3.60			15.00			-	15					800	
72DR020	6.60	6.60				6.60				47						700	
72DR021	7.40	7.40				4.30			25				2			500	
72DR022	9.90	9.90					9.90		-		25		10		180	700	
72DR023	35.00	35.00				16.00	35.00		120				5		50	500	
72DR024	6.60	6.60					6.60						2				
72DR025	26.20	26.20				12.10							8			800	
72DR026	9.00	9.00				7.40	9.00						4			400	
72DR027	10.00	10.00				8.30							8			600	
72DR028	22.00	22.00					22.00		20				-	395		500	
72DR029	10.30	10.30				6.70				5			10			500	



District Transport Perspective Plan DTPP Map of Kanchanpur District

0 5 10 20 KM

1:275,000

Legend

Status

- Existing Bridge
 - Proposed Bridge
 - District Headquarter
 - VDC Centre
 - Dang_DRCN_for_label1
 - Strategic Road
 - Black Top
 - Earthen
 - Gravel
 - New Road
 - Major River
 - Nepal Boundary
 - District Boundary
 - Kanchanpur's VDCs
- Road Code Number
- Bridge Number

Projected Coordinate System: Modified_UTM84

Projection: Transverse_Mercator

False_Easting: 500000.00000000

False_Northing: 0.00000000

Central_Meridian: 84.00000000

Scale_Factor: 0.99990000

Latitude_Of_Origin: 0.00000000

Linear Unit: Meter

Geographic Coordinate System: GCS_Everest_1830

Datum: D_Everest_Adj_1937

Prime Meridian: Greenwich

Angular Unit: Degree

Consultant:-
Project Research & Engineering Associates
(PRENA)
GPO Box:- 6652, Kathmandu
Lagankhel, Lalitpur
Nepal
Phone No:- 5539607

4 COST ESTIMATION

For the cost estimation, the standard costs for the different activities like conservation, improvement and new construction is calculated. 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.

4.1 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 4.1.1 Standard unit costs for conservation

Activity	Unit	DTMP proposed unit cost (NPR)	DTMP actual unit cost (NPR)
Emergency maintenance	km	20,000	15,000
Routine maintenance	km	10,000	15,000
Recurrent maintenance (blacktop)	km	200,000	200,000
Recurrent maintenance (gravel)	km	130,000	100,000
Recurrent maintenance (earthen)	km	120,000	120,000
Periodic maintenance (blacktop)	km	200,000	200,000
Periodic maintenance (gravel)	km	150,000	100,000

For the first year the estimated costs for conservation of the DRCN come to NPR 97.4 million. Based on this cost for the first year, the costs for conservation of the DRCN for the next 5 years are estimated at NPR 487.16 million. 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 4.1.2 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	443.15	19.70	318.05	105.40	8,863	4,432	3,940	31,805	12,648	3,940	31,805	97,433	487,163
72DR001	19.40	3.80	8.40	7.20	388	194	760	840	864	760	840	4,646	23,230
72DR002	12.60	-	12.60		252	126		1,260			1,260	2,898	14,490
72DR003	12.10	0.30	11.30	0.50	242	121	60	1,130	60	60	1,130	2,803	14,015
72DR004	10.50		10.50		210	105		1,050			1,050	2,415	12,075
72DR005	12.10			12.10	242	121			1,452			1,815	9,075
72DR006	6.65		6.65		133	67		665			665	1,530	7,648
72DR007	8.55	0.35	4.30	3.90	171	86	70	430	468	70	430	1,725	8,623
72DR008	13.00	0.50	12.50	-	260	130	100	1,250	-	100	1,250	3,090	15,450
72DR009	15.70	3.20	12.50		314	157	640	1,250		640	1,250	4,251	21,255
72DR010	18.10		13.80	4.30	362	181		1,380	516		1,380	3,819	19,095

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
72DR011	22.50		22.50		450	225		2,250			2,250	5,175	25,875
72DR012	23.40		23.40		468	234		2,340			2,340	5,382	26,910
72DR013	6.10		4.70	1.40	122	61		470	168		470	1,291	6,455
72DR014	10.25	0.15	7.60	2.50	205	103	30	760	300	30	760	2,188	10,938
72DR015	14.90		14.90		298	149		1,490	-		1,490	3,427	17,135
72DR016	11.90		7.30	4.60	238	119		730	552		730	2,369	11,845
72DR017	11.10		3.60	7.50	222	111		360	900		360	1,953	9,765
72DR018	31.10	7.80	23.30		622	311	1,560	2,330		1,560	2,330	8,713	43,565
72DR019	40.20	3.60	36.60		804	402	720	3,660		720	3,660	9,966	49,830
72DR020	6.60		-	6.60	132	66			792			990	4,950
72DR021	7.40		3.10	4.30	148	74		310	516		310	1,358	6,790
72DR022	9.90		9.90		198	99		990			990	2,277	11,385
72DR023	35.00		19.00	16.00	700	350		1,900	1,920		1,900	6,770	33,850
72DR024	6.60		6.60		132	66		660			660	1,518	7,590
72DR025	26.20		14.10	12.10	524	262		1,410	1,452		1,410	5,058	25,290
72DR026	9.00		1.60	7.40	180	90		160	888		160	1,478	7,390
72DR027	10.00		1.70	8.30	200	100		170	996		170	1,636	8,180
72DR028	22.00		22.00		440	220		2,200	-		2,200	5,060	25,300
72DR029	10.30		3.60	6.70	206	103		360	804		360	1,833	9,165

4.2IMPROVEMENT

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 4.2.1 Standard unit costs for improvement activities

Activity	Unit	DTMP proposed unit cost (NPR)	DTMP actual unit cost (NPR)
Rehabilitation	km	800,000	800,000
Widening	m	25,000	25,000
Gravelling	km	2,200,000	2,200,000
Blacktopping	km	5,800,000	5,600,000
Bridge construction	m	600,000	600,000
Slab culvert construction	m	150,000	150,000
CC Causeway construction	m	100,000	100,000
Stone Causeway construction	m	10,000	10,000
Pipe culvert placement	unit	10,000	10,000
Masonry wall construction	m ³	10,000	10,000
Gabion wall construction	m ³	2,500	2,500
Lined drain construction	m	1,000	1,000

The resulting estimated costs come to NPR 2184.2 million as indicated in the table 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
Total	443.15	-	-	231,880	1,565,505	318,000	13,050	19,600	4,080	1,640	6,570	9,325	14,610	2,184,260
72DR001	19.40	-	-	15,840	88,920	-	-	8,500	280	-	-	585	950	115,075
72DR002	12.60	-	-	-	71,820	24,000	-	-	-	70	400	125	200	96,615
72DR003	12.10	-	-	1,100	67,260	-	-	-	-	20	-	528	600	69,508
72DR004	10.50	-	-	-	-	36,000	1,800	-	-	40	1,600	1,125	400	40,965
72DR005	12.10	-	-	26,620	-	36,000	-	-	-	50	-	-	400	63,070
72DR006	6.65	-	-	-	37,905	-	-	500	300	-	-	75	200	38,980
72DR007	8.55	-	-	8,580	-	-	900	-	-	50	-	175	150	9,855
72DR008	13.00	-	-	-	71,250	-	-	-	-	110	-	2,363	-	73,723
72DR009	15.70	-	-	-	71,250	-	-	1,000	2,150	120	-	-	500	75,020
72DR010	18.10	-	-	9,460	103,170	-	-	1,600	50	50	-	325	460	115,115
72DR011	22.50	-	-	-	128,250	-	900	-	-	-	-	-	500	129,650
72DR012	23.40	-	-	-	85,500	-	-	-	-	100	-	450	300	86,350
72DR013	6.10	-	-	3,080	-	-	900	-	-	120	-	-	500	4,600
72DR014	10.25	-	-	5,500	-	18,000	-	-	-	240	-	-	750	24,490
72DR015	14.90	-	-	-	84,930	-	-	-	1,300	70	620	1,500	800	89,220
72DR016	11.90	-	-	10,120	67,830	-	750	4,000	-	30	-	1,188	600	84,518
72DR017	11.10	-	-	16,500	63,270	66,000	-	-	-	-	-	-	500	146,270
72DR018	31.10	-	-	-	68,400	39,000	-	-	-	80	-	313	800	108,593
72DR019	40.20	-	-	-	85,500	-	-	1,500	-	-	-	-	800	87,800
72DR020	6.60	-	-	14,520	-	-	7,050	-	-	-	-	-	700	22,270
72DR021	7.40	-	-	9,460	-	15,000	-	-	-	20	-	-	500	24,980
72DR022	9.90	-	-	-	56,430	-	-	2,500	-	100	-	450	700	60,180
72DR023	35.00	-	-	35,200	199,500	72,000	-	-	-	50	-	125	500	307,375
72DR024	6.60	-	-	-	37,640	-	-	-	-	20	-	-	-	37,640
72DR025	26.20	-	-	26,620	-	-	-	-	-	80	-	-	800	27,500
72DR026	9.00	-	-	16,280	51,300	-	-	-	-	40	-	-	400	68,020
72DR027	10.00	-	-	18,260	-	-	-	-	-	80	-	-	600	18,940
72DR028	22.00	-	-	-	125,400	12,000	-	-	-	-	3,950	-	500	141,850
72DR029	10.30	-	-	14,740	-	-	750	-	-	100	-	-	500	16,090

