



Government of Nepal



Municipal Transport Master Plan (MTMP) of Kumakh Rural Municipality – Salyan (Final)



Rural Access Programme 3 Mugu Humla Link Road (RAP3 MHLR)

December 2021

Table of Contents

1.	<i>Summary</i>	3
2.	<i>MTMP Map</i>	5
3.	<i>MTMP Excel Template</i>	6
4.	<i>Central Road Network (CRN) + Provincial Road Network (PRN)</i>	7
5.	<i>Municipal Road Network (MRCN)</i>	8
6.	<i>Connectivity</i>	9
7.	<i>Ranking</i>	10
8.	<i>Investment Needs</i>	11
9.	<i>Investment Costs</i>	12
10.	<i>Funding</i>	13
11.	<i>Budget Allocation</i>	14
12.	<i>Budget Allocation (Auto)</i>	15
13.	<i>MTMP Summary</i>	16
14.	<i>MRCN Map</i>	17
15.	<i>MRCN Status Map</i>	18
16.	<i>MTMP Map of Kumakh Gaupalika</i>	19
17.	<i>Annex 1</i>	20
18.	<i>Annex 2</i>	21

Summary

1. Background

In accordance with the Local Government Operation Act 2074, a “Rural/Urban Municipality needs to prepare periodic, annual, strategic and sectoral medium term and long term plans and implement them in its area of jurisdiction for local development”. Kumakh Rural Municipality (Palika in short), Salyan has prepared a Municipal Transport Master Plan (MTMP) with the aim of planning road infrastructure and transport sector development in the rural municipality.

2. Introduction

Kumakh Rural Municipality is situated in the north of Salyan district in Karnali Province and has 7 wards. Out of 7 wards, 2 ward office is connected to the Palika centre by Provincial Road Network (PRN) and remaining 5 wards are connected by earthen and fair-weather roads to the Provincial Road Network (PRN) which then connected to Palika directly. The existing length of Municipal Road Core Network (MRCN) in Kumakh Rural Municipality is 133.79 km having sub-standard and requires geometric improvements to meet the criteria of the Local Road Standards. Kumakh Rural Municipality Transport Master Plan (MTMP), is a 5-year investment plan of proposed upgrades, improvements, new road sections and road maintenance of the MRCN to deliver all season vehicle access.

3. MTMP Investment Needs

The main activities included in the implementation of the MTMP are rehabilitation, widening and upgrading of existing roads, construction of cross and side drains, bridges, causeways, slab culverts, pipe culverts and retaining walls. A summary of needs and estimated costs are presented in the following table:

Description	Quantity	Estimated Cost (NPR million)
Rehabilitation	45.32 km	77.95
Gravelling	65.00 km	147.39
Black topping	15.62 km	72.29
Widening	2.94 km	8.66
Bridges and Slab culverts	146m bridge and 20 nos. Slab culverts	293.68
Causeways	434m	41.23
Pipe Culvert	268 nos.	109.71
Retaining wall	27,983 cubic metre	181.89
Total estimated cost of MTMP		932.800

The above activities are to be completed in the 5-year MTMP implementation period depending upon availability of funding resources.

The investment costs of this programme come to a total of NPR 932.80 million for the entire MRCN. These costs do not include the cost of annual emergency, routine and recurrent road maintenance

works. The MTMP Guidelines provision that the Palika has to allocate at least 80% of road sector annual budget to the MRCN of which at least 20% is set aside for maintenance.

4. MTMP Funding

The total budget required for rehabilitation, gravelling, blacktopping, widening, cross drainages and structures of MRCN in 5 years is NPR 932.80 million while the total available budget in road sector in 5 years will be NPR 955.448 million which is calculated based on a current year available annual budget of NPR 156.50 million (FY 2078/79) for the Palika assuming 10 percent year-on-year inflation.

As per MTMP Guidelines up to 20% of the annual budget can be set aside for non-MRCN roads (NPR 191.09 million) and from the remaining 80% of available budget (NPR 764.36 million) an additional 20% (NPR 152.87 million) is reserved for maintenance of MRCN. So, out of the available total budget for rehabilitation, widening, gravelling, blacktopping and structures of MRCN in 5 years is NPR 611.48 million, which is 65.6% percent of the total estimate for MRCN investments. In this manner become short falls by NPR 321.32 million to be seek from other resources or investment deferred to the next MTMP after five years.

5. MTMP Outputs

Implementation of the MTMP will help establish a planning, programming and budgeting system for road sector development in the Palika and discourage the current practice of scattering of available funds in a haphazard and unplanned manner. The MTMP will also provide a basis for investment for road construction and maintenance. Use of available budget in compliance with the MTMP will be sufficient for 45.33 km gravelling, 15.62 km blacktopping, 2.94 km road widening, 130 m bridge, and required road structures of 14 existing MRCN sections and partially for one more road section over the 5 year period.

Besides above mentioned MRCN roads, the Palika has seven additional non-MRCN roads having total length 22.24 km. The major Non-MRCN road includes Timile-Gattena-Bhairabsthan road (1.5 existing + 4.25 planned) which connects Palika to Rukum west district and Balya-Neta-Jharkanda road which connects three settlements. Owing to the limited resources at the Palika, these projects are not included in the MTMP investment requirements. However, can be funded from 20% funds if set aside for non-MRCN roads. It is also recommended to explore external financial and technical assistance to implement these projects treating them as special projects in separate. This will not affect implementing MTMP for 5 years.

6. Conclusion

This document will help establish an evidence-based, road infrastructure development planning system at the local level and guide the Palika in the use of available budgets and funding in the sector. In addition, this document will guide the rural municipality to achieve sustained and coordinated investment targets in the sector. Further, this is live document and subjected to revise according to priority of Palika in future.

MTMP

Excel Template

FOR THE PREPARATION OF THE MUNICIPAL TRANSPORT MASTER PLAN (MTMP)

Only fill in the white cells in the tables on the following sheets. Do not change the other cells as these are either fixed titles (dark blue) or are copied/calculated automatically from other cells (light blue). Where white cells have pre-entered data, check that these are correct for the district concerned.

VERSION 9 - 10 April 2020

Province

Karnali Pradesh / कर्णाली प्रदेश

Palika

60902 - Kumakh / कुमाख

Date

15 December 2021

Language

English/अंग्रेजी

60902 - Kumakh / कुमाख - 1. CENTRAL ROAD NETWORK (CRN) + PROVINCIAL ROAD NETWORK (PRN)												
#	Road code	Road section	Class	Road name	Width m	BT km	GR km	ER km	Existing km	UC km	PL km	Total km
						-	-	73.59	73.59	-	-	73.59
1	KPH14D	A	PH	Sallibazar-Chaurjhari-Bijeshwori-Bairagi-Thanti	4.50			2.60	2.60			2.60
2	KPH14B	B	PH	Sallibazar-Chaurjhari-Bijeshwori-Bairagi-Thanti	4.50			27.97	27.97			27.97
3	KSH39C	C	PH	Tharmare-Badagaun-Ragechaur-Syanipiply	6.00			5.13	5.13			5.13
4	KSH39B	B	PH	Tharmare-Badagaun-Ragechaur-Syanipiply	6.00			19.90	19.90			19.90
5	KPH14C	B	PH	Sallibazar-Chaurjhari-Bijeshwori-Bairagi-Thanti	4.50			3.87	3.87			3.87
6	KSH39A	C	PH	Tharmare-Badagaun-Ragechaur-Syanipiply	6.00			14.12	14.12			14.12
7									-			-
8									-			-
9									-			-
10									-			-
11									-			-
12									-			-
13									-			-
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20									-			-
21									-			-
22									-			-
23									-			-
24									-			-
25									-			-

