Government of Nepal

District Transport Master Plan (DTMP)

For

Panchthar District

Ministry of Federal Affairs and Local Development

Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR)

District Development Committee,

Panchthar

Final Report

Volume I: Main Report

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Prepared by the MULTI Disciplinary Consultants (P) Ltd for the District Development Committee (DDC) and District Technical Office (DTO), Panchthar 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.

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FOREWORD

It is my great pleasure to introduce this revised District Transport Master Plan (DTMP) of Panchthar district which was concurred by the district stakeholder's meeting held, passed by DDC Board and approved by the DDC Council on 26 May 2013. Based on the DTMP Guideline 2012, all together 26 District Road Core Network (DRCN) aiming to connect all Village Development Committee (VDC) headquarters with the district headquarter, either directly or through strategic road network (SRN) have been selected. By bringing the DRCN to a maintainable and all-weather standard, year-round access to all VDCs headquarters can be ensured.

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

I would, firstly like to express my gratitude to RTI Sector Maintenance Pilot for financial and technical support. Secondly, my thanks go to Mr. BhanuBhakta Baral, District Engineer (DTO), Mr. Gopal Limbu Planning Officer (DDC), and other DDC/ DTO staff for their valuable efforts in the process of producing this document .Equally,I would like to thank Mr. Yadav Chandra Gautam, District Asset Management Engineer (DAME) and Mr. Prem Kafle .Sub-Asset Management Engineer (SAME) for their continuous dedication and hard-work in bringing this DTMP document to this stage. My special thank goes to all the representatives of political parties, who played crucial role in providing constructive feedbacks and valuable support in preparing this document successfully.

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

.....
Mr. Pradip Kumar Niraula
Local Development Officer

Local Development officer

ACKNOWLEDGEMENTS

MULTI Disciplinary Consultants (P) Ltd. take great pleasure to express the deepest gratitude to the District Development Committee, Panchthar/ DoLIDAR/ GoN/ RTI for intrusting us to carry out preparing of this District Transport Master Plan (DTMP) of Panchthar District.

We would like to express our deep gratitude to Mr. Pradip Kumar Niraula / LDO, Panchthar, Mr. Bhanubhakta Baral /DTO, DDC staffs, all party representatives, all VDC secretaries, all the people of Panchthar including Dalit, women and Janajati who had contributed to the project for all cooperation and help rendered in the pursuit of our work.
We also appreciate the valuable suggestion relevant technical information and cooperation provided by LDO, CDO all political party members of Panchthar District, Engineer from DTO, VDC secretaries of 41 VDCs, Ex – VDC Chairman and all participants of workshop during the project period.

Deep insight have gone for quality outputs of preparing DTMP of Panchthar District taking into considerations of constraints of topography, accessibility and other factors. Therefore we also like to acknowledge the entire Technical assistant, Team Leader, GIS Expert and Civil Engineers who have contributed to achieve it.

We would like to extend cordial thanks to DoLIDAR, RTI sector maintenance Pilot, DTICC members for the best cooperation provided to make the study a success.

Raghab Bista
Project Director / Coordinator
On behalf of : MULTI Disciplinary Consultant (P) Ltd.

1. EXECUTIVE SUMMARY

Panchthar district is a hilly district located at Mechi zone in the Eastern Development region of Nepal. The district lies on 26' 53'' to 27' 26'' north latitude and 87' 30'' to 28' 5'' east longitude in the global position. The District is bordered with Sikkim state of India in the east, Tehrathum district in the west, Taplejung District in the north and Ilam district in the south.

The district road inventory identified 2,131.25 km of roads, including 93.45 km of strategic road, 980.00 km district road core network(DRCN) and 930.00 km of village roads. The discussion with DTICC and DDC, 26 rural roads with a length of 1,107.80 km were identified as making up the district road core network (DRCN), and the remaining 930.00 km were classified as village roads. The existing DRCN roads link up 26 VDC headquarters. Almost all DRCN roads are earthen fair-weather roads.

Table ES1

Road Class	Total length (km)	Black Top (km)	Gravel (km)	Earthen (km)	New Const. (km)
Strategic road network	93.45	93.45	-	-	-
Urban roads	-	-	-	-	-
District road core network	1,107.80	-	-	980.80	127.00
Village roads	930.00	-	-	930.00	-
Total	**2,131.25**	**93.45**	**-**	**1,910.80**	**127.00**

Annual conservation costs are estimated at NPR **15.137** 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 **75.635** 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.

Table ES2

Improvement type	Requirement		Cost (NPR)
Bridges	520	m	312,000,000
Slab culverts	21	m	3,150,000
Causeways	596	m	11,090,000
Hume pipes	165	units	1,650,000
Masonry retaining walls	2839	m^3	28,390,000
Gabion retaining walls	15498	m^3	38,745,000
Lined drains	3355	m	3,355,000
Widening	-	m	-
Rehabilitation	-	km	-
Gravelling	115.26	km	253,572,000
Blacktopping	-	km	-
New construction	127.00	km	875,000,000
Total			**1,526,952,000**

The available budget for the road sector for the coming five years (fiscal year 2070/71 to 2074/75) is estimated to be NPR 678.058 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 constructions of some roads are possible within this DTMP period and will also be carried out under the next DTMP.

Within the DTMP period 77.9 km of roads will be gravelled (7.9%) resulting in a total of 77.9 km being brought to a maintainable all-weather standard. VDC headquarters with access to all-weather DRCN roads or the SRN will increase from 0 to 13, while the percentage of the district population with such access will increase from 0% to 37%.

Abbreviations

DDC	District Development Committee
DoLIDAR	Department of Local Infrastructure Development and Agriculture Road
DoR	Department of Road
DTICC	District Transport Infrastructure Coordination Committee
DTMP	District Transport Master Plan
DTPP	District Transport Perspective Plan
GIS	Geographical Information system
GPS	Global Positioning System
GON	Government of Nepal
LGCDP	Local Governance and Community Development Programme
MLD	Ministry of Local Development
RAP	Rural Access Programme
SWAp	Sector Wide Approach
VDC	Village Development Committee

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1. INTRODUCTION

Panchthar District is located in Mechi Zone of the Eastern Development Region of Nepal. The District is bordered with Sikkim state of India in the east, Terahthum district in the west, Taplejung District in the north and Ilam district in the south. The district has 41 VDCs. The total area of the district is 1,241 km^2. The lowest elevation point is 609 meter and the highest elevation point is 3,675 meter from mean sea level.

Map 1: Map of Nepal indicating Panchthar District

According to the National Census 2011 projection, the total population of the district is 190, 491, residing in 41,VDC of. Panchthar district. has an average population density of around 55 people per square km. Although accessibility to Panchthar is limited, this is improving rapidly. The district has access to the Mechi Highway. Which is currently being upgraded to bituminous standard by DOR.

2. DISTRICT ROAD CORE NETWORK (DRCN)

This chapter gives an overview of the existing roads in Panchthar district, distinguishing between strategic roads and rural roads. It goes on to identify those rural roads that make up the district road core network (DRCN) that will form the basis for this DTMP. The remaining rural roads are classified as village roads.

2.1 TOTAL ROAD NETWORK

Panchthar district has an estimated road network of **2,131.25** Kilometres, including 93.45 km of strategic roads managed by DOR and **2037.75** km of rural roads managed by Panchthar DDC and the VDCs. The rural roads have an earthen surface only. A map of the total road network in Panchthar district is shown in at the end of this chapter.

Table 2.1,1 Road length in Panchthar district (km)

Road Class	Total length (km)	Black Top (km)	Gravel (km)	Earthen (km)	New Const. (km)
Strategic roads	93.45	93.45	-	-	-
DRCN	1107.8	-	-	980.80	127.00
Village Road	930.00	-	-	930.00	-
Total	**2131.25**	**93.45**	**-**	**1,910.80**	-

2.2 NATIONAL HIGHWAYS AND FEEDER ROADS

Panchthar district has 1 highway (Mechi Highway) 93.45 km. The Mechi Highway has already been largely blacktopped by DOR.

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

Code	Description	Total length(Km)	Black Top(Km)	Gravel (Km)	Earthen(Km)
H07	Mechi Highway	**93.45**	93.45	-	-
Total		**93.45**	**93.45**	**-**	**-**

2.3 DISTRICT ROAD CORE NETWORK

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

The resulting District Road Core Network in Panchthar district is shown in at the end of this chapter. The DRCN consists of 26 district roads with a total length of 980.8 km. The remaining 930.0 km are classified as village roads under the responsibility of the VDCs (see also section 2.3). All DRCN roads are currently earthen roads and are considered fair-weather only). A complete list of the DRCN roads and their characteristics is provided in Table-2.3.1.

Table 2.3.1 Road length in Panchthar District (km)

Road Class	Total length (km)	Black Top (km)	Gravel (km)	Earthen (km)
Strategic Road Network	**93.45**	**93.45**	**-**	**-**
Highways	93.45	93.45		
Feeder Roads	-	-	-	-
Urban Roads	**-**	**-**	**-**	**-**
District Road Core Network	**980.80**	-	-	980.80
Village Roads	**930.00**	-	-	930.00
Total	**2,004.25**	**93.45**	**-**	**1,910.80**

Table 2.3.2: DRCN Roads of Panchthar District (km)

Code	Description	Total length (Km)	Black Top (Km)	Gravel (Km)	Earthen Km) (Km)	All weather (Km)	Fair weather (Km)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	85.00	-	-	52.0	-	52.00
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna- Mauwa-Hangum-Durdimba-6no.Budhbare Road	128.00	-	-	89.0	-	89.00
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	35.00	-	-	22.0	-	22.00
02DR002	Samdin-Chokmangu-Siva-Nawmi danda-Phaktep Ghurbise panchami Road	30.00	-	-	30.0	-	30.00
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	30.00	-	-	28.0	-	28.00
02DR004	Saptami-Dasmi-Aarubote-Limba Road	25.00	-	-	18.00	-	18.00
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	65.00	-	-	65.00	-	65.00
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	34.00	-	-	34.00	-	34.00
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	50.00	-	-	32.20	-	32.20
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	25.00	-	-	20.00	-	20.00
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	25.00	-	-	4.00	-	4.00
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	35.00	-	-	-	-	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	41.00	-	-	3.00	-	3.00
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	34.00	-	-	27.00	-	27.00
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	16.00	-	-	16.00	-	16.00
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road .	36.00	-	-	22.00	-	22.00
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road	30.00	-	-	5.00	-	5.00
02DR009	Goruwale-Lampokhari-Chiva Bhanjyang Road	40.00	-	-	-	-	-
02DR024	Saptami-Dasmi-Walne-Aangna-Lakhuwa Road	36.80	-	-	36.80	-	36.80
02DR017	Akase-Batase-Bhuspate-Gorubale Road	40.00	-	-	17.00	-	40.00
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	32.00	-	-	4.00	-	28.00