4.3 NEW CONSTRUCTION

Since no new construction is required, no analysis has made so far.

4.4 DTPP COSTS

The total costs for the District Transport Perspective Plan come to NPR 2671.423 million as indicated in the table below.

Table 4.4.1 DTPP costs (NPR '000)

Code	Name of Road	Conservation	Improvement	New	Total
Total		487,163	2,184,260		2,671,423
72DR001	Gaddachauki-Brahamadev-Kheliamachhedi-Jhilmila Tal Road	23,230	115,075		138,305
72DR002	Babathan-Chandani-Bailbandh Road	14,490	96,615		111,105
72DR003	Multispan Suspension Bridge-Kutiakabar Road	14,015	69,508		83,523
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	12,075	40,965		53,040
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	9,075	63,070		72,145
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	7,648	38,980		46,628
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8,623	9,855		18,478
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	15,450	73,723		89,173
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	21,255	75,020		96,275
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	19,095	115,115		134,210
72DR011	Daiji-Bedkot-Jogbudha Road	25,875	129,650		155,525
72DR012	Daiji -Beldandi Road	26,910	86,350		113,260
72DR013	Beldandi-Rauteli Bichuwa Road	6,455	4,600		11,055
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10,938	24,490		35,428
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	17,135	89,220		106,355
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11,845	84,518		96,363
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	9,765	146,270		156,035
72DR018	Kaluwapur-Belauri-Border (Madan Asrit Marga)	43,565	108,593		152,158
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	49,830	87,800		137,630
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	4,950	22,270		27,220
72DR021	Jhapi 1 Banshaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	6,790	24,980		31,770
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	11,385	60,180		71,565
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	33,850	307,375		341,225
72DR024	Vurakot-Baijudada-Gokulpur Road	7,590	37,640		45,230
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	25,290	27,500		52,790
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	7,390	68,020		75,410
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	8,180	18,940		27,120
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	25,300	141,850		167,150
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	9,165	16,090		25,255

5. 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. For the calculation of the population served, use is made of the population data for the VDCs linked by the road concerned. This data is presented below.

5.1 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.

Table 5.1.1 Ranking of conservation works (NPR '000)

Code	Total length (km)	Emergency	Route	Recurrent (blacktop)	Recurrent (gravel)	Recurrent (earth)	Periodic; blacktop	Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)
72DR011	22.50	450	225		2,250			2,250	5,175	293,644	18
72DR003	12.10	242	121	60	1,130	60	60	1,130	2,803	143,852	19
72DR008	13.00	260	130	100	1,250	-	100	1,250	3,090	154,078	20
72DR002	12.60	252	126	-	1,260	-	-	1,260	2,898	143,852	20
72DR006	6.65	133	67	-	665	-	-	665	1,530	49,479	31
72DR026	9.00	180	90	-	160	888	-	160	1,478	43,996	34
72DR005	12.10	242	121	-	-	1,452	-	-	1,815	49,479	37
72DR012	23.40	468	234	-	2,340	-	-	2,340	5,382	139,273	39
72DR001	19.40	388	194	760	840	864	760	840	4,646	104,599	44
72DR020	6.60	132	66	-	-	792	-	-	990	21,949	45
72DR017	11.10	222	111	-	360	900	-	360	1,953	42,026	46
72DR004	10.50	210	105	-	1,050	-	-	1,050	2,415	49,479	49
72DR023	35.00	700	350	-	1,900	1,920	-	1,900	6,770	120,832	56
72DR016	11.90	238	119	-	730	552	-	730	2,369	42,026	56
72DR018	31.10	622	311	1,560	2,330	-	1,560	2,330	8,713	152,918	57
72DR022	9.90	198	99	-	990	-	-	990	2,277	36,706	62
72DR024	6.60	132	66	-	660	-	-	660	1,518	21,949	69
72DR015	14.90	298	149	-	1,490	-	-	1,490	3,427	49,277	70
72DR021	7.40	148	74	-	310	516	-	310	1,358	18,578	73
72DR010	18.10	362	181	-	1,380	516	-	1,380	3,819	49,479	77
72DR007	8.55	171	86	70	430	468	70	430	1,725	21,949	79
72DR019	40.20	804	402	720	3,660	-	720	3,660	9,966	111,841	89
72DR027	10.00	200	100	-	170	996	-	170	1,636	16,821	97
72DR025	26.20	524	262	-	1,410	1,452	-	1,410	5,058	51,247	99
72DR014	10.25	205	103	30	760	300	30	760	2,188	21,949	100
72DR009	15.70	314	157	640	1,250	-	640	1,250	4,251	42,026	101
72DR029	10.30	206	103	-	360	804	-	360	1,833	16,821	109
72DR028	22.00	440	220	-	2,200	-	-	2,200	5,060	31,122	163
72DR013	6.10	122	61	-	470	168	-	470	1,291	7,251	178

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

5.2IMPROVEMENT

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).

Table 5.2.1 Ranking of improvement works (NPR '000)

Code	Total length (km)	Gravelling (km)	Blacktopping (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
72DR011	22.50		22.50	129,650	293,644	442
72DR007	8.55	3.90		9,855	21,949	449
72DR008	13.00		12.50	73,723	154,078	478
72DR003	12.10	0.50	11.80	69,508	143,852	483
72DR025	26.20	12.10		27,500	51,247	537
72DR012	23.40		15.00	86,350	139,273	620
72DR013	6.10	1.40		4,600	7,251	634
72DR002	12.60		12.60	96,615	143,852	672
72DR018	31.10		12.00	108,593	152,918	710
72DR019	40.20		15.00	87,800	111,841	785
72DR006	6.65		6.65	38,980	49,479	788
72DR004	10.50			40,965	49,479	828
72DR029	10.30	6.70		16,090	16,821	957
72DR020	6.60	6.60		22,270	21,949	1,015
72DR001	19.40	7.20	15.60	115,075	104,599	1,100
72DR014	10.25	2.50		24,490	21,949	1,116
72DR027	10.00	8.30		18,940	16,821	1,126
72DR005	12.10	12.10		63,070	49,479	1,275
72DR021	7.40	4.30		24,980	18,578	1,345
72DR026	9.00	7.40	9.00	68,020	43,996	1,546
72DR022	9.90		9.90	60,180	36,706	1,640
72DR024	6.60		6.60	37,640	21,949	1,715
72DR009	15.70		12.50	75,020	42,026	1,785
72DR015	14.90		14.90	89,220	49,277	1,811
72DR016	11.90	4.60	11.90	84,518	42,026	2,011
72DR010	18.10	4.30	18.10	115,115	49,479	2,327
72DR023	35.00	16.00	35.00	307,375	120,832	2,544
72DR017	11.10	7.50	11.10	146,270	42,026	3,480
72DR028	22.00		22.00	141,850	31,122	4,558

5.3 NEW CONSTRUCTION

No new DRCN construction is required, hence ranking is also not applicable.

