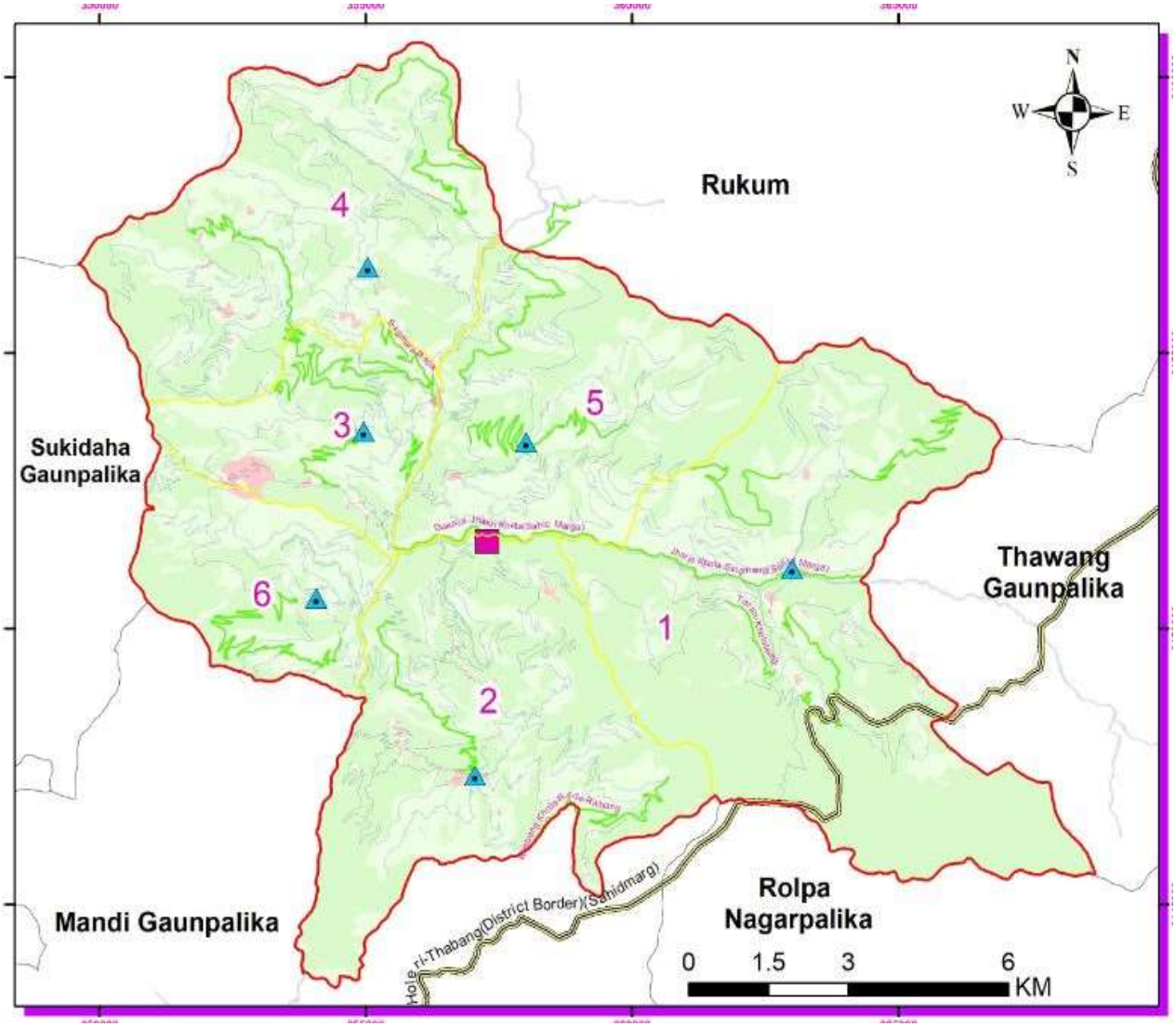
Government of Nepal
Ministry of Federal Affairs and Local Development
Office of Paribartan Rural Municipality

Preparation of Rural Municipal Transport Master Plan (RMTMP) of Paribartan Rural Municipality Volume-I



Prepared By:

Jaljala Engineering Consultant Pvt. Ltd.