*NH - National Highway

*PH - Provincial Highway

*PR - Provincial Road

60902 - Kumakh / कुमाख - 2. MUNICIPAL ROAD CORE NETWORK (MRCN)															
#	Road code	Road section	Class	Road name	Width m	BT km	GR km	ER km	Existing km	UC km	PL km	Total km	Total traffic estimation VPD	Traffic category	Palika priority
								133.79	133.79			133.79			
1	M6090201	A	MRCN	KSH39B(Chisapani)-KSH39B Khali	4.50			2.28	2.28			2.28	30	T1	2
2	M6090201	B	MRCN	KSH39B(Khali)-KSH39C(Badagaun)	4.50			5.30	5.30			5.30	30	T1	1
3	M6090201	C	MRCN	KSH39C(Badagaun)-KSH39C(Rarechaur)	4.50			2.05	2.05			2.05	200	T2	1
4	M6090201	D	MRCN	KSH39C(Rarechaur) -KPH14C(Syanipily)	4.50			1.39	1.39			1.39	250	T2	1
5	M6090201	E	MRCN	KPH14C(Sanipily)-Thadara(Ward 4)	4.50			1.21	1.21			1.21	30	T1	2
6	M6090202	A	MRCN	Bayala-Basnetjeula	4.50			6.16	6.16			6.16	12	T1	2
7	M6090202	B	MRCN	Basnetjeula-Chaurjhari	4.50			2.02	2.02			2.02	100	T2	2
8	M6090203	A	MRCN	KSH39B(Chisapani)-Bayala	4.50			5.09	5.09			5.09	15	T1	2
9	M6090203	B	MRCN	Bayala-Seradanda	4.50			1.12	1.12			1.12	15	T1	2
10	M6090203	C	MRCN	Seradanda-Basnetjeula	4.50			3.66	3.66			3.66	15	T1	2
11	M6090204	A	MRCN	KSH39B(Khali)-Seradanda	4.50			7.02	7.02			7.02	12	T1	2
12	M6090205	A	MRCN	KPH39B(Chisapani)-Jharkanda(Ward 5)	4.50			1.73	1.73			1.73	15	T1	1
13	M6090205	B	MRCN	Jharkanda(Ward 5)-Bhurung khola	4.50			5.68	5.68			5.68	15	T1	2
14	M6090206	A	MRCN	KSH39B(Tribeni)-KSH39B(Maulhalne)	4.50			12.18	12.18			12.18	130	T2	1
15	M6090207	A	MRCN	KPH39C(Ichukhola)-Marmaparikanda (Ward 3)	4.50			6.76	6.76			6.76	100	T2	1
16	M6090207	B	MRCN	Marmaparikanda (Ward 3)-Jimali (Ward 7)	4.50			13.86	13.86			13.86	55	T1	1
17	M6090207	C	MRCN	Jimali (Ward 7)- Chaurpani	4.50			5.41	5.41			5.41	70	T1	1
18	M6090208	A	MRCN	Chaurpani - Kumakh Lekh(Tourism road)	4.50			4.22	4.22			4.22	20	T1	2
19	M6090209	A	MRCN	KPH14P(Chinali)-Dandakatari	4.50			17.85	17.85			17.85	45	T1	2
20	M6090210	A	MRCN	KSH39C(Rarechaur)-Baghkhori	4.50			7.44	7.44			7.44	25	T1	2
21	M6090211	A	MRCN	KSH39C(Netabazar)-Kumudanda- KPH14B(Santibazar)	4.50			7.58	7.58			7.58	10	T1	2
22	M6090212	A	MRCN	KPH14B(Santibazar)-Baghkhori	4.50			4.25	4.25			4.25	20	T1	2
23	M6090212	B	MRCN	Baghkhori-Sanimoura	4.50			3.73	3.73			3.73	10	T1	2
24	M6090213	A	MRCN	Suikot-Baghkhori	4.50			1.72	1.72			1.72	15	T1	2
25	M6090213	B	MRCN	KPH14B(Burali khola)-Suikot	4.50			4.08	4.08			4.08	15	T1	2

*VPD - Vehicles Per Day

60902 - Kumakh / कुमाख - 3. CONNECTIVITY													
Ward No.	Ward name		Population (2011)	1st road	2nd road	3rd road	4th road	5th road	6th road	7th road	8th road	9th road	10th road
	English	Nepali											
1	Suikot	सुइकोट	2,688	M6090213B	PRN								
2	Netabazzar	नेटाबजार	3,037	PRN									
3	Marmaparikanda	मर्मपरीकाडा	4,661	M6090207A									
4	Thadahara	थाधरा	3,517	M6090201E									
5	Jharkada	झारकाडा	3,413	M6090205A									
6	Badagaun	बडागाउँ	3,913	PRN									
7	Thulijimali	ठुलिजिमाली	3,743	M6090207A	M6090207B								
8													
9													
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23													
24													
25													

60902 - Kumakh / कुमाख - 4. RANKING													
#	Rank	Section code	Road name	Population served		Population unconnected		Traffic category		Palika priority		Total	Rank
				40		20		20		20		100	
				#	Score	#	Score	#	Score	#	Score	Score	
5	4	M6090201E	KPH14C(Sanipiply)-Thadara(Ward 4)	3,517	16.7	-	-	T1	-	2	10.0	26.7	4
7	23	M6090202B	Basnetjeula-Chaurjhari	-	-	-	-	T2	-	2	10.0	10.0	23
6	24	M6090202A	Bayala-Basnetjeula	-	-	-	-	T1	-	2	10.0	10.0	24
2	10	M6090201B	KSH39B(Khali)-KSH39C(Badagaun)	-	-	-	-	T1	-	1	20.0	20.0	10
9	21	M6090203B	Bayala-Seradanda	-	-	-	-	T1	-	2	10.0	10.0	21
3	9	M6090201C	KSH39C(Badagaun)-KSH39C(Rarechaur)	-	-	-	-	T2	-	1	20.0	20.0	9
11	19	M6090204A	KSH39B(Khali)-Seradanda	-	-	-	-	T1	-	2	10.0	10.0	19
10	20	M6090203C	Seradanda-Basnetjeula	-	-	-	-	T1	-	2	10.0	10.0	20
8	22	M6090203A	KSH39B(Chisapani)-Bayala	-	-	-	-	T1	-	2	10.0	10.0	22
4	8	M6090201D	KSH39C(Rarechaur) -KPH14C(Syanipiply)	-	-	-	-	T2	-	1	20.0	20.0	8
1	25	M6090201A	KSH39B(Chisapani)-KSH39B Khali	-	-	-	-	T1	-	2	10.0	10.0	25
12	3	M6090205A	KPH39B(Chisapani)-Jharkanda(Ward 5)	3,413	16.2	-	-	T1	-	1	20.0	36.2	3
13	18	M6090205B	Jharkanda(Ward 5)-Bhurung khola	-	-	-	-	T1	-	2	10.0	10.0	18
14	7	M6090206A	KSH39B(Tribeni)-KSH39B(Maulhalne)	-	-	-	-	T2	-	1	20.0	20.0	7
15	1	M6090207A	KPH39C(Ichukhola)-Marmaparikanda (Ward 3)	8,404	40.0	-	-	T2	-	1	20.0	60.0	1
16	2	M6090207B	Marmaparikanda (Ward 3)-Jimali (Ward 7)	3,743	17.8	-	-	T1	-	1	20.0	37.8	2
17	6	M6090207C	Jimali (Ward 7)- Chaurpani	-	-	-	-	T1	-	1	20.0	20.0	6
18	17	M6090208A	Chaurpani - Kumakh Lekh(Tourism road)	-	-	-	-	T1	-	2	10.0	10.0	17
19	16	M6090209A	KPH14P(Chinali)-Dandakatari	-	-	-	-	T1	-	2	10.0	10.0	16
20	15	M6090210A	KSH39C(Rarechaur)-Baghkhori	-	-	-	-	T1	-	2	10.0	10.0	15
21	14	M6090211A	KSH39C(Netabazar)-Kuindanda-KPH14B(Santibazzar)	-	-	-	-	T1	-	2	10.0	10.0	14
22	13	M6090212A	KPH14B(Santibazar)-Baghkhori	-	-	-	-	T1	-	2	10.0	10.0	13
23	12	M6090212B	Baghkhori-Sanimoura	-	-	-	-	T1	-	2	10.0	10.0	12
24	11	M6090213A	Suikot-Baghkhori	-	-	-	-	T1	-	2	10.0	10.0	11
25	5	M6090213B	KPH14B(Burali khola)-Suikot	2,688	12.8	-	-	T1	-	2	10.0	22.8	5