6 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.

6.1 FIVE YEAR PROJECTED FINANCIAL RESOURCES

The projected financial resources for the next five years are estimated by considering all possible funding sources. The funding levels are based on the existing trend of funding. An annual increase in funding of 5% is assumed for all funding sources. The total district budget for the road sector is NPR 1,295.96 million for the five-year period.

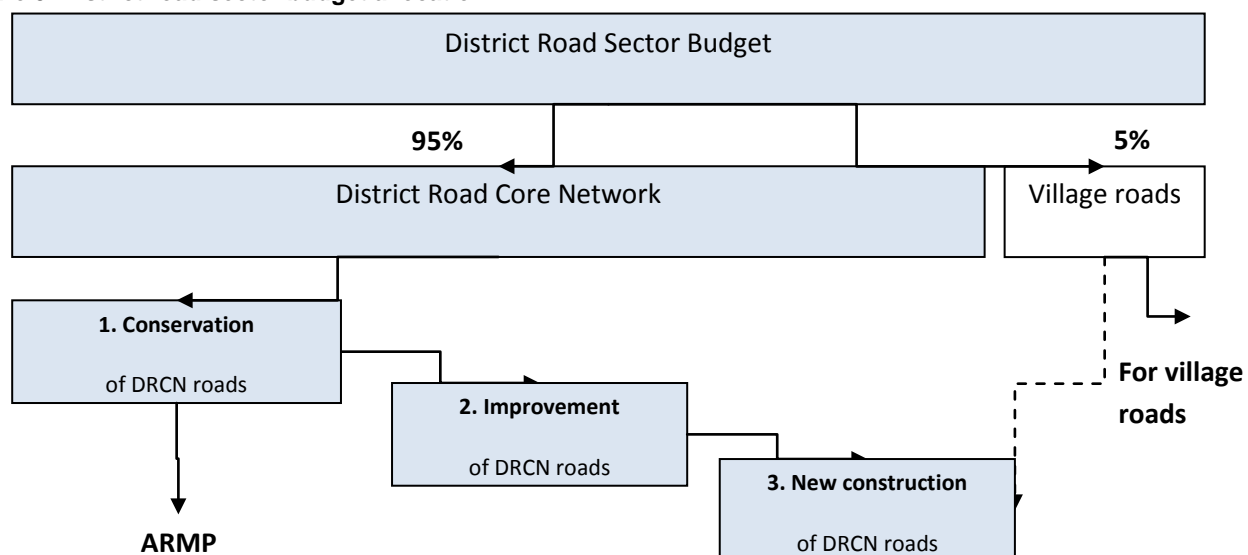
Table 6.1.1 Estimated funding levels (roads) for next five years (in NPR '000)

Funding source	Fiscal year				
	2070/71	2071/72	2072/73	2073/74	2074/75
DDC Grant	18,000	19,800	21,780	23,958	23,958
Local Road and Bridge Program (LRBP)	10,000	11,000	12,100	13,310	13,310
RTI SWAP	18,700	20,570	22,627	24,890	24,890
SNRTP	163,000	179,300	197,230	197,230	197,230
Road Board Nepal	5,500	6,050	6,655	6,655	6,655
Constitutional Area Development Program	4,000	4,400	4,840	4,840	4,840
Internal Resources	5,000	5,500	6,050	6,050	6,050
People's Contribution	5,120	5,632	6,195	6,195	6,195
Total	229,320	252,252	277,477	285,502	294,329
Grand Total	1,338,880				

6.2 BUDGET ALLOCATION

The distribution of the available district road sector budget is indicated in the figure below. Due to the low number of village roads, 95% of the total budget is reserved for the district road core network. The remaining 5% is to be used by the DDC for the village roads, giving priority to emergency maintenance and routine/recurrent maintenance. Alternatively, this 5% may be used for the new construction of DRCN roads where this is considered a priority by the district. The 95% of the district road sector budget for the DTMP is allocated firstly to conservation, secondly for improvement.

Figure 5 District road sector budget allocation



Based on this distribution of the estimated budget, the available annual budget for each intervention type and the resulting district road core network length by surface type can be calculated. The results are shown in the following table.

Table 6.2.1 Investment plan

(Cost in NRs. '000")

A	Item	Fiscal Year						
	Fiscal year	2072/73	2073/74	2075/75	2075/76	2076/77		
	Total budget	229,320	252,252	277,477	285,502	294,329		
	Village roads	11,466	12,613	13,874	14,275	14,716	5%	Village roads
	Core road network budget (DTMP)	217,854	239,639	263,603	271,227	279,613	95%	DRCN roads
	Core network length (km)	443.15	443.15	443.15	443.15	443.15	443.15	DRCN length
	Blacktop (km)	19.70	35.48	60.60	85.30	112.36	130.30	Blacktop length
B	Gravel (km)	318.05	314.62	295.05	270.35	243.29	239.83	Gravel length
	Earthen (km)	105.40	93.05	87.50	87.50	87.50	87.50	Earthen length
	Conservation (NRs)	97,433	63,019	94,925	67,889	117,397	440,662	Conservation
	Emergency	6,647	6,647	6,647	6,647	6,647	33,236	
C	Routine	6,647	6,647	6,647	6,647	6,647	33,236	
	Recurrent (blacktop)	3,940	7,096	12,120	17,060	22,473	62,689	
	Recurrent (gravel)	31,805	31,462	29,905	27,035	24,329	144,136	
	Recurrent (earthen)	12,648	11,166	10,500	10,500	10,500	55,314	
	Periodic (blacktop)	3,940	-	-	-	22,473	26,413	
	Periodic (gravel)	31,805	-	29,505	-	24,329	85,639	

Improvement Plan

Year				2072/73			2073/74			2075/75			2075/76			2076/77			Budget
Code	Cost	BT	GR	120,422	BT	GR	176,621	BT	GR	168,679	BT	GR	203,337	BT	GR	162,216	BT	GR	
72DR011	129,650	22.50	-	-	-	-	30,000	5.21	-	35,000	6.07	-	45,000	7.81	-	19,650	3.41	-	129,650
72DR007	9,855	-	3.90	-	-	-	9,855	-	3.90	-	-	-	-	-	-	-	-	-	9,855
72DR008	73,723	12.50	-	40,000	6.78	-	33,723	5.72	-	-	-	-	-	-	-	-	-	-	73,723
72DR003	69,508	11.80	0.50	35,000	5.94	0.25	34,508	5.86	0.25	-	-	-	-	-	-	-	-	-	69,508
72DR025	27,500	-	12.10	27,500	-	12.10	-	-	-	-	-	-	-	-	-	-	-	-	27,500
72DR012	86,350	15.00	-	-	-	-	15,000	2.61	-	40,000	6.95	-	31,350	5.45	-	-	-	-	86,350
72DR013	4,600	-	1.40	-	-	-	4,600	-	1.40	-	-	-	-	-	-	-	-	-	4,600
72DR002	96,615	12.60	-	-	-	-	9,000	1.17	-	30,000	3.91	-	35,000	4.56	-	22,615	2.95	-	96,615
72DR018	108,593	12.00	-	-	-	-	8,746	0.97	-	35,000	3.87	-	45,000	4.97	-	19,847	2.19	-	108,593
72DR019	87,800	15.00	-	-	-	-	-	-	-	22,973	3.89	-	25,000	4.27	-	40,007	6.83	-	87,800
72DR006	38,980	6.65	-	17,922	3.06	-	21,059	3.59	-	-	-	-	-	-	-	-	-	-	38,980
72DR004	40,965	-	-	-	-	-	10,131	-	-	5,886	-	-	21,987	-	-	2,961	-	-	40,965
72DR029	16,090	-	6.70	-	-	-	-	-	-	-	-	-	-	-	-	16,090	-	6.70	16,090
72DR020	22,270	-	6.60	-	-	-	-	-	-	-	-	-	-	-	-	22,270	-	6.60	22,270