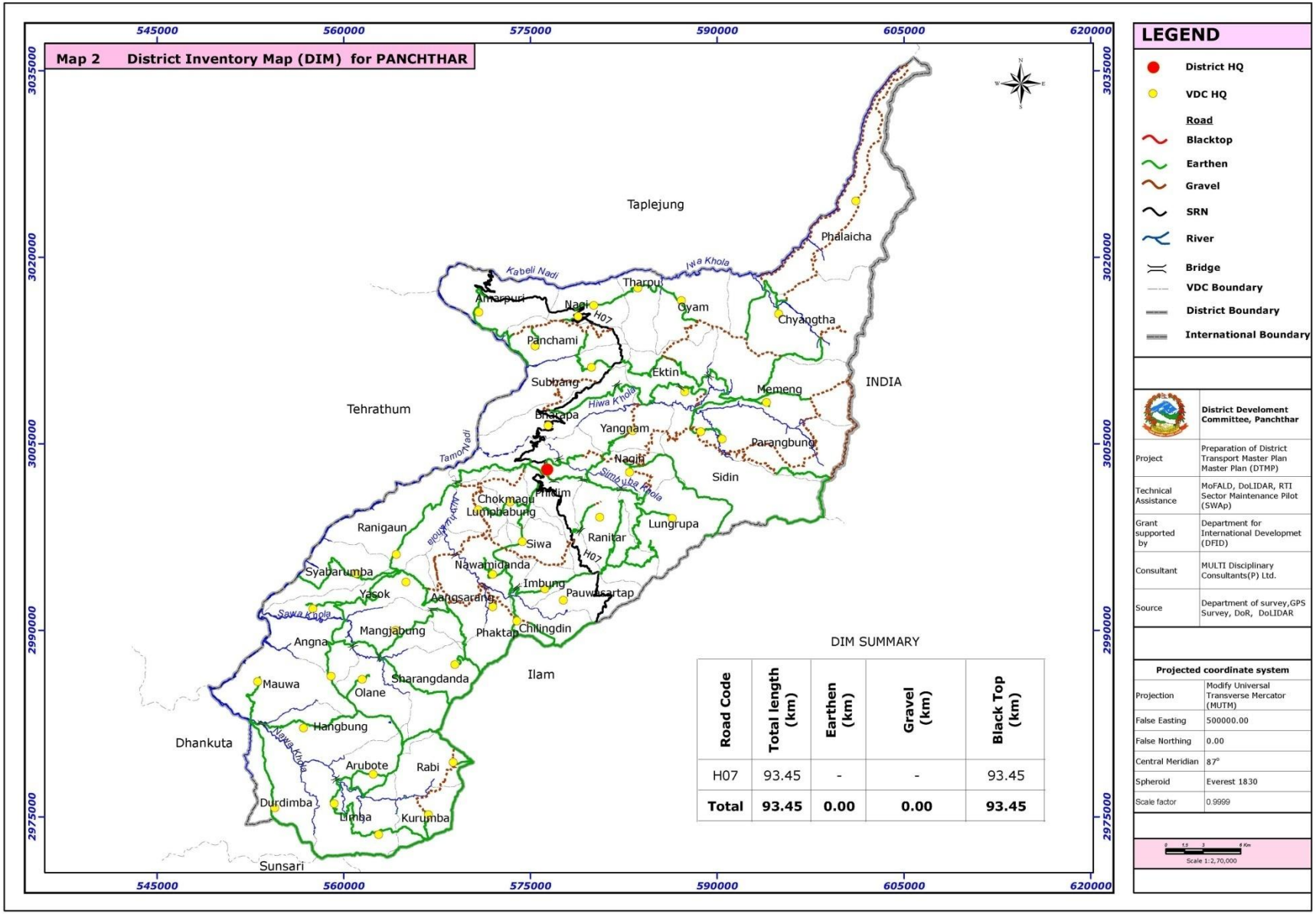
Code	Description	Total length (Km)	Black Top (Km)	Gravel (Km)	Earthen Km) (Km)	All weather (Km)	Fair weather (Km)
02DR005	Rabi-Kurumba-Limba- Road	30.00	-	-	11.00	-	11.00
02DR023	Saptami-Sarangdada Road	17.00	-	-	11.00	-	17.00
02DR025	Dasmi-Walne Road	10.00	-	-	10.00	-	10.00
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	30.00	-	-	30.00	-	30.00
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	21.00	-	-	21.00	-	21.00
Total		**980.8**		**-**	**608.0**		**608.0**

2.4 VILLAGE ROADS

The 930 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 41 VDCs in Pancthar 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.

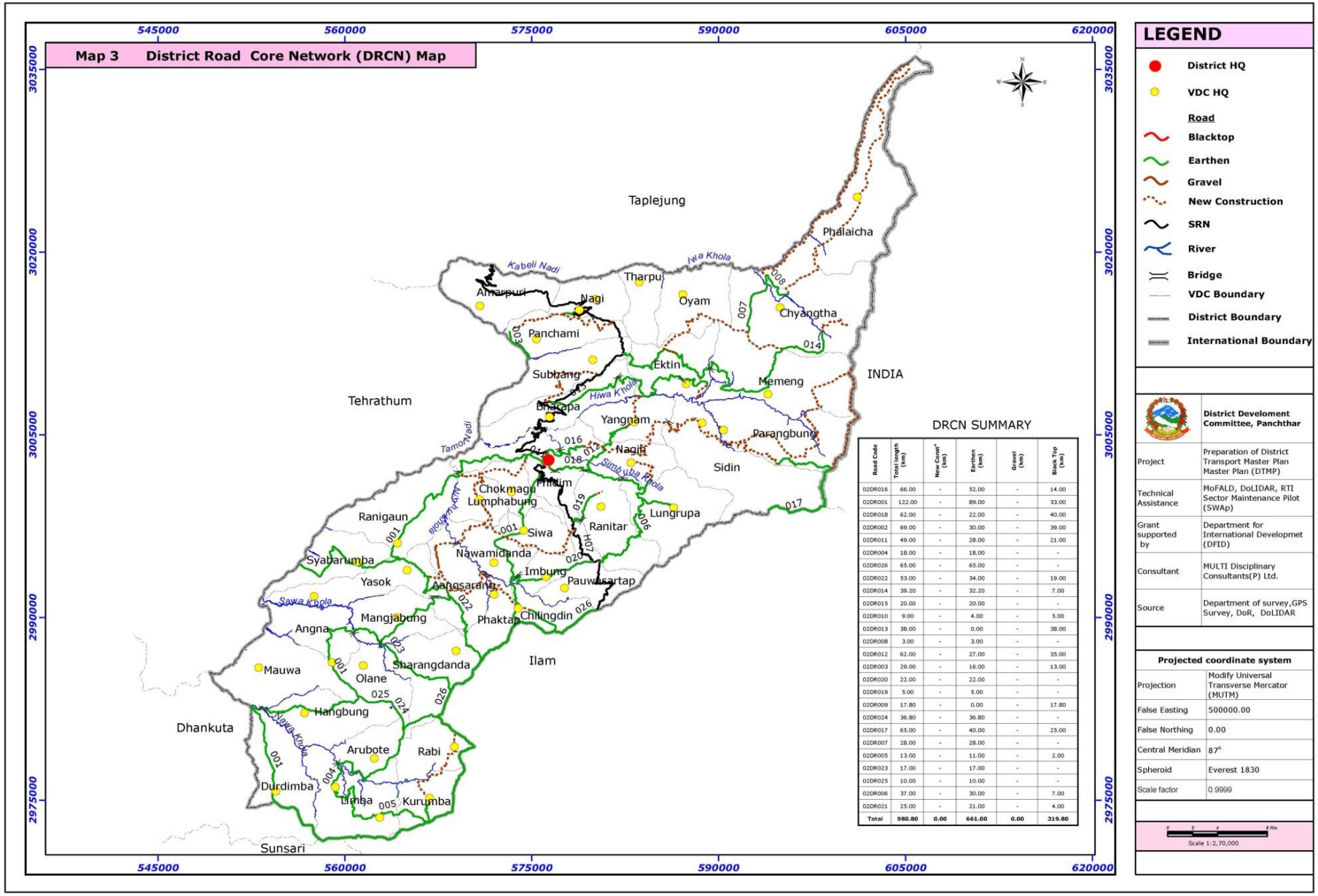
On average each VDC will thus be responsible for 22.68 km of village roads. It is recommended that the VDCs organise maintenance workers to carry out the emergency and routine/recurrent maintenance of these roads to ensure they remain accessible. Any upgrading or new construction of village roads falls outside the scope of this DTMP and is the responsibility of the VDCs.

Funding for these roads will mainly come from the VDC grants. Some district funding will also be allocated to the village roads (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



DIM SUMMARY

Road Code	Total length (km)	Earthen (km)	Gravel (km)	Black Top (km)
H07	93.45	-	-	93.45
Total	**93.45**	**0.00**	**0.00**	**93.45**



DRCN SUMMARY

Road Code	Total length (km)	New Const* (km)	Earthen (km)	Gravel (km)	Black Top (km)
02DR016	66.00	-	52.00	-	14.00
02DR001	122.00	-	89.00	-	33.00
02DR018	62.00	-	22.00	-	40.00
02DR002	69.00	-	30.00	-	39.00
02DR011	49.00	-	28.00	-	21.00
02DR004	18.00	-	18.00	-	-
02DR026	65.00	-	65.00	-	-
02DR022	53.00	-	34.00	-	19.00
02DR014	39.20	-	32.20	-	7.00
02DR015	20.00	-	20.00	-	-
02DR010	9.00	-	4.00	-	5.00
02DR013	38.00	-	0.00	-	38.00
02DR008	3.00	-	3.00	-	-
02DR012	62.00	-	27.00	-	35.00
02DR003	29.00	-	16.00	-	13.00
02DR020	22.00	-	22.00	-	-
02DR019	5.00	-	5.00	-	-
02DR009	17.80	-	0.00	-	17.80
02DR024	36.80	-	36.80	-	-
02DR017	65.00	-	40.00	-	25.00
02DR007	28.00	-	28.00	-	-
02DR005	13.00	-	11.00	-	2.00
02DR023	17.00	-	17.00	-	-
02DR025	10.00	-	10.00	-	-
02DR006	37.00	-	30.00	-	7.00
02DR021	25.00	-	21.00	-	4.00
Total	**980.80**	**0.00**	**661.00**	**0.00**	**319.80**

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 regravelling, resealing or overlays. It is generally carried out with several years interval. Although periodic maintenance is only required for specific sections of the district road core network, a lump sum allocation is made for the entire district road core network based on average annual requirements, distinguishing between different surface types. The

specific periodic maintenance requirements are determined on an annual basis through the annual road condition survey and defined in the ARMP.

The length of roads to be included under each conservation type for the first year is indicated below. This is basically the entire district road core network in as far as it does not require rehabilitation.

Table 3.1.1 Conservation Requirements

Code	Emergency Maintenance (km)	Routine Maintenance (km)	Recurrent Maintenance (km)	Periodic Maintenance (km)
02DR0016	2.50	2.00	2.60	-
02DR001	2.50	3.00	3.25	-
02DR0018	2.54	3.00	2.50	-
02DR002	2.65	2.54	2.00	-
02DR0011	2.50	2.54	2.80	-
02DR004	2.45	2.54	2.00	-
02DR0026	2.87	2.54	2.65	-
02DR0022	2.65	2.54	3.00	-
02DR0014	2.35	3.00	2.00	-
02DR015	2.45	3.00	2.00	-
02DR010	2.50	3.00	1.50	-
02DR008	3.00	3.50	2.50	-
02DR012	3.00	3.25	2.00	-
02DR003	2.65	2.94	2.20	-
02DR020	2.20	2.50	1.80	-
02DR019	2.00	2.00	1.50	-
02DR024	3.00	2.89	2.50	
02DR007	2.50	2.87	2.00	-
02DR005	2.57	2.54	1.50	-
02DR023	2.50	2.87	1.20	-
02DR025	2.50	2.50	2.00	-
02DR006	3.00	2.75	1.30	-
02DR021	2.98	2.50	1.50	-
Total	**59.86**	**62.81**	**45.50**	**-**

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 Panchthar 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 50 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 needs were identified in the district road core network.