60902 - Kumakh / कुमाख - 5. INVESTMENT NEEDS																			
#	Rank	Section code	Road name	BT km	GR km	ER km	UC/PL km	Width m	Traffic category	New construc- tion km -	Rehabi- litation km 32.62	Gravel- ling km 65.00	Black- topping km 15.62	Widen- ing km 2.94	Bridge m 146	Cause- way m 434	Slab culverts # 20	Pipe culverts # 268	Retaining walls m3 27,983
15	1	M6090207A	KPH39C(Ichukhola)-Marmaparikanda (W	-	-	6.76	-	4.50	T2			6.76				24		14	1,521
16	2	M6090207B	Marmaparikanda (Ward 3)-Jimali (Ward	-	-	13.86	-	4.50	T1			13.86			50	102	3	28	3,119
12	3	M6090205A	KPH39B(Chisapani)-Jharkanda(Ward 5)	-	-	1.73	-	4.50	T1					1.73				3	389
5	4	M6090201E	KPH14C(Sanipiply)-Thadara(Ward 4)	-	-	1.21	-	4.50	T1					1.21				2	272
17	6	M6090207C	Jimali (Ward 7)- Chaurpani	-	-	5.41	-	4.50	T1			5.41				27		11	1,217
14	7	M6090206A	KSH39B(Tribeni)-KSH39B(Maulhalne)	-	-	12.18	-	4.50	T2				12.18		15		5	24	2,741
4	8	M6090201D	KSH39C(Rarechaur) -KPH14C(Syanipiply)	-	-	1.39	-	4.50	T2				1.39					3	313
3	9	M6090201C	KSH39C(Badagaun)-KSH39C(Rarechaur)	-	-	2.05	-	4.50	T2				2.05					4	
2	10	M6090201B	KSH39B(Khali)-KSH39C(Badagaun)	-	-	5.30	-	4.50	T1			5.30						11	1,193
25	5	M6090213B	KPH14B(Burali khola)-Suikot	-	-	4.08	-	4.50	T1			4.08				18		8	918
22	13	M6090212A	KPH14B(Santibazar)-Baghkhoh	-	-	4.25	-	4.50	T1			4.25						9	956
19	16	M6090209A	KPH14P(Chinali)-Dandakatari	-	-	17.85	-	4.50	T1		10.71					54	3	36	4,016
18	17	M6090208A	Chaurpani - Kumakh Lekh(Tourism road)	-	-	4.22	-	4.50	T1			4.22						8	950
13	18	M6090205B	Jharkanda(Ward 5)-Bhurung khola	-	-	5.68	-	4.50	T1		3.98							11	1,278
8	22	M6090203A	KSH39B(Chisapani)-Bayala	-	-	5.09	-	4.50	T1			5.09						10	
7	23	M6090202B	Basnetjeula-Chaurjhari	-	-	2.02	-	4.50	T2			2.02			16	39	6	4	455
1	25	M6090201A	KSH39B(Chisapani)-KSH39B Khali	-	-	2.28	-	4.50	T1		1.60					21	1	5	
6	24	M6090202A	Bayala-Basnetjeula	-	-	6.16	-	4.50	T1		4.31							12	1,386
9	21	M6090203B	Bayala-Seradanda	-	-	1.12	-	4.50	T1			1.12						2	252
10	20	M6090203C	Seradanda-Basnetjeula	-	-	3.66	-	4.50	T1		2.56							7	824
11	19	M6090204A	KSH39B(Khali)-Seradanda	-	-	7.02	-	4.50	T1		4.91					57		14	1,580
20	15	M6090210A	KSH39C(Rarechaur)-Baghkhoh	-	-	7.44	-	4.50	T1			7.44				56		15	1,674
21	14	M6090211A	KSH39C(Netabazar)-Kuindanda-KPH14B(S	-	-	7.58	-	4.50	T1		4.55				65	36	2	15	1,706
23	12	M6090212B	Baghkhoh-Sanimoura	-	-	3.73	-	4.50	T1			3.73						7	839
24	11	M6090213A	Suikot-Baghkhoh	-	-	1.72	-	4.50	T1			1.72						3	387

Note:-

Total width of road is defined for Traffic volumes as follows:

- 1) T1 - <100 VPD = Carriageway 3.00m + Shoulders 1.5m + Side Drain 0.6m = 5.1m
- 2) T2 - 100 to 400 VPD = Carriageway 3.75m + Shoulders 1.5m + Side Drain 0.6m = 5.85m
- 3) T3 - 350 to 650 VPD = Carriageway 5.5m + Shoulders 1.5m + Side Drain 0.6m = 7.6m