Year				2072/73			2073/74			2075/75			2075/76			2076/77			Budget
Code	Cost	BT	GR	120,422	BT	GR	176,621	BT	GR	168,679	BT	GR	203,337	BT	GR	162,216	BT	GR	
72DR001	115,075	15.60	7.20	-	-	-	-	-	-	-	-	-	-	-	-	18,772	2.55	1.17	18,772
72DR014	24,490			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR027	18,940			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR005	63,070			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR021	24,980			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR026	68,020			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR022	60,180			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR024	37,640			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR009	76,020			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR015	89,220			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR016	84,518			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR010	115,115			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR023	307,375			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR017	146,270			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72DR028	141,850			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total improvement				120,422	15.78	12.35	176,621	25.12	5.55	168,679	24.70	-	203,337	27.06	-	162,216	17.93	14.47	831,274

Note:

*LRBP Budget for this FY is already allocated for Malariyanala Bridge, Gayalnadi Bridge, Tilakpur Khola Bridge.Hence the budget is not shown for FY 2072/073

** People's participation is assumed as 10% of the possible funding except LRBP and SNRTP funds.

Actions Taken for Table 6.2.1

Section A: DTMP Final Workshop/Meeting decided that budget allocation for VRCN Roads is 10% of total resources. But almost budget from different projects are conditional and to be allocated for DRCN so it is reduced as 5%.

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

Section C: Periodic maintenance of Black topped road is practically done in every 5 years interval and that for gravel road is done once in 3 years. Hence the budget is allocated in first and last year only for black top and that for gravel road is first year, third year & fifth year only.

Section D: In year one, budget allocation made for SNRTP roads only as such the budget is conditional. Following Roads do not receive the DTMP budget even they stands in priority list due to the following reasons:

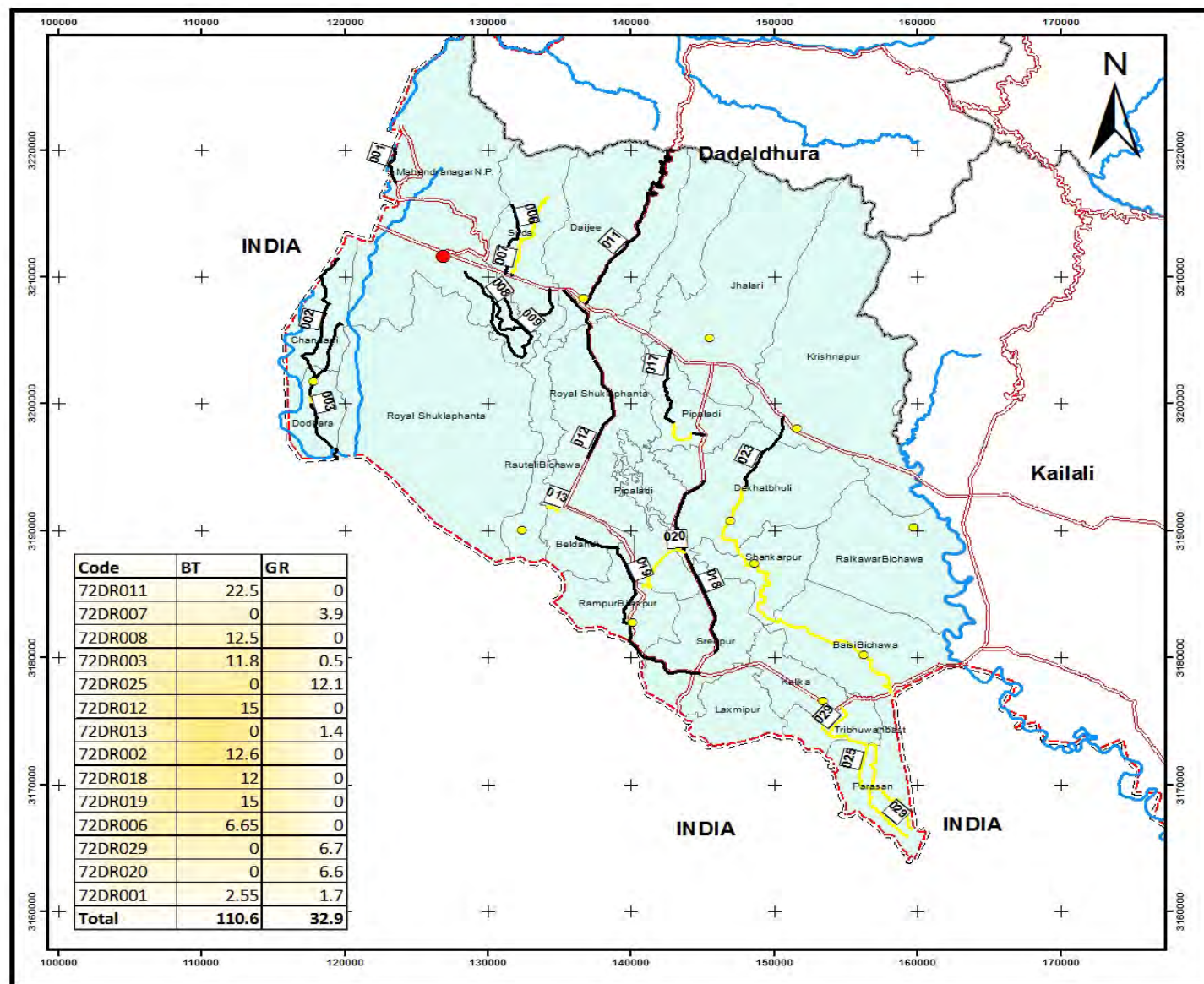
72DR014, 72DR027, 72DR005, 72DR021, 72DR026, 72DR022, 72DR024, 72DR009, 72DR015, 72DR016, 72DR010, 72DR023, 72DR017, 72DR028 due to limited and

inadequate financial resource of the district. Improvement of these roads need to be carried out in next DTMP period. But all roads will receive conservation budget to make the roads operational during fair weather period.

DRCN Road 72DR008, 72DR003, 72DR0252, 72DR006 have already been selected by DDC for improvement with SNRTP funds before the DTMP preparation.

Section E: There is no road for new construction as such all VDCs and municipalities are already accessed with roads.

Section F: There is no budget remains due to scarcity of funds:



District Transport Master Plan (DTMP) Map of Kanchanpur District

0 5 10 20 KM
1:275,000

Legend

- District Headquarter
- VDC Centre
- DTMP Road**
 - Black Top
 - Gravel
 - Strategic Road
 - Major River
 - Nepal Boundary
 - District Boundary
 - Kanchanpur's VDCs

Projected Coordinate System: Modified_UTM84
 Projection: Transverse_Mercator
 False_Easting: 500000.00000000
 False_Northing: 0.00000000
 Central_Meridian: 84.00000000
 Scale_Factor: 0.99990000
 Latitude_Of_Origin: 0.00000000
 Linear Unit: Meter

Geographic Coordinate System: GCS_Everest_1830
 Datum: D_Everest_Adj_1937
 Prime Meridian: Greenwich
 Angular Unit: Degree

Consultant:-
 Project Research & Engineering Associates
 (PRENA)
 GPO Box:- 6652, Kathmandu
 Lagankhel, Lalitpur
 Nepal
 Phone No:- 5539607

6.3 DTMP OUTPUTS

Based on the investment plan presented above, all DRCN roads will be conserved for the duration of the DTMP period. A further 32.37 km will be improved to gravel standard and subsequently 110.60 km will be further upgraded to blacktop standard. All of these roads will also receive the cross drainage and protective structures required to make them maintainable all-weather roads. The remaining earthen and gravel roads at the end of the DTMP period will be improved in the next DTMP. The same goes for the new construction which will only take place after the existing DRCN roads have been improved to maintainable all weather standard (some of these roads may be constructed using VDC fund).