Table 3.2.1 Sections of the district road core network requiring rehabilitation

Code	Description	Total length (km)	Rehabilitation (km)
-	-	-	-

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 Panchthar this concerns the total of 115.26 km of DRCN roads.

Table 3.2.2 Sections of the district road core network requiring gravelling

Code	Description	Total Length (km)	Gravelling (km)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	85.00	5.40
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna- Mauwa-Hangum-Durdimba-6no.Budhbare Road	128.00	10.00
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	35.00	5.00
02DR002	Samdin-Chokmangu-Siva-Nawmi danda-Phaktep Ghurbise panchami Road	30.00	4.00
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	30.00	2.00
02DR004	Saptami-Dasmi-Aarubote-Limba Road	25.00	7.00
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	65.00	8.00
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	34.00	6.80
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	50.00	5.50
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	25.00	3.00
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	25.00	4.00
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	35.00	-

Code	Description	Total Length (km)	Gravelling (km)
02DR008	Changthapu-Sangadanda,Timbupokhari Road	41.00	3.00
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	34.00	7.00
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	16.00	3.20
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road.	36.00	3.00
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road	30.00	4.00
02DR009	Goruwale-Lampokhari-Chiva Bhanjyang Road	40.00	-
02DR024	Saptami-Dasmi-Walne-Aangna-Lakhuwa Road	36.80	7.36
02DR017	Akase-Batase-Bhuspate-Gorubale Road	40.00	5.00
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	32.00	3.00
02DR005	Rabi-Kurumba-Limba- Road	30.00	6.00
02DR023	Saptami-Sarangdada Road	17.00	2.00
02DR025	Dasmi-Walne Road	10.00	2.00
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	30.00	6.00
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	21.00	3.00
	Total	**980.80**	**115.26**

3.2.3 CROSS DRAINAGE

The need for cross drainage was identified for the different DRCN roads. A total of 22 bridges with a total length of 520m, stone causeways with a total length of 539.00m, and 165 nos. pipe culverts were identified as being required.

Table 3.2.3 Required cross drainage structures

Code	Description	Bridge (m)	Slab Culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe Culvert (units)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	65.00	-	15.00	95.00	10.00
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna- Mauwa-Hangum-Durdimba-6no.Budhbare Road	85.00	7.00	-	56.00	7.00
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	60.00	-	-	14.00	-
02DR002	Samdin-Chokmangu-Siva-Nawmi danda-Phaktep Ghurbise panchami Road	75.00	-	21.00	-	3.00
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	25.00	-	-	35.00	10.00
02DR004	Saptami-Dasmi-Aarubote-Limba Road	25.00	-	-	-	5.00
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	-	-	7.00	77.00	5.00
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road		14.00	-	24.00	10.00
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	25.00	-	14.00	42.00	6.00

Code	Description	Bridge (m)	Slab Culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe Culvert (units)
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	60.00	-	-	28.00	2.00
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	-	-	-		9.00
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	-	-		-	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	-	-	-	56.00	25.00
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	-	-	-	-	10.00
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	-		-	-	5.00
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road.	25.00	-	-	28.00	2.00
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road	25.00	-	-	-	5.00
02DR024	Saptami-Dasmi-Walne-Aangna-Lakhuwa Road	-	-	-	14.00	10.00
02DR017	Akase-Batase-Bhuspate-Gorubale Road	-	-	-	28.00	10.00
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	-	-	-	-	10.00
02DR005	Rabi-Kurumba-Limba- Road	-	-	-		5.00
02DR023	Saptami-Sarangdada Road	25.00	-	-	14.00	8.00
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	-	-	-	14.00	-
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	25.00	-	-	14.00	8.00
	Total	**520**	**21**	**57**	**539**	**165**

3.2.4 PROTECTIVE STRUCTURES

Based on the road survey carried out in Panchthar, the following retaining walls were identified as being required to ensure the protection of the district road core network.

Table 3.2.4 Required protective structures

Code	Description	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	275.00	1,800.00	
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna- Mauwa-Hangum-Durdimba-6no.Budhbare Road	137.50	-	2,050.00
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	274.00	1,200.00	-
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road		438.00	-
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	120.00	1,020.00	-
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	14.25	840.00	-
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	82.50	720.00	-
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	28.00	360.00	-

Code	Description	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	68.75	420.00	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	975.00	1,680.00	-
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	110.00	600.00	-
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	68.75	180.00	-
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road	68.75	600.00	-
02DR017	Akase-Batase-Bhuspate-Gorubale Road	124.75	660.00	-
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	68.75	1,200.00	-
02DR005	Rabi-Kurumba-Limba- Road	69.00	660.00	-
02DR023	Saptami-Sarangdada Road	69.00	660.00	-
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	120.00	1,200.00	-
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	96.25	660.00	-
	Total	**2,839**	**15,498**	**3,355.00**

3.2.5 WIDENING

Widening of the district road core network in Panchthar is required only in specific locations to bring it up to the minimum standard and to ensure sufficient space in the curves. Additional widening to a higher standard is not required because traffic volumes remain very low.

Table 3.2.5 Sections of the district road core network requiring widening

Code	Description	Total length (km)	VPD	Widening (m)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	85.00	20.00	-
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna- Mauwa-Hangum-Durdimba-6no.Budhbare Road	128.00	12.00	-
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	35.00	14.00	-
02DR002	Samdin-Chokmangu-Siva-Nawmi danda-Phaktep Ghurbise panchami Road	30.00	10.00	-
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	30.00	16.00	-
02DR004	Saptami-Dasmi-Aarubote-Limba Road	25.00	22.00	-
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	65.00	60.00	-
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	34.00	34.00	-
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	50.00	14.00	-
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	25.00	8.00	-
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	25.00	8.00	-
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	35.00	20.00	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	41.00	4.00	-
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	34.00	20.00	-
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	16.00	14.00	-
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road .	36.00	10.00	-
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle	30.00	4.00	-

Code	Description	Total length (km)	VPD	Widening (m)
	Temple Road			
02DR009	Goruwale-Lampokhari-Chiva Bhanjyang Road	40.00	8.00	-
02DR024	Saptami-Dasmi-Walne-Aangna-Lakhuwa Road	36.80	14.00	-
02DR017	Akase-Batase-Bhuspate-Gorubale Road	40.00	4.00	-
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	32.00	4.00	-
02DR005	Rabi-Kurumba-Limba- Road	30.00	28.00	-
02DR023	Saptami-Sarangdada Road	17.00	10.00	-
02DR025	Dasmi-Walne Road	10.00	14.00	-
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	30.00	4.00	-
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	21.00	4.00	-
Total		**980.80**	**380.00**	-

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 1 roads that are eligible for blacktopping (traffic volume exceeds 50 PCU). The total length for blacktopping is 15 km. The blacktopping of these roads will be treated as a second phase of improvement after they have been gravelled.

Table 3.2.6 Sections of the district road core network requiring blacktopping

Code	Description	Total Length (km)	Blacktop (km)	Traffic (PCU)	Black Topping (km)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	85.00	-	20	-
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna-Mauwa-Hangum-Durdimba-6no.Budhbare Road	128.00	-	17	-
02DR0018	Phidim-Ranitar-Lungrupa-Gorubale Road	35.00	-	20	-
02DR002	Samdin-Chokmangu-Siva-Nawmi danda-Phaktep Ghurbise panchami Road	30.00	-	15	-
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	30.00	-	24	-
02DR004	Saptami-Dasmi-Aarubote-Limba Road	25.00	-	27	-
02DR0026	Rangke-Uttare-Saptami-Ravi-Chisapani-Kanyatar-6no.Budhbare Road	65.00	-	56	-
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	34.00	-	38	-
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	50.00	-	18	-
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	25.00	-	10	-
02DR010	Salary-Nilgiri-Panchami-Amarpur Road	25.00	-	10	-
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	35.00	-	29	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	41.00	-	6	-
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	34.00	-	32	-
02DR003	Hilihang chowk-Panchami-Nakale ghat Road	16.00	-	19	-
02DR020	Gumba dada-Pauwasartap-Embung-	36.00	-	13	-

Code	Description	Total Length (km)	Blacktop (km)	Traffic (PCU)	Black Topping (km)
	Patlebhanjyang-Phedayak-Tinmaule-Samdin Road .				
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road	30.00	-	6	-
02DR009	Goruwale-Lampokhari-Chiva Bhanjyang Road	40.00	-	7	-
02DR024	Saptami-Dasmi-Walne-Aangna-Lakhuwa Road	36.80	-	18	-
02DR017	Akase-Batase-Bhuspate-Gorubale Road	40.00	-	7	-
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	32.00	-	6	-
02DR005	Rabi-Kurumba-Limba- Road	30.00	-	34	-
02DR023	Saptami-Sarangdada Road	17.00	-	14	-
02DR025	Dasmi-Walne Road	10.00	-	18	-
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Phejung-Buduk-Pipalbate Road	30.00	-	6	-
02DR021	Gellibhanjyangi-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	21.00	-	6	-
Total		**980.80**		**475.00**	**-**

3.3 NEW CONSTRUCTION

New construction of DRCN roads is required to connect the remaining VDC headquarters. A list of proposed roads for new construction is provided below. These roads provide access to 26 VDC HQs that do not currently have road access. This list is not complete, however, and additional new construction is required to connect all 41 VDC headquarters currently without road access.

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

Code	Description	New VDCs	Existing Length (m)	New Length (m)	Bridge (m)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	Phrangbung-Phalot	85.00	10.00	65.00
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna-Mauwa-Hangum-Durdimba-6no.Budhbare Road	Aangna-Mauwa	128.00	12.00	85.00
02DR0018	Phidim-Ranitar-Lungrupa-Nanglappa Road	Lungrupa-Prangbung	35.00	7.00	60.00
02DR002	Samdin-Chokmangu-Siba-Nawami danda-Phaktep Ghurbise panchami Road	Nawami danda-Phaktep	30.00	-	75.00
02DR0011	Phidim2-Jorpipal-Lumphabung-Aangsarang-Yasok Road	Aangsarang	30.00	2.00	25.00
02DR004	Saptami-Dasmi-Aarubote-Limba Road	Limba	25.00	7.00	25.00
02DR0026	Rangke-Uttare-Saptami-Rabi-Chisapani-Kanyatar-6no.Budhbare Road	-	65.00	-	-
02DR0022	Uttare-Osangu-Mehelbote-Syabrumba-Lumughat. Road	-	34.00	-	-
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	Memeng Phalot danda	50.00	7.00	25.00
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	Machhebung-Lungmadin	25.00	5.00	60.00
02DR010	Sallery-Nilgiri-Panchami-Amarpur Road	-	25.00	-	-