60902 - Kumakh / कुमाख - 6. INVESTMENT COSTS													
#	Rank	Section code	New construction	Rehabilitation	Gravelling	Blacktopping	Widening	Bridge	Causeway	Slab culverts	Pipe culverts	Retaining walls	TOTAL
			7,966,000	2,389,800	2,267,500	4,628,000	2,947,000	1,580,000	95,000	3,150,000	410,000	6,500	
			NPR -	NPR 77,950,496	NPR 147,387,500	NPR 72,289,360	NPR 8,664,180	NPR 230,680,000	NPR 41,230,000	NPR 63,000,000	NPR 109,707,800	NPR 181,891,125	
15	1	M6090207A	-	-	15,328,300	-	-	-	2,280,000	-	5,543,200	9,886,500	33,038,000
16	2	M6090207B	-	-	31,427,550	-	-	79,000,000	9,690,000	9,450,000	11,365,200	20,270,250	161,203,000
12	3	M6090205A	-	-	-	-	5,098,310	-	-	-	1,418,600	2,530,125	9,047,035
5	4	M6090201E	-	-	-	-	3,565,870	-	-	-	992,200	1,769,625	6,327,695
17	6	M6090207C	-	-	12,267,175	-	-	-	2,565,000	-	4,436,200	7,912,125	27,180,500
14	7	M6090206A	-	-	-	56,369,040	-	23,700,000	-	15,750,000	9,987,600	17,813,250	123,619,890
4	8	M6090201D	-	-	-	6,432,920	-	-	-	-	1,139,800	2,032,875	9,605,595
3	9	M6090201C	-	-	-	9,487,400	-	-	-	-	1,681,000	-	11,168,400
2	10	M6090201B	-	-	12,017,750	-	-	-	-	-	4,346,000	7,751,250	24,115,000
25	5	M6090213B	-	-	9,251,400	-	-	-	1,710,000	-	3,345,600	5,967,000	20,274,000
22	13	M6090212A	-	-	9,636,875	-	-	-	-	-	3,485,000	6,215,625	19,337,500
19	16	M6090209A	-	25,594,758	-	-	-	-	5,130,000	9,450,000	14,637,000	26,105,625	80,917,383
18	17	M6090208A	-	-	9,568,850	-	-	-	-	-	3,460,400	6,171,750	19,201,000
13	18	M6090205B	-	9,501,845	-	-	-	-	-	-	4,657,600	8,307,000	22,466,445
8	22	M6090203A	-	-	11,541,575	-	-	-	-	-	4,173,800	-	15,715,375
7	23	M6090202B	-	-	4,580,350	-	-	25,280,000	3,705,000	18,900,000	1,656,400	2,954,250	57,076,000
1	25	M6090201A	-	3,814,121	-	-	-	-	1,995,000	3,150,000	1,869,600	-	10,828,721
6	24	M6090202A	-	10,304,818	-	-	-	-	-	-	5,051,200	9,009,000	24,365,018
9	21	M6090203B	-	-	2,539,600	-	-	-	-	-	918,400	1,638,000	5,096,000
10	20	M6090203C	-	6,122,668	-	-	-	-	-	-	3,001,200	5,352,750	14,476,618
11	19	M6090204A	-	11,743,477	-	-	-	-	5,415,000	-	5,756,400	10,266,750	33,181,627
20	15	M6090210A	-	-	16,870,200	-	-	-	5,320,000	-	6,100,800	10,881,000	39,172,000
21	14	M6090211A	-	10,868,810	-	-	-	102,700,000	3,420,000	6,300,000	6,215,600	11,085,750	140,590,160
23	12	M6090212B	-	-	8,457,775	-	-	-	-	-	3,058,600	5,455,125	16,971,500
24	11	M6090213A	-	-	3,900,100	-	-	-	-	-	1,410,400	2,515,500	7,826,000

60902 - Kumakh / कुमाख - 7. FUNDING							
Funding source	Details	Expected funding amount (NPR)					Grand Total
		2078/79	2079/80	2080/81	2081/82	2082/83	
		Year 1	Year 2	Year 3	Year 4	Year 5	
Fiscal Equalization Grant -							-
Conditional Grants -							-
Conditional Grants -							-
Conditional Grants -							-
Complementary Grants -							-
Complementary Grants -							-
Complementary Grants -							-
Special Grants -							-
Special Grants -							-
Special Grants -							-
Special Grants -							-
Roads Board Nepal -							-
Provincial transfer -							-
Provincial transfer -							-
Provincial transfer -							-
Provincial transfer - Special Grant	Special Grant	130,000,000	143,000,000	157,300,000	173,030,000	190,333,000	793,663,000
Provincial transfer - Royalty Sharing	Royalty Sharing		-	-	-	-	-
Provincial transfer -			-	-	-	-	-
Palika Internal Resources -		26,500,000	29,150,000	32,065,000	35,271,500	38,798,650	161,785,150
Palika Internal Resources -			-	-	-	-	-
Donor project -			-	-	-	-	-
Donor project -			-	-	-	-	-
Donor project -			-	-	-	-	-
Donor project -			-	-	-	-	-
Other -			-	-	-	-	-
Other -			-	-	-	-	-
Other -			-	-	-	-	-
Other -			-	-	-	-	-
Other -			-	-	-	-	-
Total budget		156,500,000	172,150,000	189,365,000	208,301,500	229,131,650	955,448,150

60902 - Kumakh / कुमाख - 8. BUDGET ALLOCATION													
Financial year			2078/79	2079/80	2080/81	2081/82	2082/83	Investment needs					Main funding source
Expected funding amount			156,500,000	172,150,000	189,365,000	208,301,500	229,131,650						
Non-MRCN roads (max 20%)			31,300,000	34,430,000	37,873,000	41,660,300	45,826,330						
MRCN expected budget			125,200,000	137,720,000	151,492,000	166,641,200	183,305,320						
MRCN maintenance (min 20%)			25,040,000	27,544,000	30,298,400	33,328,240	36,661,064	ER	GR	BT	Widen	Bridge	
MRCN investment allocation			100,160,000	110,176,000	121,193,600	133,312,960	146,644,256	km	km	km	km	m	
			-	65.00	15.62	2.94	146	Investment output					
Rank	Section code	Cost NPR 932,800,461	MRCN investment allocation					ER	GR	BT	Widen	Bridge	
			NPR 100,160,000	NPR 110,176,000	NPR 121,193,600	NPR 133,312,960	NPR 146,644,256	-	45.33	15.62	2.94	130	
1	M6090207A	33,038,000	33,038,000	-	-	-	-	-	6.76	-	-	-	-
2	M6090207B	161,203,000	67,122,000	94,081,000	-	-	-	-	13.86	-	-	50	-
3	M6090205A	9,047,035	-	9,047,035	-	-	-	-	-	-	1.73	-	-
4	M6090201E	6,327,695	-	6,327,695	-	-	-	-	-	-	1.21	-	-
5	M6090213B	20,274,000	-	720,270	19,553,730	-	-	-	4.08	-	-	-	-
6	M6090207C	27,180,500	-	-	27,180,500	-	-	-	5.41	-	-	-	-
7	M6090206A	123,619,890	-	-	74,459,370	49,160,520	-	-	-	12.18	-	15	-
8	M6090201D	9,605,595	-	-	-	9,605,595	-	-	-	1.39	-	-	-
9	M6090201C	11,168,400	-	-	-	11,168,400	-	-	-	2.05	-	-	-
10	M6090201B	24,115,000	-	-	-	24,115,000	-	-	5.30	-	-	-	-
11	M6090213A	7,826,000	-	-	-	7,826,000	-	-	1.72	-	-	-	-
12	M6090212B	16,971,500	-	-	-	16,971,500	-	-	3.73	-	-	-	-
13	M6090212A	19,337,500	-	-	-	14,465,945	4,871,555	-	4.25	-	-	-	-
14	M6090211A	140,590,160	-	-	-	-	140,590,160	-	-	-	-	65	-
15	M6090210A	39,172,000	-	-	-	-	1,182,541	-	0.22	-	-	-	-
16	M6090209A	80,917,383	-	-	-	-	-	-	-	-	-	-	-
17	M6090208A	19,201,000	-	-	-	-	-	-	-	-	-	-	-
18	M6090205B	22,466,445	-	-	-	-	-	-	-	-	-	-	-
19	M6090204A	33,181,627	-	-	-	-	-	-	-	-	-	-	-
20	M6090203C	14,476,618	-	-	-	-	-	-	-	-	-	-	-
21	M6090203B	5,096,000	-	-	-	-	-	-	-	-	-	-	-
22	M6090203A	15,715,375	-	-	-	-	-	-	-	-	-	-	-
23	M6090202B	57,076,000	-	-	-	-	-	-	-	-	-	-	-
24	M6090202A	24,365,018	-	-	-	-	-	-	-	-	-	-	-
25	M6090201A	10,828,721	-	-	-	-	-	-	-	-	-	-	-
Remaining			-	-	-	-	-	-	19.67	-	-	16	-

Note - Length of road M6090210A is manually calculated for the available budget to omit impracticality of auto budget allocation.