Kathmandu Nepal

April 2022

FINAL REPORT

Acknowledgement

The Consultant team would like to express our deep sense of gratitude to President Mr. Nimkanta Dangi, Vice-President Mrs. Hit Kumari Budha Magar, Chief Administrative Officer Mr. Dhruba Raj Neupane, Engineer and accountant of Paribartan Rural Municipality Office for providing us the opportunity for the **"Preparation of Rural Municipality Transport Master Plan for Paribartan Rural Municipality"**. We would like to thank all the Ward presidents, Ward members, Section Chiefs and other municipal staffs of Paribartan Rural Municipality for their help and co-operation to the Consultant for the study.

We would like to thank all the citizens for their patience and friendly environment who were directly and indirectly involved in the data collection process. We are greatly thankful to everyone who helped in facilitating us for data collection.

The study team

मेरो भनाई

मानव सभ्यता विकासको सुरुवात सँगै मानविय सुविधाहरुको विकासलाई प्राथमिकता दिएको पाइन्छ । सायद यस अर्थमा मानविय सुविधा र सुखको विकास नै मानव सभ्यता विकासको एक अभिन्न अंग हो । आधारभूत भौतिक विकासका पूर्वाधारहरुद्वारा प्राप्त हुने मानविय सुविधाहरु मध्ये सडक यातायातको विकास समग्र विकासका आयामहरु मध्ये एक अपरिहार्य आयाम हो भन्ने कुरा निर्विवाद छ । यसर्थ यस गाउँपालिकाले विकासका योजना तर्जुमा गर्ने सन्दर्भमा सडक यातायात गुरुयोजना निर्माणलाई समग्र विकासका योजनाहरु मध्ये प्राथमिकतामा राखी यो गुरुयोजना तयार पारिएको हो ।

नेपाल जस्तो भौगोलिक विषमता भएको देशमा यातायातका वैकल्पिक माध्यमहरु जस्तै जल परिवहन, रोपवे वा हवाई यातायातका सम्भावनहरु न्यून तथा बढी खर्चिला भएका कारण सडक यातायातलाई प्राथमिकतामा राख्नुपर्ने हुन्छ । यद्यपी, भौगोलिक संरचना र बजेटका कारण सडक यातायातको पर्याप्त विकास गर्ने कार्य समेत कठिन र खर्चिलो नै छ। यस अवस्थामा सडक यातायातको योजनाबद्ध विकास नगरी अगाडि बढ्दा त्यो झनै खर्चिलो, अव्यवहारिक र असंगठित हुन जाने भएकोले यसलाई योजनाबद्ध र दिगो तरिकाले अगाडि बढाई कालान्तरमा समग्र गाउँपालिकाको योजनाबद्ध विकासमा समेत सहयोग होस् भन्ने हेतुले यो सडक यातायात गुरुयोजना निर्माण गरिएको छ ।

यो गुरुयोजना निर्माणका क्रममा गाउँपालिकालाई सहयोग गर्नुहुने उपाध्यक्षज्यू, प्रमुख प्रशासकिय अधिकृत, सम्पूर्ण वडा अध्यक्षज्यूहरु, समग्र गाउँ कार्यपालिकाका सदस्यहरु, वडा सचिवहरु तथा सम्पूर्ण कर्मचारीहरु, प्राविधिकहरु, सम्पूर्ण सरोकारवालाहरु र परामर्श सेवा प्रदान गरी सडक गुरुयोजना निर्माण कार्य सम्पन्न गर्ने परामर्शदाता जलजला इन्जिनियरीङ्ग कन्सलटेन्ट प्रा. लि., काठमाडौंलाई हार्दिक धन्यवाद ज्ञापन गर्न चाहन्छु ।