Code	Description	New VDCs	Existing Length (m)	New Length (m)	Bridge (m)
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	Oyam-Phalaicha	35.00	6.00	-
02DR008	Changthapu-Sangadanda,Timbupokhari Road	Sangadanda	41.00	4.00	-
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	Sidin-Memeng	34.00	7.00	-
02DR003	Hilihang chok-Panchami-Nakale ghat Road.	-	16.00	-	-
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road.	Pauwasartap-Embung	36.00	6.00	25.00
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road.	Phidim-Changthapu	30.00	7.00	25.00
02DR009	Goruwale-Lampokhari-Chiwa Bhanjyang Road	Changthapu-Prangbung	40.00	10.00	-
02DR024	Saptami-Dasmi-balne-Ayangna-Lakhuwa Road		36.80	-	-
02DR017	Akase-Batase-Bhuspate-Goruwale	Sidin-lungrupa-Prangbung	40.00	7.00	-
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	Phalaicha	32.00	8.00	-
02DR005	Rabi-Kurumba-Limba-sadak	Kurumba-Limba	30.00	5.00	-
02DR023	Saptami-Sarangdada Road	Sangadanda	17.00	6.00	25.00
02DR025	Dhasmi-Olne Road		10.00	-	-
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Khejung-Buduk-Pipalbote Road	Lungrupa-Sarang danda	30.00	5.00	-
02DR021	Gellibhanjyang-Paubote-Kolbung-Dobate-Pipalbote-Melbote Road	Shilingdin-Aangsarang-Phakteb	21.00	6.00	25.00
Total			**980.80**	**127.00**	**520.00**

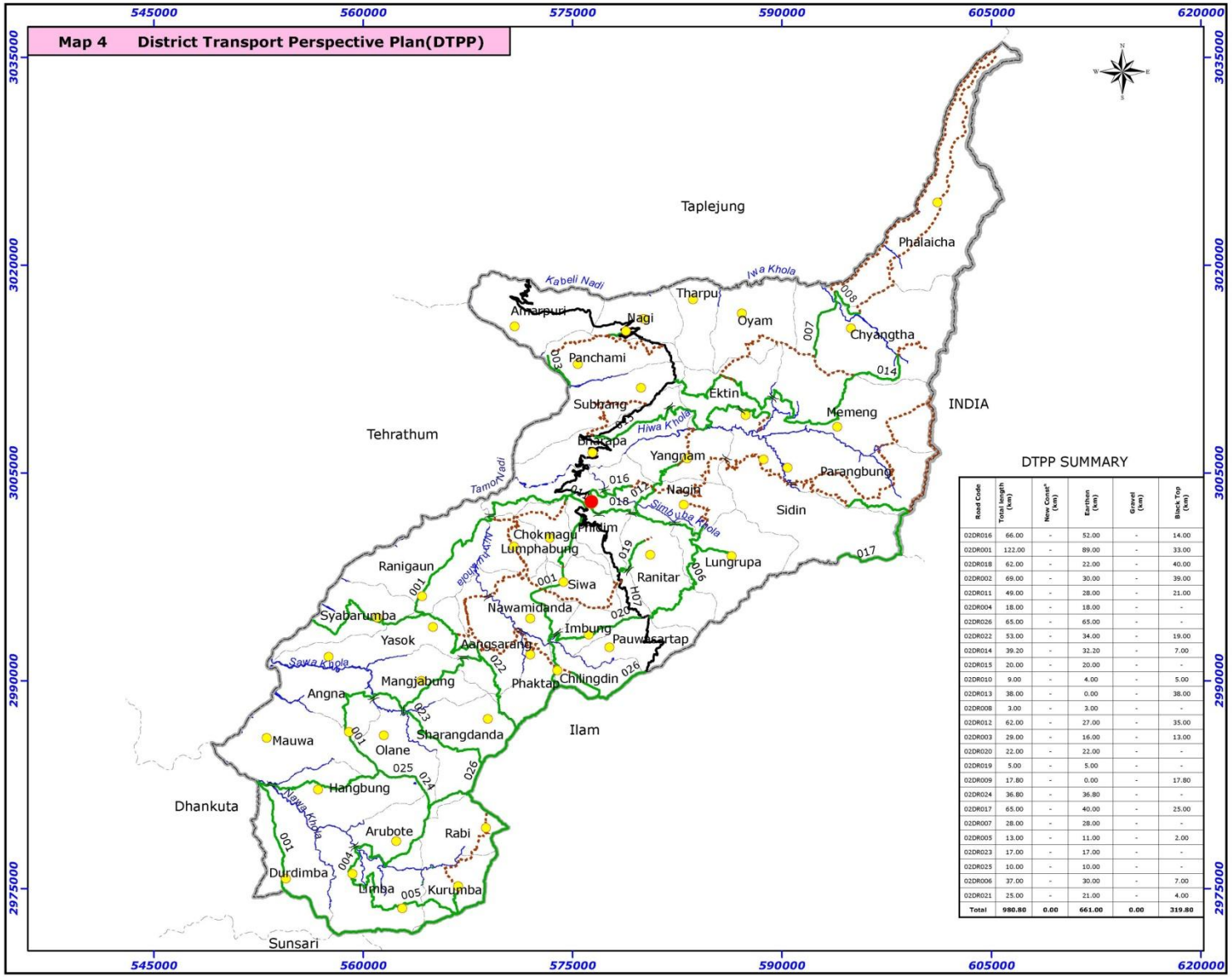
3.4 DISTRICT TRANSPORT PERSPECTIVE PLAN (DTPP)

The DTPP foresees bringing the entire existing district road core network to maintainable all-weather status, and expanding it to provide access to an additional 26 VDC headquarters. For this purpose, all 77.9 km will be gravelled and a number of different cross drainage and protective structures will be constructed. A further 127.0 km of new road will be constructed to maintainable Fair-weather standard providing access to 26 additional VDC HQs. The district road core network will subsequently consist of 583.1 km of maintainable fair-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)
02DR0016	2.50	2.00	2.60	-	-	5.40	-	-	130.00	-	15.00	95.00	10.00	275.00	1,800.00	-	10.00
02DR001	2.50	3.00	3.25	-	-	10.00	-	-	170.00	7.00	-	56.00	7.00	137.50	-	2,050.00	12.00
02DR0018	2.54	3.00	2.50	-	-	5.00	-	-	120.00	-	-	14.00	-	274.00	1,200.00	-	7.00
02DR002	2.65	2.54	2.00	-	-	4.00	-	-	150.00	-	21.00	-	3.00	-	-	-	-
02DR0011	2.50	2.54	2.80	-	-	2.00	-	-	50.00	-	-	35.00	10.00	-	438.00	-	2.00
02DR004	2.45	2.54	2.00	-	-	7.00	-	-	50.00	-	-	-	5.00	-	-	-	7.00
02DR0026	2.87	2.54	2.65	-	-	8.00	-	-	-	-	7.00	77.00	5.00	120.00	1,020.00	-	-
02DR0022	2.65	2.54	3.00	-	-	6.80	-	-	-	14.00	-	24.00	10.00	14.25	840.00	-	-
02DR0014	2.35	3.00	2.00	-	-	5.50	-	-	50.00	-	14.00	42.00	6.00	82.50	720.00	-	7.00
02DR015	2.45	3.00	2.00	-	-	3.00	-	-	120.00	-	-	28.00	2.00	28.00	360.00	-	5.00
02DR010	2.50	3.00	1.50	-	-	4.00	-	-	-	-	-	-	9.00	68.75	420.00	-	-
02DR013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00
02DR008	3.00	3.50	2.50	-	-	3.00	-	-	-	-	-	56.00	25.00	975.00	1,680.00	-	4.00
02DR012	3.00	3.25	2.00	-	-	7.00	-	-	-	-	-	-	10.00	110.00	600.00	-	7.00
02DR003	2.65	2.94	2.20	-	-	3.20	-	-	-	-	-	-	5.00	68.75	180.00	-	-
02DR020	2.20	2.50	1.80	-	-	3.00	-	-	50.00	-	-	28.00	2.00	-	-	-	6.00

Code	Emergency maintenance (km)	Routine maintenance (km)	Recurrent maintenance (km)	Periodic maintenance (km)	Rehabilitation (km)	Gravelling (km)	Blacktopping (km)	Widening (m)	Bridge (m)	Slab culvert (m)	CC Causeway (m)	Stone Causeway (m)	Pipe culvert (units)	Masonry walls (m3)	Gabion walls (m3)	Lined drain (m)	New construction (km)
02DR019	2.00	2.00	1.50	-	-	4.00	-	-	50.00	-	-	-	5.00	68.75	600.00	-	7.00
02DR009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.00
02DR024	3.00	2.89	2.50	-	-	7.36	-	-	-	-	-	14.00	10.00	68.75	600.00	1,305.00	-
02DR017	-	-	-	-	-	5.00	-	-	-	-	-	28.00	10.00	124.75	660.00	-	7.00
02DR007	2.50	2.87	2.00	-	-	3.00	-	-	-	-	-	-	10.00	68.75	1,200.00	-	8.00
02DR005	2.57	2.54	1.50	-	-	6.00	-	-	-	-	-	-	5.00	69.00	660.00	-	5.00
02DR023	2.50	2.87	1.20	-	-	2.00	-	-	50.00	-	-	14.00	8.00	69.00	660.00	-	6.00
02DR025	2.50	2.50	2.00	-	-	2.00	-	-	-	-	-	-	-	-	-	-	-
02DR006	3.00	2.75	1.30	-	-	6.00	-	-	-	-	-	14.00	-	120.00	1,200.00	-	5.00
02DR021	2.98	2.50	1.50	-	-	3.00	-	-	50.00	-	-	14.00	8.00	96.25	660.00	-	6.00
Total	**59.86**	**62.81**	**45.50**	**-**	**-**	**115.26**	**-**	**-**	**1,040**	**21**	**57**	**539**	**165**	**2,839**	**15,498**	**3,355**	**127.00**



Road Code	Total length (km)	New Const* (km)	Earthen (km)	Gravel (km)	Black Top (km)
02DR016	66.00	-	52.00	-	14.00
02DR001	122.00	-	89.00	-	33.00
02DR018	62.00	-	22.00	-	40.00
02DR002	69.00	-	30.00	-	39.00
02DR011	49.00	-	28.00	-	21.00
02DR004	18.00	-	18.00	-	-
02DR026	65.00	-	65.00	-	-
02DR022	53.00	-	34.00	-	19.00
02DR014	39.20	-	32.20	-	7.00
02DR015	20.00	-	20.00	-	-
02DR010	9.00	-	4.00	-	5.00
02DR013	38.00	-	0.00	-	38.00
02DR008	3.00	-	3.00	-	-
02DR012	62.00	-	27.00	-	35.00
02DR003	29.00	-	16.00	-	13.00
02DR020	22.00	-	22.00	-	-
02DR019	5.00	-	5.00	-	-
02DR009	17.80	-	0.00	-	17.80
02DR024	36.80	-	36.80	-	-
02DR017	65.00	-	40.00	-	25.00
02DR007	28.00	-	28.00	-	-
02DR005	13.00	-	11.00	-	2.00
02DR023	17.00	-	17.00	-	-
02DR025	10.00	-	10.00	-	-
02DR006	37.00	-	30.00	-	7.00
02DR021	25.00	-	21.00	-	4.00
Total	**980.80**	**0.00**	**661.00**	**0.00**	**319.80**

4. COST ESTIMATION

For the cost estimation, use has been made of standard costs for the different activities required. For the conservation activities this results in an estimation of annual costs, while for improvement and new construction activities these results 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	Unit cost (NPR/km)
Emergency maintenance	Km	30,000
Routine maintenance	Km	20,000
Recurrent maintenance (blacktop)	Km	500,000
Recurrent maintenance (gravel)	Km	400,000
Recurrent maintenance (earthen)	Km	250,000
Periodic maintenance (blacktop)	Km	200,000
Periodic maintenance (gravel)	Km	250,000