60902 - Kumakh / कुमाख - 8. BUDGET ALLOCATION (AUTO)													
Financial year			2078/79	2079/80	2080/81	2081/82	2082/83	Investment needs					Main funding source
Expected funding amount			156,500,000	172,150,000	189,365,000	208,301,500	229,131,650						
Non-MRCN roads (max 20%)			31,300,000	34,430,000	37,873,000	41,660,300	45,826,330						
MRCN expected budget			125,200,000	137,720,000	151,492,000	166,641,200	183,305,320						
MRCN maintenance (min 20%)			25,040,000	27,544,000	30,298,400	33,328,240	36,661,064						
MRCN investment allocation			100,160,000	110,176,000	121,193,600	133,312,960	146,644,256	-	65.00	15.62	2.94	146	
Rank	Section code	Cost NPR	MRCN investment allocation					Investment output					
		932,800,461	NPR	NPR	NPR	NPR	NPR	ER	GR	BT	Widen	Bridge	
			100,160,000	110,176,000	121,193,600	133,312,960	146,644,256	-	45.33	15.62	2.94	130	
1	M6090207A	33,038,000	33,038,000	-	-	-	-	-	6.76	-	-	-	
2	M6090207B	161,203,000	67,122,000	94,081,000	-	-	-	-	13.86	-	-	50	
3	M6090205A	9,047,035	-	9,047,035	-	-	-	-	-	-	1.73	-	
4	M6090201E	6,327,695	-	6,327,695	-	-	-	-	-	-	1.21	-	
5	M6090213B	20,274,000	-	720,270	19,553,730	-	-	-	4.08	-	-	-	
6	M6090207C	27,180,500	-	-	27,180,500	-	-	-	5.41	-	-	-	
7	M6090206A	123,619,890	-	-	74,459,370	49,160,520	-	-	-	12.18	-	15	
8	M6090201D	9,605,595	-	-	-	9,605,595	-	-	-	1.39	-	-	
9	M6090201C	11,168,400	-	-	-	11,168,400	-	-	-	2.05	-	-	
10	M6090201B	24,115,000	-	-	-	24,115,000	-	-	5.30	-	-	-	
11	M6090213A	7,826,000	-	-	-	7,826,000	-	-	1.72	-	-	-	
12	M6090212B	16,971,500	-	-	-	16,971,500	-	-	3.73	-	-	-	
13	M6090212A	19,337,500	-	-	-	14,465,945	4,871,555	-	4.25	-	-	-	
14	M6090211A	140,590,160	-	-	-	-	140,590,160	-	-	-	-	65	
15	M6090210A	39,172,000	-	-	-	-	1,182,541	-	0.22	-	-	-	
16	M6090209A	80,917,383	-	-	-	-	-	-	-	-	-	-	
17	M6090208A	19,201,000	-	-	-	-	-	-	-	-	-	-	
18	M6090205B	22,466,445	-	-	-	-	-	-	-	-	-	-	
19	M6090204A	33,181,627	-	-	-	-	-	-	-	-	-	-	
20	M6090203C	14,476,618	-	-	-	-	-	-	-	-	-	-	
21	M6090203B	5,096,000	-	-	-	-	-	-	-	-	-	-	
22	M6090203A	15,715,375	-	-	-	-	-	-	-	-	-	-	
23	M6090202B	57,076,000	-	-	-	-	-	-	-	-	-	-	
24	M6090202A	24,365,018	-	-	-	-	-	-	-	-	-	-	
25	M6090201A	10,828,721	-	-	-	-	-	-	-	-	-	-	
Remaining			-	-	-	-	-	-	19.67	-	-	16	

60902 - Kumakh / कुमाख - MTMP SUMMARY

MTMP Investment Needs

The needs include 32.62KM of rehabilitation, 65.0 KM of gravelling, 15.62 KM of Blacktopping , 2.94 KM widening of the existing earthen roads including 146 m bridge construction, 434 m causeway construction, 20 nos. of slab culvert, 268 nos. of pipe culvert and 27,983 m3 of retaining wall construction.

New construction	Rehabilitation	Gravelling	Blacktopping	Widening	Bridge	Causeway	Slab culverts	Pipe culverts	Retaining walls
-	32.62 km	65.00 km	15.62 km	2.94 km	146 m	434 m	20 #	268 #	27,983 m3

MTMP Investment Costs

The investment costs come to a total of NPR 93.28 crore for the entire MRCN.

New construction	Rehabilitation	Gravelling	Blacktopping	Widening	Bridge	Causeway	Slab culverts	Pipe culverts	Retaining walls
-	77,950,496	147,387,500	72,289,360	8,664,180	230,680,000	41,230,000	63,000,000	109,707,800	181,891,125