Table 6.3.1DTMP output

Conservation	Improvement gravel	Improvement blacktop	New construction
443.15	32.37	110.60	-

Of the total DTMP budget, NPR 440.66 million will be spent on conservation and NPR 831.27 million on improvement. The improvement of DRCN072DR010 and 072DR016 has undertaken by DoR and thus considered for DTMP funding. The investment plan is for the entire DTMP period of 5-year based on expected budget. If the priority changes, DDC should give proper justifications with valid reasons.

6.4DTMP OUTCOME

As a result of the activities planned in this DTMP, the percentage of all-weather maintainable DRCN roads increases by 25% on all-weather blacktop roads. The fair weather road decreases by 8% from 24% to 16%. Similarly all-weather gravel road surface decreases by 18% from 72% to 54%.

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	443.15	105.40	24%	318.05	72%	19.70	4%
End of DTMP	443.15	73.03	16%	239.83	54%	136.30	29%
Difference	-	- 17.90	- 8%	- 78.82	-18%	110.60	25%

The number of VDC headquarters/municipalities with access to the SRN or all-weather DRCN roads will increase from 3 to 10 and the district population with access to the SRN or all-weather DRCN roads will increase from 45% to 95%.

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	8	366,600	82%	-	-	0%	6	168,554	38%	3	200,169	45%
End of DTMP	8	366,600	82%	-	-	0%	2	24,072	6%	10	424,431	95%
Difference	-	-	0%	-	-	0%	- 4	144,482	32%	7	224,262	50%

ANNEX 1 TRAFFIC DATA

Code	Description	Total Length (km)	Motorcycle	Car-Jeep-Minibus	Tractor	Truck-Bus	PCU	VPD
072DR001	Gaddachauki-Brahamadev-Khallamachhedi- Jhilmila Tal Road	19.40	150	8	35	13	205	56
072DR002	Babathan – Chandni - Bailbandha Road	12.60	85	6	35	8	151	49
072DR003	Multispan Suspension Bridge - Kutiaakabar Road	12.10	90	10	30	10	155	50
072DR004	Jimuwa-Tilachour-Tilakpur-Gayalnadi -Dharampur-Polkhari Road	10.50	20		20	2	58	22
072DR005	Matena-Tilkeni-Bhamkeni-BishnuMandir-Rautela-Bandtaal-Bedkottal Road	12.10	40		25	4	86	29
072DR006	Suda(MRM)-Jhajpura-Gauji-Bridhasram Road	6.65	55	4	40	10	152	54
072DR007	Suda(MRM)-Ghatal HSS-Gauji-Mushepani-Bandaa Taal Road	8.56	75	6	20	0	84	26
072DR008	Mahendranagar-RedCross-Baghphata-Sundarpur-Nayagaun - Harpal-Sishaya Road	13.00	80	16	35	8	158	59
072DR009	Bhasi-Ultakham- Bagphata-Chaurahi Road	15.70	120	26	40	14	222	80
072DR010	Daiji, Champapur-Hatithala-Jadiyapani-Chhela-bagau-Baitada-Polkhari-Dharampur-Samaa(daiji) Road	18.10	85	20	12	22	175	54
072DR011	Daiji-Bedkot-Jogbudha Road	22.50	130	5	30	8	162	43
072DR012	Daiji-Beldandi Road	23.40	120	7	42	4	167	53
072DR013	Beldandi-Rauteli Bichuwa Road	6.10	75	8	30	2	114	40
072DR014	Rauteuli (Baibaha) -Shivanagar (sugarmill)-Kalkatta bazar Road	10.25	70	10	35	2	123	47
072DR015	Jhalari- Stationpur – Kalapani - simalphata-Bansamittee (Ring Road)	14.90	40		20	6	84	26
072DR016	Jhalari-Phuleli-Pariphaata-Beldandi -Kaluwapur(MRM) Road	11.90	150	24	25	25	249	74
072DR017	Bansamittee-Pipaladi-Jonapuri-Ranipur-Bansaha Road	11.10	240	40	30	25	320	95
072DR018	Kaluwapur-Belauri - Border (Madan Asrit Marg) Road	31.10	40	40	30	8	152	78
072DR019	Beldandi-Rampur-shripur-Laxmipur – IBRD –Dodha bridge- Doke Bazaar –Mohana Bridge (Hulaki Sadak) Road	40.20	105	50.0	30	10	203	90
072DR020	Shiva Shankar High school-khajuwa-Bhorkunda-Belauri Road	6.60	30		12	7	67	19
072DR021	Jhapi 1, Banshaha (police post)-Janajagriti Ma. Bi, Ganeshpur-Tallo Chauraha Road	7.40	40	10.0	20		70	30
072DR022	Bank(ward-2)(MRM) – Nigali-Pahariya-Dumila-Nile - Budar Road	9.90	110	10.0	40	5	165	55
072DR023	Bani –Dekhatbhuli - Kanja, Shankarpur- Panchagadiya, Baisebichawa -Dodha Bridge Road	35.00	70	10.0	30	15	165	55
072DR024	Vurakot-Baijudada-Gokulpur Road	6.60	120	12.0	18	12	156	42
072DR025	Bichphaata(India border)-Police Station(Tribhuvanbasti)- Laxmipur-Shreepur Road	26.18	30	4.0	15		49	19
072DR026	Ganeshbasti (petrol pump)- Amariya-Dasharathbasti (sugarmill)-Simari Road	9.00	105	6.0	45	4	165	55
072DR027	Petrol pump(Ganesh basti)-Punarbhas-Durgachowk-Town bazar Road	10.00	60	5.0	25	4	101	34
072DR028	Malubela(Krishnapur) – M R M(Krishnapur)-Rajghaat(Raikawarbichawa) Road	22.00	65	10.0	50	4	159	64
072DR029	Tribhuvanbasti-Aabas Compani- Parasan(2)-Parasan(8) Road	10.30	50	10	30	5	115	45

ANNEX 2 POPULATION SERVED

S.N	VDC/municipality	Population	Connections	SRN	072DR001	072DR002	072DR003	072DR004	072DR005	072DR006	072DR007	072DR008	072DR009	072DR010	072DR011	072DR012	072DR013	072DR014	072DR015	072DR016	072DR017	072DR018	072DR019	072DR020	072DR021	072DR022	072DR023	072DR024	072DR025	072DR026	072DR027	072DR028	072DR029
	Total population	448,503		366,600	104,599	143,852	143,852	49,479	49,479	49,479	21,949	154,078	42,026	49,479	293,644	139,273	7,251	21,949	49,277	42,026	42,026	152,918	111,841	21,949	18,578	36,706	120,832	21,949	51,247	43,996	16,821	31,122	16,821
	Total VDCs/municipalities	12		8	1	2	2	1	1	1	1	2	1	1	5	4	1	1	2	1	1	5	3	1	1	1	5	1	2	1	1	2	1
1	Baisa bichawa	14301	3	X												X							X				X					X	
2	Bedkot Municipality	49479	8	X				X	X	X		X		X	X	X																	
3	Beldandi Municipality	21949	4	X							X					X		X				X		X									
4	Belaury Municipality	53544	4	X											X	X						X	X					X					
5	Bhimdutta Municipality	104599	5	X	X	X	X					X			X																		
6	Chandani Dodhara Municipality	39253	1			X	X																										
7	Dekhatbhuli	18578	1																			X			X		X						
8	JhalariPpipladi Municipality	42026	8	X									X		X				X	X	X	X											
9	Krishnapur Municipality	36706	3	X																						X	X						
10	Punarbhas Municipality	43996	7	X											X								X				X		X	X			
11	Raikar Bichawa	16821	2																			X									X	X	X
12	Shankarpur	7251	1														X		X								X		X				