Table 4.1.2 Estimated conservation costs for the first year NPR. 75.6 million

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
02DR0016	85.00	-	-	52.00	75	40	-	-	650	-	-	765	3,825
02DR001	128.00	-	-	89.00	75	60	-	-	813	-	-	948	4,738
02DR0018	35.00	-	-	22.00	76	60	-	-	625	-	-	761	3,806
02DR002	30.00	-	-	30.00	80	51	-	-	500	-	-	630	3,152
02DR0011	30.00	-	-	28.00	75	51	-	-	700	-	-	**826**	**4,129**
02DR004	25.00	-	-	18.00	74	51	-	-	500	-	-	**624**	**3,122**
02DR0026	65.00	-	-	65.00	86	51	-	-	663	-	-	**799**	**3,997**
02DR0022	34.00	-	-	34.00	80	51	-	-	750	-	-	**880**	**4,402**
02DR0014	50.00	-	-	32.20	71	60	-	-	500	-	-	**631**	**3,153**
02DR015	25.00	-	-	20.00	74	60	-	-	500	-	-	**634**	**3,168**

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
02DR010	25.00	-	-	4.00	75	60	-	-	375	-	-	**510**	**2,550**
02DR008	41.00	-	-	3.00	90	70	-	-	625	-	-	**785**	**3,925**
02DR012	34.00	-	-	27.00	90	65	-	-	500	-	-	**655**	**3,275**
02DR003	16.00	-	-	16.00	80	59	-	-	550	-	-	**688**	**3,442**
02DR020	36.00	-	-	22.00	66	50	-	-	450	-	-	**566**	**2,830**
02DR019	30.00	-	-	5.00	60	40	-	-	375	-	-	**475**	**2,375**
02DR024	36.80	-	-	36.80	90	58	-	-	625	-	-	**773**	**3,864**
02DR007	32.00	-	-	4.00	75	57	-	-	500	-	-	**632**	**3,162**
02DR005	30.00	-	-	11.00	77	51	-	-	375	-	-	**503**	**2,515**
02DR023	17.00	-	-	11.00	75	57	-	-	300	-	-	**432**	**2,162**
02DR025	10.00	-	-	10.00	75	50	-	-	500	-	-	**625**	**3,125**
02DR006	30.00	-	-	30.00	90	55	-	-	325	-	-	**470**	**2,350**
02DR021	21.00	-	-	21.00	89	50	-	-	375	-	-	**514**	**2,572**
Total	**980.80**	**-**	**-**	**608.00**	**1,796**	**1,256**	**-**	**-**	**12,075**	**-**	**-**	**15,127**	**75,635**

4.2 IMPROVEMENT

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

Table 4.2.1 Standard unit costs for improvement activities

Activity	Unit	Unit cost (NPR)
Rehabilitation	km	800,000
Widening	m	25,000
Gravelling	km	2,200,000
Blacktopping	km	5,700,000
Bridge construction	m	600,000
Slab culvert construction	m	150,000
CC Causeway construction	m	100,000
Stone Causeway construction	m	10,000
Pipe culvert placement	unit	10,000
Masonry wall construction	m^3	10,000
Gabion wall construction	m^3	2,500
Lined drain construction	m	1,000

Table 4.2.2 Estimated costs for improvement (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
02DR0016	85.00	-	-	11,880	-	39,000	-	1,500	950	100	2,750	4,500	-	**60,680**
02DR001	128.00	-	-	22,000	-	51,000	1,050	-	560	70	1,375	-	2,050	**78,105**
02DR0018	35.00	-	-	11,000	-	36,000	-	-	140	-	2,740	3,000	-	**52,880**
02DR002	30.00	-	-	8,800	-	45,000	-	2,100	-	30	-	-	-	**55,930**
02DR0011	30.00	-	-	4,400	-	15,000	-	-	350	100	-	1,095	-	**20,945**
02DR004	25.00	-	-	15,400	-	15,000	-	-	-	50	-	-	-	**30,450**
02DR0026	65.00	-	-	17,600	-	-	-	700	770	50	1,200	2,550	-	**22,870**
02DR0022	34.00	-	-	14,960	-	-	2,100	-	240	100	143	2,100	-	**19,643**
02DR0014	50.00	-	-	12,100	-	15,000	-	1,400	420	60	825	1,800	-	**31,605**
02DR015	25.00	-	-	6,600	-	36,000	-	-	280	20	280	900	-	**44,080**
02DR010	25.00	-	-	8,800	-	-	-	-	-	90	688	1,050	-	**10,628**
02DR008	41.00	-	-	6,600	-	-	-	-	560	250	9,750	4,200	-	**21,360**
02DR012	34.00	-	-	15,400	-	-	-	-	-	100	1,100	1,500	-	**18,100**
02DR003	16.00	-	-	7,040	-	-	-	-	-	50	688	450	-	**8,228**
02DR020	36.00	-	-	6,600	-	15,000	-	-	280	20	-	-	-	**21,900**
02DR019	30.00	-	-	8,800	-	15,000	-	-	-	50	688	1,500	-	**26,038**
02DR024	36.80	-	-	16,192	-	-	-	-	140	100	688	1,500	1,305	**19,925**
02DR017	40.00	-	-	11,000	-	-	-	-	280	100	1,248	1,650	-	**14,278**
02DR007	32.00	-	-	6,600	-	-	-	-	-	100	688	3,000	-	**10,388**
02DR005	30.00	-	-	13,200	-	-	-	-	-	50	690	1,650	-	**15,590**
02DR023	17.00	-	-	4,400	-	15,000	-	-	140	80	690	1,650	-	**21,960**
02DR025	10.00	-	-	4,400	-	-	-	-	-	-	-	-	-	**4,400**
02DR006	30.00	-	-	13,200	-	-	-	-	140	-	1,200	3,000	-	**17,540**
02DR021	21.00	-	-	6,600	-	15,000	-	-	140	80	963	1,650	-	**24,433**
Total	**905.8**	**-**	**-**	**253,572**	**-**	**312,000**	**3,150**	**5,700**	**5,390**	**1,650**	**28,390**	**38,745**	**3,355**	**651,952**

4.3 NEW CONSTRUCTION

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

Table 4.3.1 Standard unit costs for new construction

Activity	Unit	Unit Cost (NPR)
Opening up	km	4,000,000
Gravelling	km	2,200,000
Bridge construction	m	600,000

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

Code	Description	New length (km)	Opening up (NPR)	Gravelling (NPR)	Bridges (NPR)	Total cost (NPR)
02DR0016	Phidim-Nagin-Sidim-Phrangbung-Phalot Danda Road	10.00	40,000	-	39,000	**79,000**
02DR001	Phidim-Rani gau-yasok-Mangjabung-Aangna-Mauwa-Hangum-Durdimba-6no.Budhbare Road	12.00	48,000	-	51,000	**99,000**
02DR0018	Phidim-Ranitar-Lungrupa-Nanglappa Road	7.00	28,000	-	36,000	**64,000**
02DR002	Samdin-Chokmangu-Siva-Nabmi danda-Phaktep Ghurbise panchami Road	-	-	-	45,000	**45,000**
02DR0011	Phidim2-Jorpipal-Lumphrabung-Aangsarang-Yasok Road	2.00	8,000	-	15,000	**23,000**
02DR004	Saptami-Dasmi-Aarubote-Limba Road	7.00	28,000	15,400	15,000	**58,400**
02DR0014	Jorpokhari-Ektin Panchmukhi-Memeng Phalot danda Road	7.00	28,000	-	15,000	**43,000**
02DR015	Kopile Kiwa-Kuti danda-Jorpati-Machhebung-Lungmadin Road	5.00	20,000	-	36,000	**56,000**
02DR013	Kaule-Charibhanjyang-Oyam-Phalaicha Road	6.00	24,000	-	-	**24,000**
02DR008	Changthapu-Sangadanda,Timbupokhari Road	4.00	16,000	-	-	**16,000**
02DR012	Phegumba-Sejepa-Tritiya-Yangnam Road	7.00	28,000	-	-	**28,000**
02DR020	Gumba dada-Pauwasartap-Embung-Patlebhanjyang-Phedayak-Tinmaule-Samdin Road.	6.00	24,000	-	15,000	**39,000**
02DR019	Pauwabhanjyang-Silauti-Lobrekuti-Sarsiula-Thakle Temple Road.	7.00	28,000	15,400	15,000	**58,400**
02DR009	Goruwale-Lampokhari-Chiva Bhanjyang Road	10.00	40,000	-	-	**40,000**
02DR024	Saptami-Dasmi-balne-Ayangna-Lakhuwa Road	-	-	-	-	**-**
02DR017	Akase-Batase-Bhuspate-Goruwale	7.00	28,000	-	-	**28,000**
02DR007	Phalaicha4-Dhimale-Timbu pokhari Road	8.00	32,000	-	-	**32,000**
02DR005	Rabi-Kurumba-Limba-sadak	5.00	20,000	11,000	-	**31,000**
02DR023	Saptami-Sarangdada Road	6.00	24,000	13,200	15,000	**52,200**
02DR006	Pauwabhanjyang-Gurdum-Khetghari-Khejung-Buduk-Pipalbate Road	5.00	20,000	-	-	**20,000**
02DR021	Gellibhanjyang-Paubote-Kolbung-Dobale-Pipalbote-Melbote Road	6.00	24,000	-	15,000	**39,000**
	Total	**127.00**	**508,000**	**55,000**	**312,000**	**875,000**

4.4 DTPP COSTS

The total costs for the District Transport Perspective Plan come to NPR 1602.5 million as indicated in the table below.

Table 4.4.1 DTPP costs (NPR)

Code	Conservation	Improvement	New Construction	Total
02DR0016	3,825	60,680	79,000	143,505
02DR001	4,738	78,105	99,000	181,843
02DR0018	3,806	52,880	64,000	120,686
02DR002	3,152	55,930	45,000	104,082
02DR0011	4,129	20,945	23,000	48,074
02DR004	3,122	30,450	58,400	91,972
02DR0026	3,997	22,870	-	26,867
02DR0022	4,402	19,643	-	24,044
02DR0014	3,153	31,605	43,000	77,758
02DR015	3,168	44,080	56,000	103,248
02DR010	2,550	10,628	-	13,178
02DR013	-	-	24,000	24,000
02DR008	3,925	21,360	16,000	41,285
02DR012	3,275	18,100	28,000	49,375
02DR003	3,442	8,228	-	11,669
02DR020	2,830	21,900	39,000	63,730
02DR019	2,375	26,038	58,400	86,813
02DR009	-	-	40,000	40,000
02DR024	3,864	19,925	-	23,789
02DR017	-	14,278	28,000	42,278
02DR007	3,162	10,388	32,000	45,550
02DR005	2,515	15,590	31,000	49,105
02DR023	2,162	21,960	52,200	76,322
02DR025	3,125	4,400	-	7,525
02DR006	2,350	17,540	20,000	39,890
02DR021	2,572	24,433	39,000	66,005
Total	**75,635**	**651,952**	**875,000**	**1,602,587**

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)