MTMP Funding

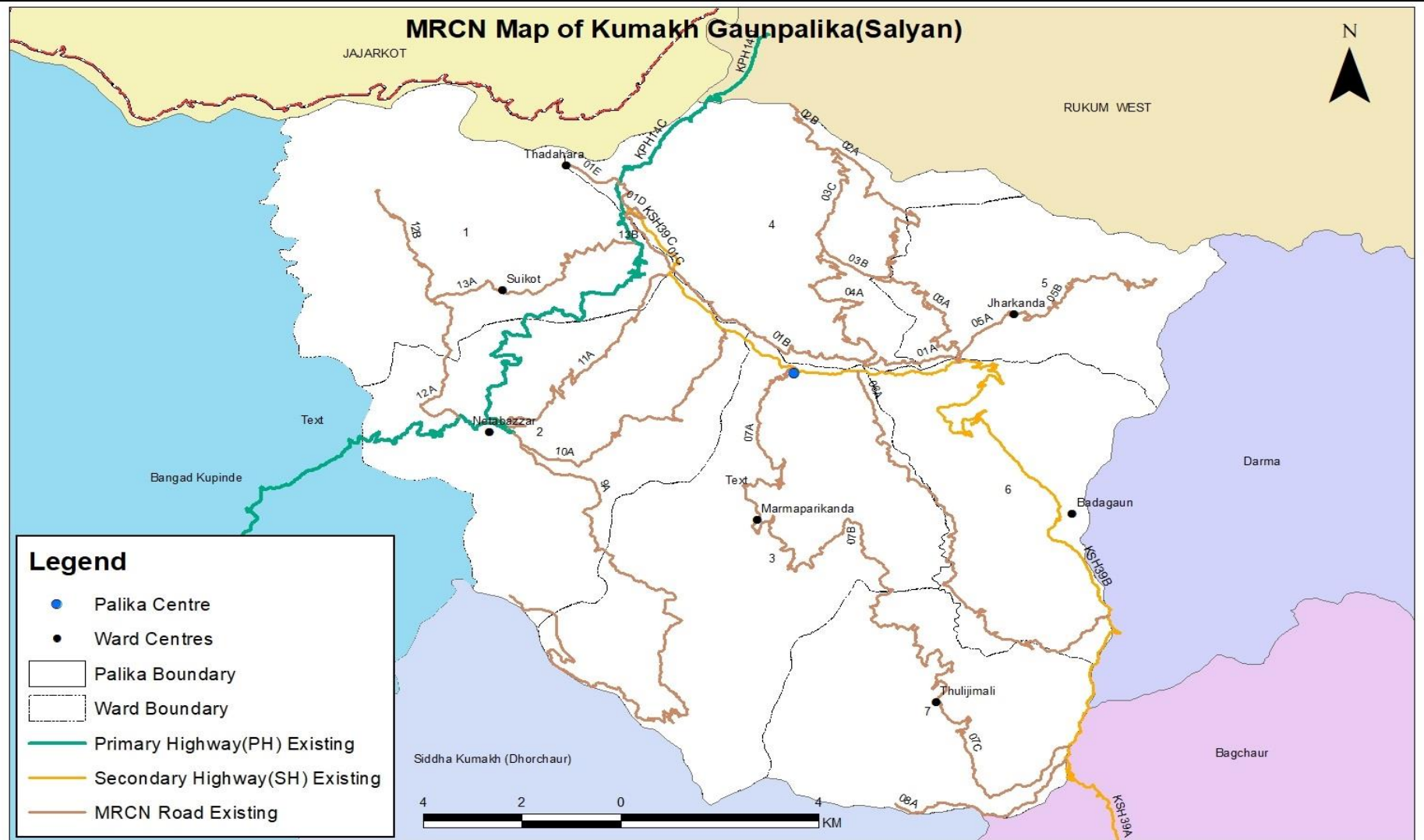
Total funding of FY 2078/79 adds up to NPR 15.65 crore with inflation of 10% every year upto the FY 2082/83. As per MTMP Guideline provision, 20% of the annual budget can be spent for non-core MRCN roads and 20% of the annual budget after deducting for Non-MRCN will spend for regular and recurrent maintenance . The remaining budget will be available for upgrading of MRCNs.

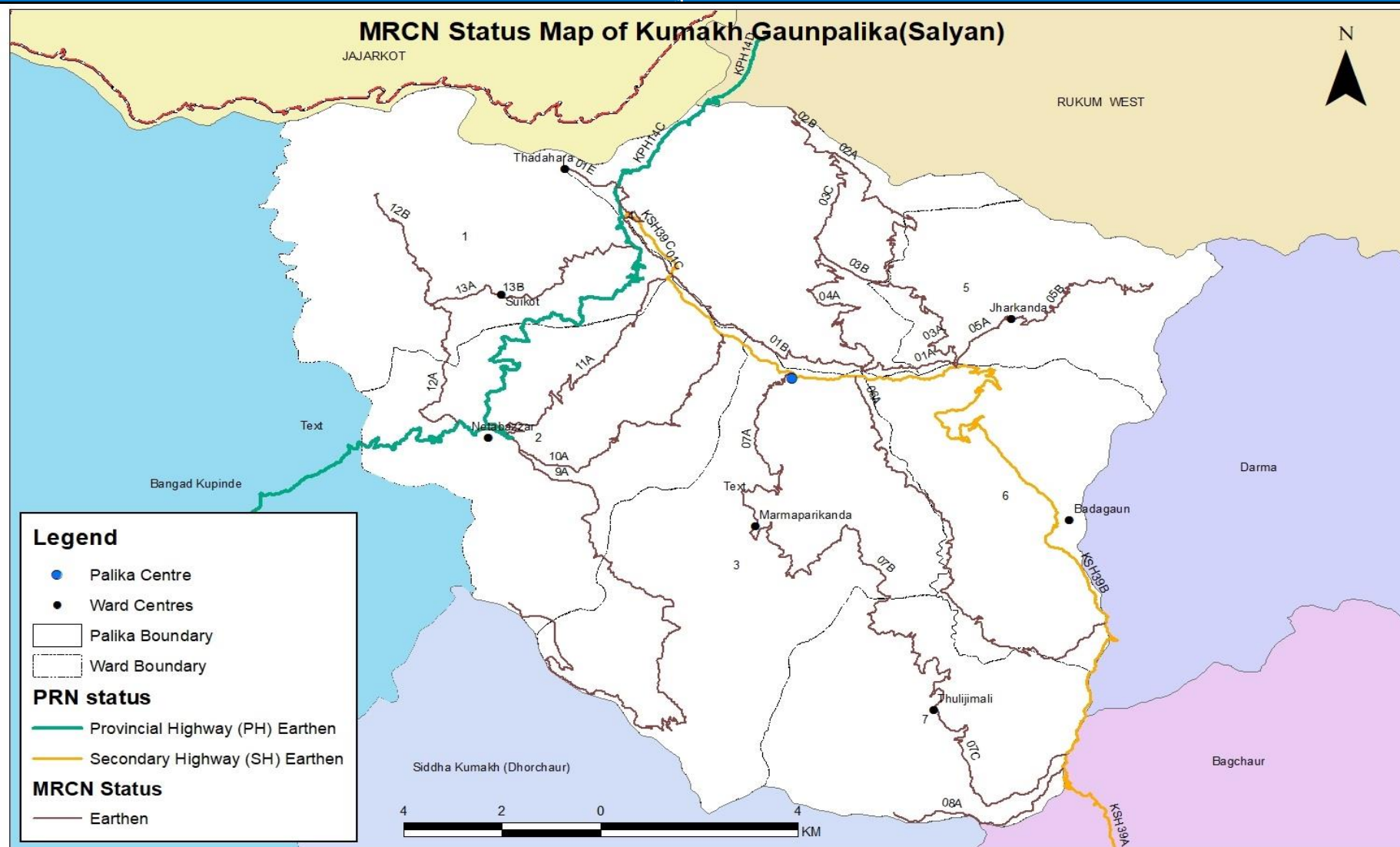
2078/79	2079/80	2080/81	2081/82	2082/83
156,500,000	172,150,000	189,365,000	208,301,500	229,131,650

MTMP Outputs

The implementation of the MTMP will result in Gravelling of 45.33 km (70% of total requirement), Blacktopping of 15.62 KM (100% of total requirement), Widening of 2.94 KM (100% of total requirement) and Bridge construction of 130 m span (89% of total requirement). Also includes construction of road structures (Causeways, Slab culverts, Pipe culverts and Retaining structures) entirely of 14 road sections and partially of one more road section where budget allocation provisioned.