Source: 2011 Census

Annex 3- Level 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	-	-	168,554	24,072	200,169	424,431	304,932
	Total VDCs	0	0	6	2	3	10	6
1	Baisa bichawa			x			x	
2	Bedkot Municipality			x			x	x
3	Beldandi Municipality						x	
4	Belauri Municipality					x	x	x
5	Bhimdutta Municipality					x	x	x
6	Chandani Dodhara Municipality						x	
7	Dekhatbhuli						x	x
8	Jhalari pipladi Municipality					x	x	x
9	Krishnapur Municipality			x			x	x
10	Punarbhas Municipality			x			x	
11	Raikar Bichawa			x	x			
12	Shankarpur			x	x			

ANNEX 4 : 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 (m ³)	Gabion walls (m ³)	Lined drain (m)
Total		443.15				105.40	274.65		530	87	196	408	164	657	3,730	14,610
72DR001	Gaddachauki-Brahamadev-Kheliachhedi-Jhilmila Tal Road	19.40				7.20	15.60	-	-	-	85	28			234	950
72DR002	Babathan-Chandani-Bailbandh Road	12.60					12.60		40				7	40	50	200
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10				0.50	11.80						2	-	211	600
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50				-	-	60	12	-	-	-	4	160	450	400
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10				12.10	-	60	-	-	-	-	5	-	-	400
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65					6.65				5	30			30	200
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55				3.90	-	-	6	-	-	-	5	-	70	150
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00				-	12.50	-	-	-	-	-	11	-	945	-
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70				-	12.50	-	-	-	10	215	12	-	-	500
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10				4.30	18.10	-	-	-	16	5	5	-	130	460
72DR011	Daiji-Bedkot-Jogbudha Road	22.50					22.50			6						500
72DR012	Daiji -Beldandi Road	23.40					15.00						10		180	300
72DR013	Beldandi-Rauteli Bichuwa Road	6.10				1.40				6			12			500
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-Kalkatta Bazar Road	10.25				2.50	-		30	-	-	-	24	-	-	750
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90				-	14.90	-	-	-	-	130	7	62	600	800
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90				4.60	11.90	-	-	5	40	-	3	-	475	600
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10				7.50	11.10		110							500
72DR018	Kaluwapur-Belaui-Border (Madan Asrit Marga)	31.10					12.00		65				8		125	800
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Hulaki Road)	40.20					15.00				15					800
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60				6.60				47						700
72DR021	Jhapi 1 Bansaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40				4.30	-	25	-	-	-	-	2	-	-	500
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90				-	9.90	-	-	-	25	-	10	-	180	700
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00				16.00	35.00		120	-	-	-	5	-	50	500

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)
72DR024	Vurakot-Baijudada-Gokulpur Road	6.60					6.60						2			
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20				12.10	-		-	-	-	-	8	-	-	800
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00				7.40	9.00		-	-	-	-	4	-	-	400
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00				8.30	-		-	-	-	-	8	-	-	600
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00				-	22.00		20	-	-	-	-	395	-	500
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30				6.70	-		-	5	-	-	10	-	-	500

ANNEX 5: OVERALL ROAD INVENTORY

Road code	Road Name	Length (km)	Start chainage (km) or XY-coordinate	End chainage (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		589.67			29.90	326.05	233.72	355.95	233.72	-	-	-	-
72DR001	Gaddachauki-Brahamadev-Kheliamachhedi-Jhilmila Tal Road	19.40	0+000	19+400	3.80	8.40	7.20	12.20	7.20	√			
72DR002	Babathan-Chandani-Bailbandh Road	12.60	0+000	12+630		12.60		12.60	-	√			
72DR003	Multispan Suspension Bridge-Kutiakabar Road	12.10	0+000	12+100	0.30	11.30	0.50	11.60	0.50	√			
72DR004	Jimuwa-Tilachour-Tilakpur-Gyalnadi-Musepani-Dharampur Polkhari Road	10.50	0+000	10+520	-	10.50		10.50	-		√		
72DR005	Matena-Tilkeni-Bhamkeni-Bishnumandir-Rautela-Bandatal-Bedkottal Road	12.10	0+000	12+102	-	-	12.10	-	12.10		√	√	
72DR006	Suda (MRM)-Jhajpura-Gauji-Bridhasram Road	6.65	0+000	6+645	-	6.65		6.65	-	√			
72DR007	Suda (MRM)-Ghatal HSS-Gauji-Musepani-Banda Tal Road	8.55	0+000	8+550	0.35	4.30	3.90	4.65	3.90		√		
72DR008	Mahendranagar-Red Cross-Bagaphata-Sundarpur-Nayagaun-Harpal-Sishiya Road	13.00	0+000	13+000	0.50	12.50	-	13.00	-	√			
72DR009	Bhasi-Ultakham-Bagaphata-Chaurahi Road	15.70	0+000	15+700	3.20	12.50		15.70	-		√		
72DR010	Daiji-Champapur-Hatithala-Jadiyapani-Chhela-Bagau-Baitada-Polkhari-Dharampur-Sama Daiji Road	18.10	0+000	18+100	-	13.80	4.30	13.80	4.30		√		
72DR011	Daiji-Bedkot-Jogbudha Road	22.50	0+000	22+500	-	22.50		22.50	-		√		
72DR012	Daiji -Beldandi Road	23.40	0+000	23+400	-	23.40		23.40	-	√			
72DR013	Beldandi-Rauteli Bichuwa Road	6.10	0+000	6+100	-	4.70	1.40	4.70	1.40	√			
72DR014	Rauteli (Baibaha)-Shivanagar (Sugarmill)-		0+000	10+250					2.50		√		

Road code	Road Name	Length (km)	Start chainage (km) or XY-coordinate	End chainage (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
	Kalkatta Bazar Road	10.25			0.15	7.60	2.50	7.75					
72DR015	Jhalari-Stationpur-Kalapani-Simalphata-Bansamitee (Ring Road)	14.90	0+000	14+900	-	14.90		14.90	-		√		
72DR016	Jhalati-Phuleli-Pariphata-Beldandi-Kaluwapur (MRM) Road	11.90	0+000	11+900	-	7.30	4.60	7.30	4.60	√			
72DR017	Bansamitee-Pipladi-Jonapur-Ranipur-Bansaha Road	11.10	0+000	11_100	-	3.60	7.50	3.60	7.50		√		
72DR018	Kaluwapur-Belaury-Border (Madan Asrit Marga)	31.10	0+000	31+100	7.80	23.30		31.10	-	√			
72DR019	Beldandi-Rampur-Shripur-Laxmipur-IDRD-Dodha Bridge-Doke Bazar-Mohana Bridge (Postal Road)	40.20	0+000	40+200	3.60	36.60		40.20	-	√			
72DR020	Ganesthan-Najarmandap-Dandako Pato Road	6.60	0+000	6+610	-	-	6.60	-	6.60	√			
72DR021	Jhapi 1 Banshaha (police post)Janajagriti Ma Bi-Ganeshpur-Tallo Chauraha Road	7.40	0+000	7+400	-	3.10	4.30	3.10	4.30	√			
72DR022	Bank (Ward 2) (MRM)-Nigali-Pahariya-Dumila-Nile-Budar Road	9.90	0+000	9_900	-	9.90		9.90	-		√		
72DR023	Bani-Dekhatabhuli-Kanja-Shankarpur-Panchagadiya-Baisebichuwa-Dodha Bridge Road	35.00	0+000	35+000	-	19.00	16.00	19.00	16.00		√		
72DR024	Bhurakot-Baijudada-Gokulpur Road	6.60	0+000	6+600	-	6.60		6.60	-	√			
72DR025	Bichaphata (India Border)-Police Station (Tribhuvanbasti)-Laxmipur-Shreepur Road	26.20	0+000	26+200	-	14.10	12.10	14.10	12.10	√			
72DR026	Ganeshbasti (Petrol Pump)-Amariya-Dasharathbasti (Sugarmill)-Simari Road	9.00	0+000	9+000	-	1.60	7.40	1.60	7.40		√		
72DR027	Petrol Pumb (Ganeshbasti) Punarbas-Durgachowk-Town Bazar Road	10.00	0+000	10+000	-	1.70	8.30	1.70	8.30	√			
72DR028	Malubela (Krishanpur)-MRM (Krishanpur) Rajghat (Raikawar bichawa) Road	22.00	0+000	22_000	-	22.00		22.00	-	√			
72DR029	Bhanuchowk-Tribhuvanbasti-Bhojpurline-Bahnuschool-PurnoBhansar Road	10.30	0+000	10+300	-	3.60	6.70	3.60	6.70	√			
	Total of DRCN Roads =	443.15			19.70	318.05	105.40	337.75	105.40				