नीमकान्त डाँगी
अध्यक्ष

मेरो भनाई

करिब सात दशक लामो राजनैतिक संक्रमण पार गर्दै नेपाल राजनैतिक तथा सामाजिक हिसाबले एक नयाँ युगमा प्रवेश गरेको छ । संघिय लोकतान्त्रिक गणतन्त्रात्मक शासन व्यवस्थाको पूर्ण कार्यान्वयनको यस ऐतिहासिक घडीमा आइपुग्दा स्थानिय सरकारहरुले संविधानले प्रदान गरेका अधिकारहरुको उपयोग गरिरहेका छन् । यसै सन्दर्भमा नेपालको संविधानको अनुसूची ८ र स्थानिय सरकार सञ्चालन ऐन २०७४ को भाग ३ को उपदफा २ को (ट) ले स्थानिय सडक, ग्रामीण सडक तथा कृषि सडक निर्माण सम्बन्धी योजना तर्जुमा गर्ने कार्यको अधिकार स्थानिय सरकारलाई प्रदान गरेकोले विकासको प्राथमिक पूर्वाधारको रुपमा रहेको सडकको गुरुयोजना निर्माण कार्यले यस गाउँपालिकामा अन्य विकासका क्रियाकलापहरु अगाडि बढाउन मार्ग प्रसस्त गर्नेहुँदा यो सडक यातायात गुरुयोजना निर्माण गरिएको हो । यो सडक यातायात गुरुयोजनाले आगामी दिनहरुमा गाउँपालिकाको व्यवस्थित र वैज्ञानिक विकासमा दिर्घकालिन रुपमा सहयोग पुऱ्याउने छ भन्ने विश्वास लिएको छु ।

यस गुरुयोजना निर्माणमा प्रत्यक्ष वा परोक्ष रुपमा सहयोग पुऱ्याउनु हुने गाउँपालिका अध्यक्षज्यू, उपाध्यक्षज्यू, सम्पूर्ण वडाअध्यक्षज्यूहरु, गाउँपालिकाबासीहरु, सम्पूर्ण प्राविधिक तथा कर्मचारी साथीहरुप्रति म हार्दिक धन्यवाद दिन चाहन्छु । साथै, यो गुरुयोजना तयार पार्ने पराशर्मदाता, जलजला इन्जिनियरीङ्ग कन्सलटेन्ट प्रा. लि. काठमाडौंलाई समेत धन्यवाद दिन चाहन्छु ।

ध्रुव राज न्यौपाने
नि. प्रमुख प्रशासकिय अधिकृत

भनाई

आधारभूत तथा दैनिक मानविय कृयाकलाप संचालनमा आवत-जावतको अहम् भूमिका हुन्छ । आवत-जावतमा सुगमता र सहजता बृद्धि हुँदा समुदाय बीचको सम्पर्क र समन्वयमा अभिवृद्धि हुन्छ । यसले प्रत्यक्ष रुपमा आर्थिक तथा सामाजिक कारोबार बृद्धि गर्न मद्दत पुऱ्याउँछ । तसर्थ आवत-जावतलाई सुगम र सहज बनाउन वैज्ञानिक सडक यातायात योजना निर्माण गर्नु अनिवार्य हुन्छ । अन्यथा अवैज्ञानिक तवरले विकसित भएको सडक सञ्जालले सहजताको विपरित जटिलता थप्ने गर्दछ ।

बृहद् ऐतिहासिक तथा राजनैतिक परिवर्तन पश्चात संविधानले हामीलाई मौलिक हक तथा जनता केन्द्रित शासन व्यवस्थाको प्रत्याभूति गरेको सन्दर्भमा, यस गाउँपालिका एक स्वायत्त स्थानीय सरकार समेत भएकोले, गाउँपालिकाको वस्तुगत अवस्थालाई मध्यनजर गरी यहाँका प्राथमिकतालाई निर्धारण गर्ने कार्य स्वयं गाउँपालिकाले नै गर्नुपर्ने हुँदा सम्पूर्ण विकासको आधारभूत पूर्वाधारको रुपमा रहने सडक यातायातको दिगो विकास नै समग्र विकासको पूर्व सर्त भएकोले यस गाउँपालिकाले सडक यातायात गुरुयोजना निर्माणलाई प्राथमिकता दिएको हो । यो गुरुयोजना अन्य विकास निर्माणको समेत कोशेढुङ्गा सावित हुनेछ भन्ने मैले विश्वास लिएकी छु ।

अन्तमा यस गुरुयोजना निर्माणमा सहयोग पुऱ्याउनु हुने अध्यक्षज्यू, प्रमुख प्रशासकिय अधिकृतज्यू, सम्पूर्ण वडा अध्यक्षज्यूहरु, सचिव तथा सम्पूर्ण कर्मचारीहरु, प्राविधिकहरु, गाउँपालिकाबासीहरु तथा परोक्षरुपमा सहयोग पुऱ्याउने सम्पूर्ण महानुभावहरुमा म धन्यवाद दिन चाहन्छु । साथै प्राविधिक पक्षको जिम्मेवारी लिई यो योजना तयार पार्ने परामर्शदाता जलजला इन्जिनियरीङ्ग कन्सलटेन्ट प्रा. लि. लाई समेत धन्यवाद दिन चाहन्छु ।