New construction		Gravelling		Blacktopping		Widening		Bridge	
-	-	45.33 km	70%	15.62 km	100%	2.94 km	100%	130 m	89%







60902 - Kumakh / कुमाख - Non MRCN list

SN	Code	Non MRCN	Status	Surface	Existing(km)	Plan(km)	Start Point	End Point	Settlement	Wards Pass	Traffic	Remarks
1	NonMRCN	Milanchowk-Pallothala road	Existing	Earthen	3.87		Milanchowk	Pallothala	Milanchowk,Pallothala	1	T1	
2	NonMRCN	Timile-Gattena-Bhairabstan road	Existing	Earthen	1.50	4.25	Bhairabstan	Timile	Gattena,Timile	2	T1	
3	NonMRCN	Marmaparikanda-Seripata road	Existing	Earthen	4.2		Marmaparikanda	Seripata	Marmaparikanda	2	T1	
4	NonMRCN	Balya-Taldwari road	Existing	Earthen	2.93		Balya	Taldwari	Balya,Taldwari	5	T1	
5	NonMRCN	Timile-Sagine road	Existing	Earthen	1.48		Timile	Sagine	Timile,Sagine	2	T1	
6	NonMRCN	Balya-Neta-Jharkanda road	Existing	Earthen	4		Balya	Jharkanda	Balya,Neta,Jharkanda	5	T1	
7	NonMRCN	Neta Thangbara road	Existing	Earthen	4.26		Neta	Thangbara	Neta,Thangbara	5	T1	

ANNEX 2

The following information is extracted from the MTMP Guidelines.

1. MUNICIPAL ROAD CORE NETWORK (MRCN)

1. These MTMP Guidelines focus on the Local Road Network (LRN). As mentioned above, this includes urban streets in the built-up areas of *nagarpalikas*, as well as local roads connecting the different ward centres, villages and settlements, markets and other services and agricultural areas. These MTMP Guidelines do not deal with urban streets which should be treated in a different way from the other local roads (for urban streets the focus is not on access, but on condition and capacity). For the other local roads, a further distinction is made between core local roads that provide priority connectivity to the ward centres and other important areas within the *palika*, and non-core local roads that provide additional connectivity to villages, settlements and agricultural areas within the *palika*. The core local roads together form the **Municipal Road Core Network (MRCN)** and connect the ward centres and other important areas in the *palika* to the *palika* centre, to the provincial road network (PRN) and to the central road network (CRN).

Municipal Road Core Network (MRCN)

- Main local roads connecting the ward centres (if not classified as CRN or PRN)
- Main local roads connecting important markets and tourism, economic or cultural places
- Former DRCN roads that are not classified as PRN

Non-core local roads

- Remaining LRN roads connecting villages and settlements
- Remaining LRN roads connecting agricultural areas

1.1 MRCN CODING AND SECTIONING

2. Once the MRCN roads have been identified, they need to be given a MRCN road code to uniquely identify them. The MRCN road code will consist of the letter “M” to identify that it is part of the MRCN, followed by a five-digit code to identify the province, district and *palika* (e.g. 61001 for Simta *palika* in Surkhet district in Karnali Province – see Annex2 of MTMP Guideline for a list of the province, district and *palika* codes), a two-digit code to identify the road (01, 02, 03, etc.), and finally a one-letter code to identify the road section (A, B, C, etc.). For instance, P6100103B is the second section of MRCN road number 03 in Simta *Palika*, Surkhet District, Karnali Province.

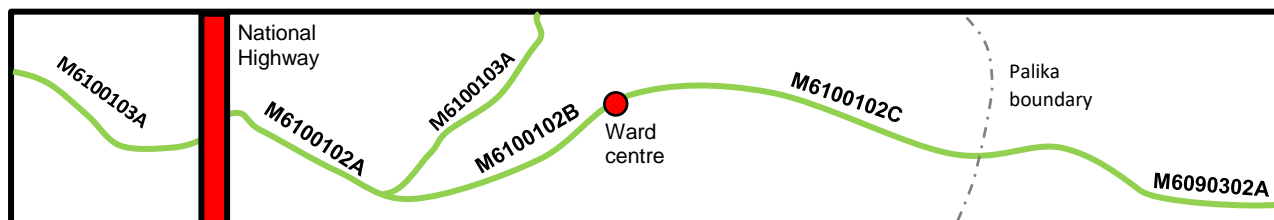
Table 1 MRCN Road Code

M6100103B	=	M	610	01	03	B
MRCN Road Code		MRCN	Surkhet District	Simta Palika	Road Number	Section Letter

3. **MRCN sectioning** - The division of MRCN roads into sections is done to facilitate

4. monitoring and planning. A new section is started whenever a MRCN road passes a ward centre or where it intersects with another MRCN road. Where a MRCN road intersects with a CRN or PRN road, the road number will change. Where a MRCN road crosses a palika boundary it will receive a different road code referring to the other palika.

Figure 1 MRCN Sectioning



5. **MRCN numbering** - The numbering of the MRCN roads should be done palika by palika. Numbering should start with the MRCN roads nearest the palika centre, starting at 01 in each palika and continuing the numbering until all roads are numbered. The sections should be given letters A, B, C etc. starting at the CRN or PRN and working towards the end of the MRCN road. Where MRCN roads are connected by CRN or PRN roads at two ends, the section letters should start at the most important connection.

2. MRCN SURVEY

6. **Traffic estimations** - As part of the MRCN status, the traffic volumes in each road section should be estimated. Since MRCN roads generally have low traffic volumes, estimations of the traffic volumes in number of vehicles per day (VPD) will be considered sufficient. Only where the number of vehicles per day is estimated to be higher than 100 will it be necessary to carry out an actual traffic count. The traffic counts and estimations will form the basis for deciding whether or not a MRCN road is eligible for blacktopping or widening. Based on the Nepal Road Standards (2013), the Nepal Rural Road Standards (2012) and the Provincial Transport Master Plan (PTMP) Guidelines (2019), the following road classes and traffic thresholds have been defined. The thresholds are defined in passenger car units (PCU), whereby heavy vehicles are counted as the equivalent of multiple passenger cars, and motorcycles are counted as the equivalent of less than a passenger car. For easy reference, the approximate number of vehicles per day is also indicated in the table below. This means that roads with traffic volumes below 100 VPD should be built to a 3.75 metre carriageway with an unsealed surface. In line with the NRRS, the carriageway width for such low volume roads may be reduced to 3.00 metres if the traffic is unlikely to increase due to a dead end, the population density is very low, or the terrain is difficult and complicates the construction of a wider carriageway. When traffic exceeds 100 vehicles per day, the road should have a carriageway width of 3.75 metres and the road surface may be upgraded to blacktop standard. If the traffic volume exceeds 400 VPD, the road will need to be widened to 5.50 metres (with a blacktop surface).

Table 2 Traffic categories and related surface and width standards

Traffic category (present-day PCU)	Traffic threshold (in present-day VPD)	Technical Standard
T1 – low traffic of less than 150 PCU	<100 VPD	Class IV-A: 3.75m single lane unpaved (3.00m allowed)
T2 – intermediate traffic of 150-500 PCU	100 VPD – 400 VPD	Class IV-A: 3.75m single lane blacktopped
T3 – moderate traffic of 500-1,000 PCU	350 VPD – 650 VPD	Class IV-B: 5.50m intermediate road blacktopped

3. MUNICIPAL TRANSPORT MASTER PLAN (TEMPLATE)

3.1 MRCN RANKING TABLE

7. The MRCN Ranking Table serves to determine the priority of the different MRCN road sections, allowing them to be ranked in the order in which they will receive funding. High ranked road sections will receive funding sooner than low ranked road sections. The ranking makes use of several criteria, each of which receives a certain weight or maximum number of points that can be scored. The scores for the different criteria are added up to determine the total score of each MRCN road section (out of a maximum score of 100).