Road code	Road Name	Length (km)	Start chainage (km) or XY-coordinate	End chainage (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
	GPS Tracked Village Roads :				BT	GR	ER		Reference			Reference	
72VR001	Madan Chowk-Sus. Bridge road	10.20			10.20	-	-	10.20	-			A3	
72VR002	Bailbandha-6 No. Bazaar Road	1.02					1.02	-	1.02			B6	
72VR003	Shankarpur-Chandev Daka Road	6.40					6.40	-	6.40			B8	
72VR004	Jhalari-Kalika Ma.Vi.-VDC Office Pipaladi	2.40					2.40	-	2.40			B9	
72VR005	Dumila-Kaluwapur Road	6.50					6.50	-	6.50			B7	
72VR006	Muda-Bankatti bridge-Mahaliya- Bagaphanta-Arayshya Kinara Road	7.00					7.00	-	7.00			DR 8	
72VR007	Doda Bridge-Aawas Compani road (Loktantrik Marga)	4.20					4.20	-	4.20			B1	
	Total of GPS Tracked Village Roads =	37.72			10.20	-	27.52	10.20	27.52				
	GPS Untracked Village Roads :												
1	Suda-1; Lalpur-Basantpur-Sundarpur(Reginal agriculture training center)-Suda 3; Sisaiya Chuowk (Cold Storage)	6.00					6.00	-	6.00			C1	
2	Champapur-Pipalthala-Hatithala Road	3.00					3.00	-	3.00			C3	
3	Suda-3; Sisaiya Chauraha-Suda-1; Mahirpur-Purano Itabhatta	7.00					7.00	-	7.00			C2	
4	Gail Nadi Chauk – Suda -9;Sarmule Tole – Bridha asram	5.00					5.00	-	5.00			C4	
5	Daiji-9 - Basanthala- Jadepani Mukti Sibir	10.00					10.00	-	10.00			C5	
6	Bandevi – Shankarpur	10.00					10.00	-	10.00			C6	
7	Jhalari VDC office – Banjariya – Through Canal – Kalapani	8.00					8.00	-	8.00			C7	

Road code	Road Name	Length (km)	Start chainage (km) or XY-coordinate	End chainage (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
8	MRM, Daiji (1)-Nigalasaini Mandir-Basanthala Road	3.00					3.00	-	3.00			C8	
9	Ranipur-Ranagaun-Sunar Tol-Bhorkunda Road	1.00					1.00	-	1.00			C9	
10	Jhalari Bazar-Manika Mandir Road	9.80					9.80	-	9.80			C10	
11	IPO, Belauri-Humpipe-Dakachande-Bhansar Raod	2.00					2.00	-	2.00			C11	
12	Laxmipur-Thapachauraha-Dinapur-Dhusa-Khitya Road	7.00					7.00	-	7.00			C12	
13	Rampur-Ghudagaudi-Shivnagar-Banda-Mahakali Sugar Mill Road	4.00					4.00	-	4.00			C13	
14	Laxmipur-Banshaktimata-Dinapur-Gokulbazar Road	3.00					3.00	-	3.00			C14	
15	Ubiyaphat-Phatiya-Mataiya-Bandataal-Gokulpur Road	4.00					4.00	-	4.00			C15	
16	Beldandi-Pachharpatti-Bhudhram Chauk-Jhilmila Road	6.00					6.00	-	6.00			C16	
17	Teduwa (Boder)-Chargharuwa-Katan Road	4.00					4.00	-	4.00			C17	
18	Bhimdutta 8 Thapa chauraha-Sukasal-Arashya-Hattisar Road	16.00				8.00	8.00	8.00	8.00				
	Total of GPS Untracked Village Roads =	108.80			-	8.00	100.80	8.00	100.80				

ANNEX 6: VILLAGE ROAD

Road Code	Name of Village Road	Total; Km	Black top	Gravel	Earthen	Old DTMP Ref.	Remarks
72VR001	Madan Chowk-Sus. Bridge road	10.20	10.20			A3	Tracked
72VR002	Bailbandha-6 No. Bazaar Road	1.02			1.02	B6	Tracked
72VR003	Shankarpur-Chandev Daka Road	6.40			6.40	B8	Tracked
72VR004	Jhalari-Kalika ma. vi.-VDC Office Pipaladi	2.40			2.40	B9	Tracked
72VR005	Dumila-kaluwapur Road	6.50			6.50	B7	Tracked
72VR006	Muda-Bankatti bridge-Mahaliya-Bagaphanta-Arayshya Kinara Road	7.00			7.00	DR 8	Tracked
72VR007	Doda Bridge-Aawas Compani road (Loktantrik Marga)	4.20			4.20	B1	Tracked
	Sub-Total GPS Tracked =						37.72
1	Suda-1; Lalpur – Basantpur – Sundarpur (Reginal agriculture training center) – Suda -3; Sisaiya Chuowk (Cold Storage)	6.00			6.00	C1	Untracked
2	Champapur-Pipalthala-Hatithala Road	3.00			3.00	C3	Untracked
3	Suda-3; Sisaiya Chauraha – Suda-1; Mahirpur – Purano Eta Batta	7.00			7.00	C2	Untracked
4	Gail Nadi Chauk – Suda -9;Sarmule Tole – Bridha asram	5.00			5.00	C4	Untracked
5	Daiji-9 - Basanthala- Jadepani Mukti Sibir	10.00			10.00	C5	Untracked
6	Bandevi – Shankarpur	10.00			10.00	C6	Untracked
7	Jhalari VDC office – Banjariya – Through Canal – Kalapani	8.00			8.00	C7	Untracked

8	MRM, Daiji (1)-Nigalasaini Mandir-Basanthala Road	3.00			3.00	C8	Untracked
9	Ranipur-Ranagaun-Sunar Tol-Bhorkunda Road	1.00			1.00	C9	Untracked
10	Jhalari Bazar-Manika Mandir Road	9.80			9.80	C10	Untracked
11	IPO, Belauri-Humpipe-Dakachande-Bhansar Raod	2.00			2.00	C11	Untracked
12	Laxmipur-Thapachauraha-Dinapur-Dhusa-Khitya Road	7.00			7.00	C12	Untracked
13	Rampur-Ghudagaudi-Shivnagar-Banda-Mahakali Sugar Mill Road	4.00			4.00	C13	Untracked
14	Laxmipur-Banshaktimata-Dinapur-Gokulbazar Road	3.00			3.00	C14	Untracked
15	Ubiyaphat-Phatiya-Mataiya-Bandataal-Gokulpur Road	4.00			4.00	C15	Untracked
16	Beldandi-Pachharpatti-Bhudhram Chauk-Jhilmila Road	6.00			6.00	C16	Untracked
17	Teduwa (Boder)-Chargharuwa-Katan Road	4.00			4.00	C17	Untracked
18	Bhimdutta 8 Thapa chauraha-Sukasal-Arashya-Hattisar Road	16.00		8.00	8.00		Untracked
	Sub-Total GPS Untracked Village Roads =	-					108.80
	Total of Village Roads =	146.52	10.20	8.00	128.32		