Code	Total length (km)	Emergency	Routine	Recurrent (paved)	Recurrent (gravel)	Recurrent (earth)	Periodic (blacktop)	Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR012	35.00	-	-	-	-	-	-	-	-	21,280	-
02DR020	40.00	-	-	-	-	-	-	-	-	6,535	-
02DR018	40.00	-	-	-	-	-	-	-	-	6,662	-
02DR002	128.00	180	60	-	-	875	-	-	1,115	93,344	12
02DR001	85.00	135	40	-	-	650	-	-	825	57,191	14
02DR004	30.00	150	80	-	-	500	-	-	730	38,850	19
02DR007	65.00	140	60	-	-	663	-	-	863	38,770	22
02DR003	35.00	120	70	-	-	625	-	-	815	35,851	23
02DR010	25.00	150	72	-	-	500	-	-	722	28,478	25
02DR017	30.00	60	40	-	-	375	-	-	475	12,294	39
02DR023	17.00	135	60	-	-	300	-	-	495	11,710	42
02DR016	36.00	66	68	-	-	450	-	-	584	13,174	44
02DR026	21.00	162	60	-	-	375	-	-	597	12,756	47
02DR009	50.00	195	90	-	-	750	-	-	1,035	21,617	48
02DR006	25.00	140	80	-	-	500	-	-	720	14,703	49
02DR025	30.00	135	80	-	-	325	-	-	540	8,864	61
02DR013	41.00	120	100	-	-	625	-	-	845	13,312	63
02DR022	30.00	135	80	-	-	375	-	-	590	8,387	70
02DR011	25.00	75	80	-	-	375	-	-	530	6,878	77

Code	Total length (km)	Emergency	Routine	Recurrent (paved)	Recurrent (gravel)	Recurrent (earth)	Periodic (blacktop)	Periodic (gravel)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR005	30.00	75	60	-	-	950	-	-	1,085	13,613	80
02DR008	34.00	165	100	-	-	800	-	-	1,065	13,162	81
02DR021	32.00	75	60	-	-	500	-	-	635	6,086	104
02DR014	34.00	105	90	-	-	1,000	-	-	1,195	11,427	105
02DR019	36.80	135	100	-	-	750	-	-	985	7,506	131
02DR015	16.00	96	100	-	-	550	-	-	746	5,100	146
02DR024	10.00	75	80	-	-	500	-	-	655	2,305	284
TOTAL	**987.80**	**2,883.60**	**1,690.00**	**-**	**-**	**13,112.50**	**-**	**-**	**17,686.10**	**519,259.74**	**1,345.44**

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.

5.2 IMPROVEMENT

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

Table 5.2.1 **Ranking of improvement works (NPR)**

Code	Total length (km)	Gravelling (km)	Blacktopping (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR0026	38,770	590	38,770	590	38,770	590
02DR001	93,344	837	93,344	837	93,344	837
02DR0016	57,191	1,061	57,191	1,061	57,191	1,061
02DR002	38,850	1,440	38,850	1,440	38,850	1,440
02DR0014	21,617	1,462	21,617	1,462	21,617	1,462
02DR0018	35,851	1,475	35,851	1,475	35,851	1,475
02DR0022	13,162	1,492	13,162	1,492	13,162	1,492

Code	Total length (km)	Gravelling (km)	Blacktopping (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR0011	13,848	1,512	13,848	1,512	13,848	1,512
02DR010	6,878	1,545	6,878	1,545	6,878	1,545
02DR015	28,478	1,548	28,478	1,548	28,478	1,548
02DR012	11,427	1,584	11,427	1,584	11,427	1,584
02DR008	13,312	1,605	13,312	1,605	13,312	1,605
02DR003	5,100	1,613	5,100	1,613	5,100	1,613
02DR020	13,174	1,662	13,174	1,662	13,174	1,662
02DR007	6,086	1,707	6,086	1,707	6,086	1,707
02DR005	8,852	1,761	8,852	1,761	8,852	1,761
02DR023	11,710	1,875	11,710	1,875	11,710	1,875
02DR025	2,305	1,909	2,305	1,909	2,305	1,909
02DR021	12,756	1,915	12,756	1,915	12,756	1,915
02DR006	8,864	1,979	8,864	1,979	8,864	1,979
02DR004	14,703	2,071	14,703	2,071	14,703	2,071
02DR019	12,294	2,118	12,294	2,118	12,294	2,118
02DR017	6,535	2,185	6,535	2,185	6,535	2,185
02DR024	7,506	2,654	7,506	2,654	7,506	2,654
TOTAL	**905.80**	**115.26**		**651,952**	**482,613**	**39,600**

5.3 NEW CONSTRUCTION

For the roads proposed for new construction, ranking is also according to the cost per person served by the new road. The resulting ranking is indicated in the table below.

Table 5.3.1 Ranking of new construction works (NPR '000)

Code	Length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR005	2.00	38,000	13,613	2,792
02DR012	6.00	39,000	21,280	1,833
02DR010	5.00	65,000	28,478	2,282
02DR014	7.00	28,000	11,427	2,450

Code	Length (km)	Total cost (NPR '000)	Population served	Cost/person (NPR)
02DR003	7.00	64,000	35,851	1,785
02DR013	4.00	16,000	13,312	1,202
02DR002	12.00	99,000	93,344	1,061
02DR006	7.00	58,400	14,703	3,972
02DR009	7.00	43,000	21,617	1,989
02DR001	10.00	79,000	57,191	1,381
02DR023	6.00	67,200	11,710	5,738
02DR026	6.00	39,000	12,756	3,057
02DR025	5.00	20,000	8,864	2,256
02DR020	7.00	28,000	6,535	4,285
02DR022	5.00	31,000	8,387	3,696
02DR018	10.00	40,000	6,662	6,004
02DR016	6.00	39,000	13,174	2,960
02DR021	8.00	32,000	6,086	5,258
02DR017	7.00	58,400	12,294	4,750
TOTAL	**127.00**	**875,000**	**509,855**	**56,507**

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 10% is assumed for all funding sources. The total district budget for the road sector is NPR 678.0 million for the five-year period.

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

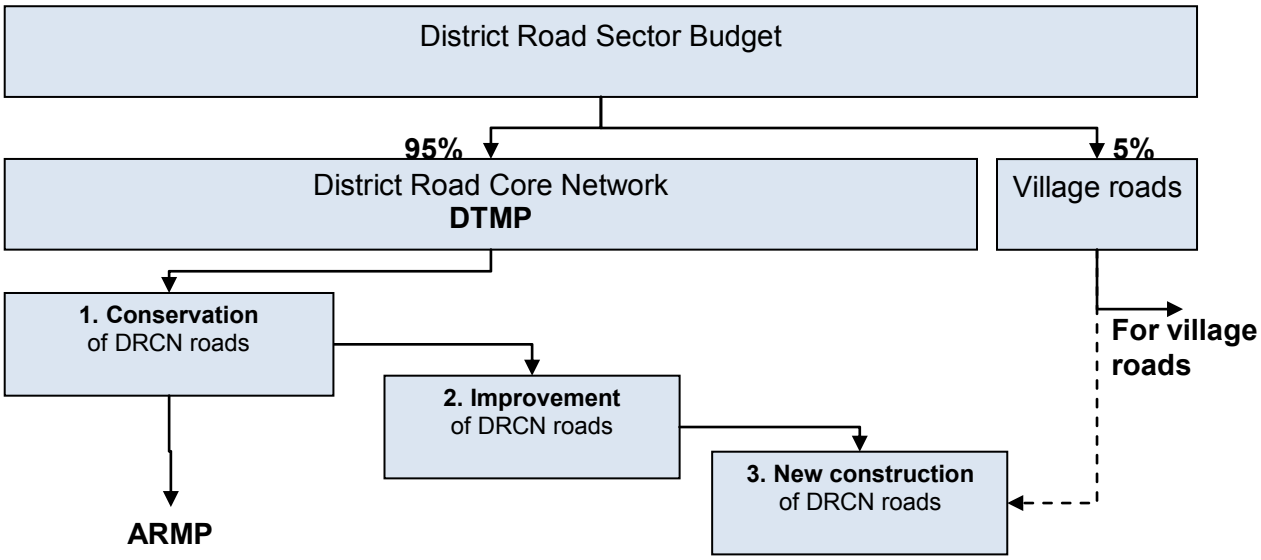
Funding Source	2070/71	2071/72	2072/73	2073/74	2074/75
DDC Internal Budget (33% of total)	**3856.6**	4,242	4,666	5,133	5,646
Road maintenance fund	140	154	169	186	205

DDC Grant (50 %)	7,670	8,437	9,281	10,209	11,230
LGCDP	14,474	15,921	17,514	19,265	21,191
VDC (40% of total)	36,164	39,780	43,758	48,134	52,948
People's contribution (20%)	28,842	31,726	34,898	38,388	42,227
District Development Program.	4,968	5,465	6,011	6,612	7,274
Road Board Nepal	1,900	2,090	2,299	2,529	2,782
Rular Road	13,050	14,355	15,791	17,370	19,107
Total	**111,064**	**122,171**	**134,388**	**147,826**	**162,609**
Grand total	**678,058**				

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 improvement, and any remaining funding is allocated to new construction.

Figure 1. 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

Item				Year															
Fiscal year				2070/71			2071/72			2072/73			2073/74			2074/75			
Total budget				111,064			122,171			134,388			147,826			162,609			
Village roads				5,553			6,109			6,719			7,391			8,130			5%
Core road network budget (DTMP)				**105,511**			**116,062**			**127,668**			**140,435**			**154,479**			95%
Core network length (km)				**661.00**			**661.00**			**661.00**			**661.00**			**661.00**			**661.00**
Gravel (km)				-			11.50			21.40			32.90			52.20			-
Earthen (km)				661.00			649.50			639.60			628.10			608.80			80.25
Conservation				**15,127**			**15,127**			**15,127**			**15,127**			**15,127**			580.75
Emergency				1,796			1,796			1,796			1,796			1,796			
Routine				1,256			1,256			1,256			1,256			1,256			
Recurrent (earthen)				12,075			12,075			12,075			12,075			12,075			
Improvement	**Cost**	**BT**	**GR**	**90,384**	**BT**	**GR**	**100,936**	**BT**	**GR**	**112,542**	**BT**	**GR**	**125,309**	**BT**	**GR**	**139,352**	**BT**	**GR**	
02DR026	22,870	-	8.00	15,723	-	5.50	7,147	-	2.50	-	-	-	-	-	-	-	-	-	
02DR001	78,105	-	10.00	31,242	-	4.00	31,242	-	4.00	15,621	-	2.00	-	-	-	-	-	-	
02DR016	60,680	-	5.40	22,474	-	2.00	38,206	-	3.40	-	-		-	-	-	-	-	-	
02DR002	55,930	-	4.00	-	-	-	-	-	-	55,930	-	4.00	-	-	-	-	-	-	
02DR014	31,605	-	5.50	-	-	-	-	-	-	31,605	-	5.50	-	-	-	-	-	-	
02DR018	52,880	-	5.00	-	-	-	-	-	-	-	-	-	52,880	-	5.00	-	-	-	
02DR022	19,643	-	6.80	-	-	-	-	-	-	-	-	-	19,643	-	6.80	-	-	-	
02DR011	20,945	-	2.00		-	-	-	-	-	-	-	-	20,945	-	2.00	-	-	-	
02DR010	10,628	-	4.00		-	-	-	-	-	-	-	-	10,628	-	4.00	-	-	-	
02DR015	44,080	-	3.00		-	-	-	-		-	-	-	22,040	-	1.50	22,878	-	1.00	
02DR012	18,100	-	7.00		-	-	-	-		-	-	-	-	-	-	18,100	-	7.00	
02DR008	21,360	-	3.00		-	-	-	-			-	-	-	-	-	21,360	-	3.00	
02DR003	8,228	-	3.20		-	-		-	-	-	-	-	-			8,228	-	3.20	
02DR020	21,900	-	3.00		-	-		-	-	-	-	-	-	-		21,900	-	3.00	
02DR007	10,388	-	3.00		-	-		-	-	-	-	-	-	-	-	10,388	-	3.00	
02DR005	15,590	-	6.00		-	-		-	-	-	-	-	-	-	-	15,590	-	6.00	
02DR023	21,960	-	2.00		-	-		-	-	-	-	-	-	-	-	20,972	-	1.91	
02DR025	4,400	-	2.00		-	-		-	-		-	-	-	-	-	-	-	-	Budget defficite
02DR021	24,433	-	3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite
02DR006	17,540	-	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite

02DR004	30,450	-	7.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite
02DR019	26,038	-	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite
02DR017	14,278	-	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite
02DR024	19,925	-	7.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Budget defficite
Total Improvement				**69,439**	**-**	**11.50**	**76,595**	**-**	**9.90**	**103,156**	**-**	**11.50**	**125,297**	**-**	**19.24**	**139,414**	**-**	**28.11**	**513,902**
Construction	**Cost**	**GR**		**20,945**	**GR**		**24,341**	**GR**		**9,386**	**GR**		**11**	**GR**		**- 62**	**GR**		
02DR010	-	-		-	-		-	-		-	-		-	-		-	-		
02DR025	-	-		-	-		-	-		-	-		-	-		-	-		
02DR024	-	-		-	-		-	-		-	-		-	-		-	-		
02DR026	-	-		-	-		-	-		-	-		-	-		-	-		
02DR022	-	-		-	-		-	-		-	-		-	-		-	-		
02DR002	-	-		-	-		-	-		-	-		-	-		-	-		
02DR003	-	-		-	-		-	-		-	-		-	-		-	-		
02DR011	23,000	2.00		16,905	1.47		6,095	0.25		-	-		-	-		-	-		
02DR013	24,000	6.00		4,000	1.00		16,000	4.00		4,000	1.00		-	-		-	-		
02DR015	56,000	5.00		-	-		2,240	0.20		5,376	0.48		-	-		-	-		
02DR012	28,000	7.00		-	-		-	-		-	-		-	-		-	-		
02DR018	64,000	7.00		-	-		-	-		-	-		-	-		-	-		
02DR008	16,000	4.00		-			-	-		-	-		-	-		-	-		
02DR001	99,000	12.00		-	-		-	-		-	-		-	-		-	-		
02DR004	58,400	7.00		-	-		-	-		-	-		-	-		-	-		
02DR014	43,000	7.00		-	-		-	-		-	-		-	-		-	-		
02DR016	79,000	10.00		-	-		-	-		-	-		-	-		-	-		
02DR023	52,200	6.00		-	-		-	-		-	-		-	-		-	-		
02DR021	39,000	6.00		-	-		-	-		-	-		-	-		-	-		
02DR006	20,000	5.00		-	-		-	-		-	-		-	-		-	-		
02DR017	28,000	7.00		-	-		-	-		-	-		-	-		-	-		
02DR005	31,000	5.00		-	-		-	-		-	-		-	-		-	-		
02DR009	40,000	10.00		-	-		-	-		-	-		-	-		-	-		
02DR020	39,000	6.00		-	-		-	-		-	-		-	-		-	-		
02DR007	32,000	8.00		-	-		-	-		-	-		-	-		-	-		
02DR019	58,400	7.00		-	-		-	-		-	-		-	-		-	-		
Total new construction				**20,905**	**-**		**24,335**	**-**		**9,376**	**-**		**-**	**-**		**-**	**-**		**54,616**
Remaining budget				**40**	**-**		**6**	**-**		**10**	**-**		**11**	**-**		**- 62**	-		**5**

6.3 DTP OUTPUTS

Based on the investment plan presented above, all DRCN roads will be conserved for the duration of the DTMP period. A further 80.9 km will be improved to gravel standard. All of these roads will also receive the cross drainage and protective structures required to make them maintainable all-weather roads. The remaining 899.90 km of earthen 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 standards (some of these roads may be constructed using VDC funding).

Table 6.3.1 DTMP Output

Conservation	Improvement Gravel	Improvement Blacktop	New Construction
661.00	80.25	-	-

Of the total DTMP budget, NPR 75.6 million will be spent on conservation and NPR 514.89 million on improvement. This will use up the entire DTMP budget for the five-year period.

6.4 DTMP OUTCOME

As a result of the activities planned in this DTMP, the percentage of all-weather maintainable DRCN roads increases by 12% from 0 km to 80.9, with only 88% (580.10km) remaining fair weather.

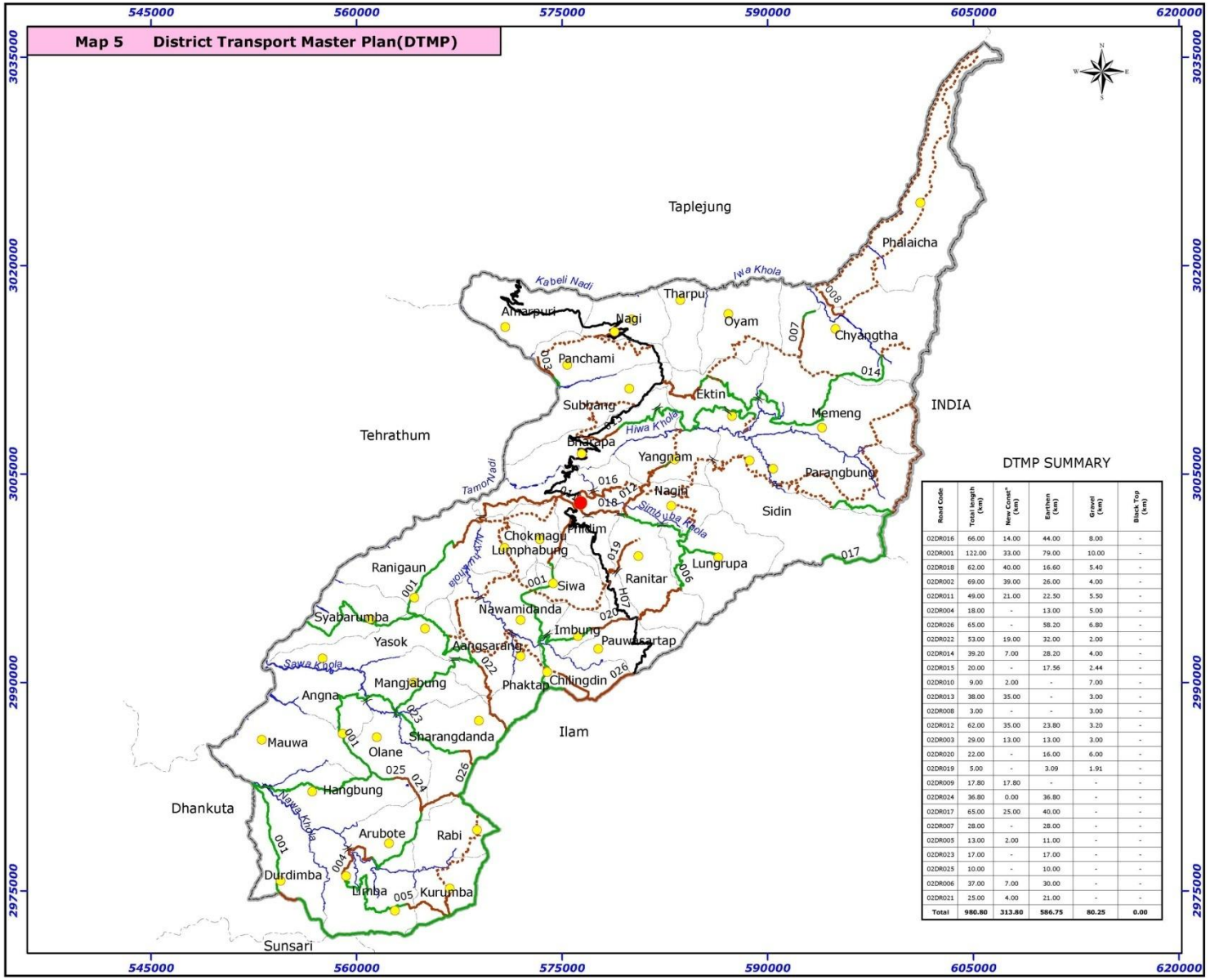
Table 6.4.1 Standard of DRCN Roads

	Total Length	Fair-weather		All-weather Gravel		All-weather Blacktop	
	km	km	%	km	%	km	%
Start of DTMP	661.00	661.00	100%	-	0%	-	0%
End of DTMP	661.00	580.75	88%	80.25	12%	-	0%
Difference	-	- 80.25	-12%	80.25	12%	-	0%

The number of VDC headquarters with access to the SRN or all-weather DRCN roads will increase from 0 to 13 and the district population with access to the SRN or all-weather DRCN roads will increase from 0 % to 37%.

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		
	8	52,335	27%	20	104,946	55%	36	166,526	87%	-	-	0%
Start of DTMP	8	52,335	27%	15	81,639	43%	39	181,634	95%	13	69,834	37%
End of DTMP	-	-	0%	-5	-23,307	-12%	3	15,108	8%	13	69,834	37%
Difference	8	52,335	27%	20	104,946	55%	36	166,526	87%	-	-	0%



Road Code	Total length (km)	New Const. (km)	Earthen (km)	Gravel (km)	Black Top (km)
02DR016	66.00	14.00	44.00	8.00	-
02DR001	122.00	33.00	79.00	10.00	-
02DR018	62.00	40.00	16.60	5.40	-
02DR002	69.00	39.00	26.00	4.00	-
02DR011	49.00	21.00	22.50	5.50	-
02DR004	18.00	-	13.00	5.00	-
02DR026	65.00	-	58.20	6.80	-
02DR022	53.00	19.00	32.00	2.00	-
02DR014	39.20	7.00	28.20	4.00	-
02DR015	20.00	-	17.56	2.44	-
02DR010	9.00	2.00	-	7.00	-
02DR013	38.00	35.00	-	3.00	-
02DR008	3.00	-	-	3.00	-
02DR012	62.00	35.00	23.80	3.20	-
02DR003	29.00	13.00	13.00	3.00	-
02DR020	22.00	-	16.00	6.00	-
02DR019	5.00	-	3.09	1.91	-
02DR009	17.80	17.80	-	-	-
02DR024	36.80	0.00	36.80	-	-
02DR017	65.00	25.00	40.00	-	-
02DR007	28.00	-	28.00	-	-
02DR005	13.00	2.00	11.00	-	-
02DR023	17.00	-	17.00	-	-
02DR025	10.00	-	10.00	-	-
02DR006	37.00	7.00	30.00	-	-
02DR021	25.00	4.00	21.00	-	-
Total	**980.80**	**313.80**	**586.75**	**80.25**	**0.00**

Minutes of Meeting

आज मिति २०६९ साल फाल्गुण १५ गते जिल्ला विपत्ति व्यवस्थापन समिति अध्यक्ष तथा स्थानीय विकास अधिकृत श्री प्रदीप कुमार निरौला ज्यूको अध्यक्षतामा निम्न उपस्थितमा बैठक बसी डोलोडोर बाढ़ नियन्त्रण मल्टी डिस्प्लेन्स कन्सल्टेन्ट प्रा.लि. जिल्ला यातायात गुरुयोजना अध्यावधीक गर्ने बारे प्रारम्भिक छलफल जानकारी लिई निम्न अनुसारका निर्णय गरियो ।