8. Most of the criteria are calculated automatically based on the data provided in the MRCN Table and the MRCN Connectivity Table. However, one criterion relates to the palika priority given to each road section (1-high, 2-medium or 3-low), allowing certain road sections to be allocated additional points. The MRCN roads are ranked using the following criteria.

- **Population served (recommended 40 points)** – This criterion looks at the number of people living in the wards of which the centres are connected by the specific section (directly or indirectly). The score for each road section depends on the population of the ward connected by the specific section, divided by the maximum number of people served by any section, and multiplied by the maximum score for this criterion. Sections connecting larger wards or multiple wards will therefore receive a higher priority than sections connecting smaller wards or only one ward. This criterion is mainly aimed at MRCN roads that connect ward centres.
- **Population unconnected (recommended 20 points)** – This criterion looks at the number of people living in wards of which the centres are not yet connected by an existing MRCN road (defined as a MRCN section that has at least 1 km either under construction or planned). The score for each road section depends on the population of the ward to be connected by the section, divided by the maximum population to be connected by any section, and multiplied by the maximum score for this criterion. Road sections required to connect these unconnected ward centres and their unconnected populations are given additional points, ensuring that these wards receive priority in receiving road access. This criterion is aimed at MRCN roads that have not yet been constructed.
- **Traffic category (recommended 20 points)** – This criterion looks at the traffic volume in the MRCN road section. It makes use of the traffic categories determined in the MRCN Table. The score for each road section depends on the traffic category, with sections with T3 category or higher receiving the maximum score, T2 category receiving half of the maximum score, and T1 category receiving zero points. This criterion is aimed at prioritizing roads with high traffic volumes, as traffic volumes reflect the importance of the road. MRCN roads requiring new construction will generally have a low expected traffic volume and thus receive a low score for this criterion.
- **Palika priority (recommended 20 points)** – This criterion allows the palika to prioritize specific MRCN road sections that are considered important for the palika for whatever reason. The score for each section depends on the priority allocated, with priority 1 road sections receiving the maximum score, priority 2 road sections receiving half the maximum score, and priority 3 road sections or sections with no priority indicated receiving a score of zero. This criterion serves to take account of other prioritization criteria that may exist and that are not reflected in the ranking table.

3.2 MRCN INVESTMENT NEEDS TABLE

9. A specific case is the blacktopping of MRCN roads. Blacktopping should only be applied in roads where the traffic level exceeds the threshold for blacktopping. Roads with present-day traffic volumes of less than 100 VPD (150 PCU - traffic category T1) should not be blacktopped, while roads with present-day traffic volumes of more than 100 VPD (traffic category T2 or higher) may be blacktopped. Where a length for blacktopping is entered in the needs table for a section with present-day traffic volumes of less than 100 VPD (traffic category T1), a warning will pop up. It is still possible to enter a value, but this should be confirmed given the low traffic volume. The cell indicating the traffic category will be shaded orange to indicate that the blacktopping is not in line with the traffic thresholds.

10. Another specific case is the widening of the section. Widening from class IV-A 3.75m single lane to class IV-B 5.50 m intermediate lane is only justified where the present-day traffic volume exceeds 500 PCU (approximately 400 VPD - traffic category T3 or higher). Where a length for widening is entered in the needs table for a section with a width that already corresponds to the existing traffic volume (approximately 3.75m for traffic categories T1 and T2), a warning will pop up. It is still possible to enter a value, but this should be confirmed given that the traffic volume does not meet the threshold for widening. The cell indicating the traffic category will be shaded orange to indicate that the widening is not in line with the traffic thresholds.

3.3 MRCN BUDGETING TABLE

11. In practice the budget allocation will not be as straightforward as this. Specific funding sources may restrict funding to specific road sections or investment activities. Some investments may be spread over more than one year. The allocations can therefore be adjusted manually, spreading the required budget over several fiscal years or financing only specific investment types within a section (e.g. only the construction of bridges). The important thing is that the total budget allocation each year does not exceed the annual budget amount available for investments (a warning will pop-up if the total allocation exceeds the budget) and that the budget allocation follows the ranking order of the roads as much as possible (for road sections where the budget allocation is less than the required amount, the estimated costs are shaded orange). The budgeting table indicates the total budget allocation at the top of the column, as well as the remaining budget at the bottom of the column.

MTMP Unit Cost (Indicative cost)

S.N.	Karnali Pradesh - 7. UNIT COSTS											
	District (Palika)	New constructi on	Rehabilitat ion	Gravellin g	Blacktop ping	Widenin g (3.75 m carriage way)	Widening (with 3 m carriagew ay)	Bridge	Cause way	Culverts		Retaining walls
		(3.75 m width)	(3.75 m width)	(3.75 m width)	(3.75 m width)	(3.75 m carriage way)	(3.75 m carriage way)			Slab/Box	Hume- pipe	Gabion/Masonry
		NPR/km	NPR/km	NPR/km	NPR/km	NPR/km	NPR/km	NPR/m	NPR/m	NPR/culvert	NPR/culv ert	NPR/m ³ /km
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)1	(h)	(i)	(j)	(k)	(l)
1	Salyan (Kumakh RM)	7,966,000	2,389,800	2,267,500	4,628,000	2,947,000	2,516,175	1,580,000	95,000	3,150,000	410,000	6,500
2	Dailekh (Mahabhu RM)											

Note:

- i. Quantity of different item works are referred to quantities of similar work types and geography.
- ii. Unit rates are based on the prevailing district rates and remoteness.
- iii/1. Total width of single lane road is 5.85m (3.75 carriage way+1.50m shoulders + 0.6m side drain).
- iii/2. Total width of single lane road is 5.10m (3.00 carriage way+1.50m shoulders + 0.6m side drain).
- iv. Retaining wall volume for new construction section is estimated 450m³/km and for widening is 250 m³/km.
- v. Two 900mm dia single pipe culverts are provisioned for 1 km length of MRCN.
- vi. Only existing MRCN roads are provisioned for widening.
- vii. No rehabilitation required. If deemed necessary, unit cost shall be taken as 30% of new construction.
- viii. Bridge, slab/box culvert and causeway lengths are identified at the time of field data collection. But span of slab/box culvert assumed as 6m & unit cost calculated based on RCIP's similar structure.



कुमाख गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय

रागेचौर, सल्यान
कर्णाली प्रदेश, नेपाल

☎ ९८५७८४४८०९

पत्र संख्या : २०७८/०७९
चलानी नं. १२५

मिति: २०७८।०५।१३

श्री RAP को कार्यालय
सल्यान ।

विषय: सडक गुरुयोजना सम्बन्धमा ।

प्रस्तुत विषयमा यस गाउँपालिका अन्तरगत निर्माण गरिने सडकको गुरुयोजना नभएको हुदाँ कुमाख गाउँपालिकाको सडक गुरुयोजना निर्माणका लागि प्राविधिक सहयोग गरि सडक गुरुयोजना निर्माण गरिदिनुहुन अनुरोधसाथ सिफारिस गरिन्छ ।


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