Annex 7:Photographs



DTMP Workshops



Road Section in Kanchanpur district



Field Visit of Rural road (Gaddachauki-Brahmadev Road section)

[illegible]

आज मिति २०७२ साल श्रावण २ गते शनिवारको दिन जिल्ला विकास समिति बुचनपुरको स्थानिय विकास अधिकारी श्री मोहन पौडेल ५२ वौं अधिवेशनमा जिल्ला यातायात गुरु योजना (DTMP) सम्बन्धी छलफल भयो।

उपस्थिति

श्री मोहन पौडेल - स्थानिय विकास अधिकारी
 भोजराज चौहान - सचिव नेपाली कांग्रेस
 श्री लोकेन्द्र रेग्मी - प्रमुख जिल्ला इन्जिनियर
 श्री राम बहादुर कार्की - सचिव राष्ट्रिय जनमोर्चा
 श्री कमल कुमार अधिकारी - प्रमुख जिल्ला इन्जिनियर
 श्री सिद्ध राज पन्त - आर.डी. १ जे. वि. नि. केन्द्र
 श्री प्रदीप कुमार पन्त - PSEI, SNRTP, Kanchanpur.
 श्री प्रवीण अर्चल - DRME, SNRTP/ILLO Kanchanpur.
 श्री धर्मसिंह कुमर (अध्यक्ष) - जे. वि. नि. केन्द्र
 श्री केशव रिजाल - जे. वि. नि.
 श्री नन्दराज राई -
 श्री केशव रिजाल -
 श्री लक्ष्मी लाम -
 दिलकुलको विषय

१. जिल्ला यातायात गुरु योजना अद्यावधी गर्ने

निर्णय नं. १

बुचनपुर जिल्लाको वर्तमान जिल्ला यातायात गुरु योजना (DTMP) अन्तर्गत समावेश गरिएको Class-A & Class-B सडकहरूको वर्तमान अवस्था एवं जिल्ला सडक मुख्य सञ्जाल (DRCN) अन्तर्गत समावेश गर्नुपर्ने सडकहरूको वारेमा छलफल भयो। साथै प्राप्त सुझाव हटा समावेश गरी थप गर्नुपर्ने विभिन्न सडकहरूको वारेमा विस्तार छलफल भयो। छलफल पश्चात तपशिलका सडकहरूलाई DRCN मा समावेश गरी फिल्ट्रु अर्हता गर्ने निर्णय गरियो।

DRCN Roads of Kanchanpur District

S.N.	Name of Road	Remarks
1	Kaluwapur-Belaury - Border (Madan Asrit Marg)	DOR Undertaking
2	Bichphata(India border)-Police station(Tribhuvanbasti)- Laxmipur-Shreepur	
3	Beldandi-Rampur-shripur-Laxmipur – IBRD –Dodha bridge- Doke Bazaar –Mohana Bridge (Hulaki Sadak)	DOR Undertaking
4	Multispan Suspension Bridge - Kutiakabar	
5	Bani –Dekhatbhuli - Kanja, Shankarpur- Panchagadiya, Baisebichawa -Dodha bridge Road	
6	Daiji-Bedkot-Jogbudha Road	DOR Undertaking
7	MRM-Suda-Jharpura-Gauji-Bridhasram Road	
8	Babathan – Chandni - Bailbandha	
9	Daiji-Beldandi	DOR Undertaking
10	Suda(MRM)-Ghatal HSS-Gauji-MUShepani-Bandaa Taal road	
11	Malubela(Krishnapur) – M R M(Krishnapur)-Rajghaat(Raikawarbichawa)	
12	Bansamittee-Pipaladi-Jonapuri-Ranipur-Bansaha Road	
13	Bank(ward-2)(MRM) – Nigali-Pahariya-Dumila-Nile - budar road	DOR Undertaking
14	Jhalari-Phuleli-pariphaata-Beldandi -kaluwapur(MRM)	
15	Tribhuvanbasti-Aabas Compani- Parasan(2)-Parasan(8) Road	
16	Mahendranagar-RedCross-Baghphata-Sundarpur-Nayagaun - Harpal-Sishaya Road	
17	Beldandi-Rauteli Bichuwa	
18	Beldandi– Stationpur – Kalapani - simalphata-Bansamittee (Ring Road)	
19	Daiji, Champapur-Hatithala-jadiyapani-Chhela-bagau-baitada-polkhari-dharampur-samaa(daiji)	
20	Shiva high school-khajuwa-lanta-bhorkunda-belaury road	
21	Bhaisi-Ultakham- Bagphata-Chaulahi Road	
22	Ganeshbasti (petrol pump)- Amariya-Dasharathbasti (sugarmill)-Simrik road	
23	Bhanuchowk-Tribhuwanbsti-Bhojpurline- Bhanuschool -Purano Indian Custom road	
24	Gaddachauki-Brahmadev-Khallamachhedi- Jhilmila Tal-Rautela-Bedkot tal-Modkadham Tourist road	
25	IBRD- Purano Itabhatta-Band Tal road	
26	Ratauli (Beibaha) -Shivanagar (sugarmill)-Kalkatta bazar-Belaury-Baijudada-Gokulpur-kotihom-Tribhuvanbasti-Parasan-Bichaphata (Postal road)	
27	Jhapi 1, Bansaha (police post)-Janajagriti Ma. Bi, Ganeshpur-Tallo Chauraha-Bhorkunda-Sidh Baijnath Higher Secondary -Bansha-Mallo	



नेपाल सरकार

संघीय मामिला तथा स्थानीय विकास मन्त्रालय

जिल्ला विकास समितिको कार्यालय

कञ्चनपुर

प.सं. ०७२/०७३

च.नं. ७८४५

मिति : २०७२/१२/०८

विषय : DTMP स्वीकृत गरिएको बारे ।

श्री स्थानीय पूर्वाधार विकास तथा कृषि सडक विभाग
जावलाखेल, ललितपुर ।

उपरोक्त सम्बन्धमा Project Research and Engineering Associates Consultant,
जावलाखेल, ललितपुरद्वारा पेश गरिएको जिल्ला यातायात गुरु योजना (DTMP) आ.व.०७२/०७३
मिति २०७२/११/१४ गते बसेको जिल्ला परिषदबाट स्वीकृत गरिएको व्यहोरा जानकारीका लागि
अनुरोध छ ।

मोहन प्रौडेल

स्थानीय विकास अधिकारी

बोधार्थ :

श्री Project Research and Engineering Associates Consultant,
जावलाखेल, ललितपुर

ANNEX 9: LIST OF COMMENTS/SUGGESTIONS RECEIVED FROM FINAL WORKSHOP

प्रश्न एवं सुझाव	प्रस्टीकरण
DTMP मा पहिलेका ग्रामीण सडकहरु छुटेका देखिन्छन् ती सडकहरु कसरी समावेश गरिएको छ	DRCN बाहेकका ग्रामिण सडकहरुको विवरण छुट्टै Annex को रुपमा राखिएको छ ।
सडक विभाग र जि.वि.स. दुवैबाट काम गरिरहेका DRCN सडकहरु सम्बन्धमा ।	सडक विभागले काम गर्दै आएको भएता पनि उक्त सडकहरु DRCN सडकहरुमा परेकोले सडक विभाग संग समन्वय गरी सडकको स्तर उन्नतीको काम गर्न सकिने छ ।