उपस्थिति

(१) स्थानीय श्री प्रदीप कुमार निरौला
(२) एन.के.पा (माओवादी) - श्री दिनेश लामिचाने
(३) नेपाली कांग्रेस श्री नरेन्द्र केरुङ
४) नेपाल कु.पा. एमाले श्री राजाकुमार मगर
५) ने.क.पा.-माओवादी श्री विशाल रसाइली
६) ने.क.पा. (माले) श्री द्वितनाथ दिगेमरे
७) रा.प्र.पा. श्री हरि प्रकाश सुवेदी
८) " नेपाल श्री कृष्ण प्रसाद घोडसा
९) मधेश सम्बद्ध संघीय मोर्चा श्री चन्द्रभान आचार्य
१०) राष्ट्रिय जनमुक्ति पार्टी श्री अर्जुनदेव स्याङ्जा
११) सं.स.पा नेपाल श्री कुहरान इङ्वा
१२) सुलिराप श्री कमलराज नेम्बाङ
१३) ~~नेकपा~~ ने.क.पा (एकीकृत) श्री कान्तेन्द्र र.घाङवा
१४) गा.वि.स. महासंघ श्री प्रेम बिजाल
१५) नि.इ. ~~अध्यक्ष~~ वार श्री भानु मल्ल बराल
१६) निजी सहकारी श्री चन्द्रनारायण चौधरी
१७) अ.नि.इ. डि.वि.नि. " रेखा लामिचाने
१८) अ.प्र.इ. डि.वि.नि. सुरेश कुमार चौधरी
१९) ब० (योजना) " श्री डम्बर बहादुर अधिकारी
२०) वा.अ. डि.वि.स. श्री निमेश कोइराला

प्रस्ताव नं. -१- जिल्ला यातायात गुरुयोजनाको अद्यावधिक सम्बन्धमा ।

निर्णय- मल्टी डिसिप्लीनरी कन्सल्टयान्टको प्रतिवेदन प्रस्तुत जिल्ला यातायात गुरुयोजना अद्यावधिक सम्बन्धी जानकारी भयो । आज प्रस्तुत भएको खाकाहरुको सम्बन्धमा ~~[illegible]~~ अर्को बैठकमा विस्तृत तयारी गरी पेश गर्ने निर्णय गरियो ।

फोन नं: ०२४–५२०१४३
फ्याक्स : ०२४– ५२०१४३

नेपाल सरकार
स्थानीय विकास मन्त्रालय
जिल्ला विकास समितिको कार्यालय
पाँचथर , फिदिम

मिति :–२०६९/११/२८

प.सं. यो / ०६८/०६९
च.न :-

पाँचथर जिल्लाको जिल्ला यातायात गुरुयोजना अध्यावधीक गर्ने सन्दर्भमा निम्म सडकहरु जिल्ला सडक संजाल (DRCN) अन्तर्गत रहने गरी छनौट गरिएको छ ।

निम्न

पुरानोकोड	सि.नं.	आयोजनाको नाम
02A001R	१	फिदिम - नागिन -सिदिन- प्राङवुङ फालोटडाडा
02A002R	२	फिदिम - रानिगाउँ - यासोक - माङ्गजावुङ्ग-आङना - मौवा - हाङगुम - दुर्दिम्वा (टोखा)- ६ नं. बुधवारे
02A003R	३	फिदिम - रानिटार - लुङरुपा - गोरुवाले
02A020R	४	साम्दीन -चोकमागु– सिवा - नवमीडाँडा - फाक्तेप घुर्विसे पंचमी
02A005R	५	फिदिम - २, जोरपिपल - लुम्फावुङ - आङसराङ –पुवा
new	६	सप्तमी - दशमी - आरुवोटे - लिम्वा
02A021R	७	राँके -उत्तरे— सप्तमी– रवि - चिसापानी - कन्याटार - ६ नं. बुधवारे - भेडेटार धनकुटा
02A028R	८	उत्तरे - ओसागु -मेहेलबोटे– स्यावरुम्वा लुमुघाट
02A018R	९	जोरपोखरी - एकतीन पञ्चमुखी - मेमेङ फालोटडाडा
02B009R	१०	कोपिले किवा - कुटीडाँडा - जोरपाटी - मच्छेवुङ - लुङ्गमादिन
02B100R	११	भारपा - सुभाङ - पञ्चमी - अमरपुर
02A030R	१२	काउले - चरिभञ्ज्याङ - ओयाम-फलैंचा
02B137R	१३	च्याङथापू - सागाँडाँडा - तिम्वुपोखरी
02B012R	१४	फेगुम्वा - सेजेपा - तृतिया - याङनाम - पापुन्दीन - सरखण्डे भञ्ज्याङ
02B117R	१५	हिलिहाङ चोक - पञ्चमी - नकलेघाट
02B001R	१६	गुम्वाडाँडा - पौवासारताप - इम्वुङ - पात्लेभञ्ज्याङ - फेदायक - तिनमौले - साम्दीन
02B105R	१७	पौवाभञ्ज्याङ - सिलौटी - लोब्रेकुटी -सरसिउला-थाक्ले मन्दिर (धार्मिक तथा पर्यटकीय)
New	१८	गोरुवाले - लामपोखरी - चिवा भञ्ज्याङ (पर्यटकीय)
02A020R	१९	सप्तमी- दशमी- वलने - आङ्गना - लखुवा
new	२०	आकाशे - वतासे - भुस्पाते - गोरुवाले - सन्दकपुर पर्यटकीय मार्ग
new	२१	फलैंचा ४ धिमाले - तिम्वुपोखरी पर्यटकीय माग
02B002R	२२	रवि - कुरुम्बा - लिम्वा -सडक
	२३	सप्तमी – सराङडाडा गाविस
	२४	दशमी– ओलने गाविस
02A027R	२५	पौवाचन्ज्याङ–जौवारी–खोलाघारी–फेजुङ–बुदुक–पिपलबाटे
02B005R	२६	पुरानो पंचमी–पैयुबोटे–कोलबुङ–दोबाटे–पिपलबोटे–मेलबोटे

आज मिति २०७४/०२/०९ गतेका दिन श्री MULTI Disciplinary Consultant (P.) Ltd. वाट यस पाँचथर जिल्लाको (DTMP Preparation) जिल्ला यातायात गुरु योजना तयार गर्ने सम्वन्धमा अन्तिम कार्यशाला गोष्ठीको लागि निम्न निर्णयहरू गर्न यस जिल्ला विकास समितिका (L.D.O.) स्थानीय विकास अधिकारी श्री प्रदिप कुमार निरौलाज्युको अध्यक्षतामा वैठक वस्यो ।

उपस्थितिहरू:

क्र.सं.	उपस्थिति	हस्ताक्षर
१	स्था. वि. अ. श्री प्रदिप कुमार निरौला	
२	जि. ई. श्री भानुभक्त वराल	
३	ने०क०पा०-माओवादी — विश्वास ढुङ्गाङ्गी	
४	इ.-जे.टी.यार - यादव चन्द्र गौतम	
५	दिनेश लावती ए.के.डी.पी (माओवादी)	
६	राष्ट्रिय सभा सदस्य नेपाल वादी पार्टी नेपाल	
७		
८	अर्जुन देव स्याङ्जा सक्रिय जनमुक्ति पार्टी	
९	चन्द्रराज आर्यडेम्ले नं०प्र० ट्रि०रा०प० जिल्ला समिति सदस्य	
१०	नेपाली कांग्रेस, पाँचथर, — हरिराज पाँडेम्बे	
११	सैलिराज पौडेल — (सुरेन्द्र प्रकाश)	
१२	ने०क०पा (माले) प्रतिनिधी लेख प्रसाद पाण्डेय	
१३	ने०क०पा (एमाले) पाँचथर उपाध्यक्ष रामकुमार भण्डारी —	
१४	वासुदेव दाहाल जि.प्र.का.	
१५	नारद नारायण बस्याल (जि.का. जि.वि.का.)	
१६	भैरव लावती (जि.वि.इ)	
१७	रुद्र नारायण पंडित (कि. जि. इ.)	
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प्रस्ताव नं.-९ :- जिल्ला यातायात गुरुयोजना पुर्नलेखन सम्बन्धी ड्राफ्ट प्रतिवेदन सम्बन्धमा।

निर्णय नं.-९ :-

आज Multy Disciplinary Consultant बाट प्रस्तुत भएका जिल्ला यातायात - गुरुयोजना पुर्नलेखनका लागि प्रस्तुत DRCN मा परेका २६ वटा प्रस्तावित सडकहरुको दुरी नमिलेको, उक्त सडकहरुको विस्तृत विवरण जस्तै सडकमा पर्ने पुल, कलभर्ट, हाल सम्म ट्याक ओपन भएको र हुन बाँकी साथै यातायात नभएको दुरी, सडकको संक्षिप्त - विवरण खुल्ने गरी आगामी बैठकमा प्रस्तुत गर्ने गरी आजको बैठक सम्पन्न गरियो।

आज मिति २०७०/०२/१२ गतेका दिन श्री MULTI Disciplinary Consultant (P.) Ltd. बाट यस पाँचथर जिल्लाको (DTMP Preparation) जिल्ला यातायात गुरु योजना तयार गर्ने सम्बन्धमा अन्तिम कार्यशाला गोष्ठीको लागि निम्न निर्णयहरू गर्न यस जिल्ला विकास समितिका (L.D.O.) स्थानीय विकास अधिकारी श्री प्रदिप कुमार निरौलाज्युको अध्यक्षतामा बैठक बस्यो ।

उपस्थितिहरू:

क्र.सं.	उपस्थिति	पद	संस्था	हस्ताक्षर
१	स्थी. वि. अ. श्री प्रदिप कु. निरौला	—	—	—
२	जि. इ. श्री भानुभक्त पराजुली	—	—	—
३	दीनबन्धु घिमिरे	निर्वतमान उपसभापति	जि.वि.स.	
४	नरेन्द्र कुमार ठेरुङ	सभापति	नेपाली काँग्रेस	
५	देवेश कुमार लावती	प्रतिनिधि	एमाले	
६	नवप्रसाद पाख्रिन	प्रतिनिधि	नेकपा (एमाले)	
७	अर्जुन देव स्याङ्फेन	उपाध्यक्ष	राष्ट्रिय जनमुक्ति पार्टी	
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९	कृष्ण प्रसाद पोडेल	अध्यक्ष	रा.प्र.पा.	
१०	माग			
११	विष्णु खाडकी	[illegible]	[illegible]	
१२	प्रेम तुम्खाप	जि.का.द.	सेथिया. ग. पर्ची	
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निर्णयहरू:

1. आज मिति २०६०।४।१२मा मिति २०६०।४।९ को निर्णय नं० १- अनुसार प्रत्येक DRCN road मा दफावार हल फलमें २६ वटा सडक DRCN Roadमापादित गरिएको छ।

Photographs

PHOTOGRPAHS

Ph. No. 1. Field Survey Work At Saptami

Ph. No. 2. Field Survey Work At Tokha

Ph. No. 3. Field Survey Work At Mauwa Bazar

Ph. No. 4. Field Survey Work at Panchami Bazar

Ph. No. 5. Road Condition of Sapatami

Ph. No. 6. Field Survey Work at Purano Panchami

Ph. No. 7. Road Condition of Yasok

Ph. No. 8. Field Survey Work at Oyam

Final workshop at Panchthar DDC Meeting Hall (1st left- LDO. Mr, Pradip Kr.Niraula)

Discussion on DTMP (Right table-3rd, DTO.Mr. Bhanubhakta Baral & political Members)