हित कुमारी बुढा मगर

उपाध्यक्ष

Acronyms/Abbreviations

DDC	District Development Committee
DTMP	District Transport Master Plan
GIS	Geographic Information System
GPS	Global Positioning System
IDPM	Indicative Development Potential Map
RMIM	Rural Municipality Road Inventory Map
RMRCC	Rural Municipality Road Coordination Committee
NMT	Non- Motorized Transport
RMTMP	Rural Municipality Transport Master Plan
RMTPP	Rural Municipality Transport Perspective Plan
VDC	Village Development Committee
PCU	Passenger Car Unit
DOLI	Department of Local Infrastructure
OD	Origin and Destination
ToR	Terms of Reference
HH	Household
VDCs	Village Development Committees
PT	Public Transport
Min.	Minute
Km.	Kilometre
Sq. km	Square Kilometre
Ha	Hectare

Table of Contents

List of Figures

List of Tables

Executive Summary

Transport facilities help in developing access with the rural-urban linkages. Road accessibility can reduce isolation, stimulate crop production and marketing activities, encourage public services and help to transfer technology. Road building has been seen to bring about notable enthusiasm and visible changes in rural life. Road infrastructure is considered as "the infrastructure for infrastructure". However, in the absence of notable criteria and rational guidelines, road construction is carried out in adverse manner resulting in haphazard use and wastage of limited resources. Rural Municipal Transport Master Plan is prepared for assessing and planning the present road and transport infrastructures and facilities within the Rural Municipality and its surrounding.

The Paribartan Rural Municipality was established by merging the existing Kureli, Rangsi, iriwang, Pachhawang and Rangkot village development committees (VDCs) having a total of 163.01 square km. The center of the Rural Municipality is established in Putalachaur. After merging the five VDCs it had a total population of 20778 according to 2011 AD Nepal census. The population density of Paribartan is 128 person/sq. km. Paribartan Rural Municipality has altogether 6 wards.

RMTMP started with the setup of Rural Municipal Road Coordination Committee (RMRCC) and the collection of demand and inventory of road within the rural municipality.For the collection of existing road infrastructure data, GPS survey was used and total length of road surveyed was 263.56 km, allof them are earthen. During ward level meeting, local peoples and their representatives have proposed new roads of total length 317.12 Km that possess potential to attract more tourists to this rural municipality and thus increase the overall economy of the rural municipality. Currently, 5 motorable bridges are under operation.

Visionary city development and Indicative Development Potential Plan is prepared showing the existing and potential market center/service centers (key growth centers) and the areas having various development potentials such as agro-based industries, high value cash crops and tourism. This city may be developed as the agricultural-cultural-historical centre and with promoting this, the tourism can be improved. By improving the agriculture and tourism sector we have to develop the economic status,health, education and environment of the people of this rural municipality.

This study formulated the road hierarchy for the various roads namely Class A, B, C and D . Class C & D basically deals with access while Class A and B basically deal with mobility and accessibility to higher services. The minimum right of way, setback, pavement width and footpath width provisions for the different classes of roads are recommended as follows:-

S.N	Class of Road	Minimum RoW(m)	Setback (m)	Pavement (m)	Footpath(m)
1	A	14	2	10	1.5m/1.5m(Both side)
2	B	10	1.5	7	1.5m (One side)
3	C	7	1.5	5	1.5m (One side
4	D	6	1	4	None

There are total 127 roads of Class A, B, C and D and their lengths are summarized as shown in the table below.

Road Class	Road Surface/Length of Roads in km				Sub-Total
	Blacktopped	Concrete Pavement	Earthen	Proposed	
A	-	-	100.19	11.80	111.99
B	-	-	60.83	23.95	84.78
C	-	-	71.71	41.31	113.02
D	-	-	30.83	240.06	270.89
Total	**-**	**-**	**263.56**	**317.12**	**580.68**

There are total 3.2 km length of district roads passing through this rural municipality which plays important role for inter-municipality mobility. The previous DTMP roads are considered to be constructed and maintained by the rural municipality itself due to the restructuring of the local levels. Hence they are considered as rural municipality roads but their RoW and Setback are considered as was in DTMP report.

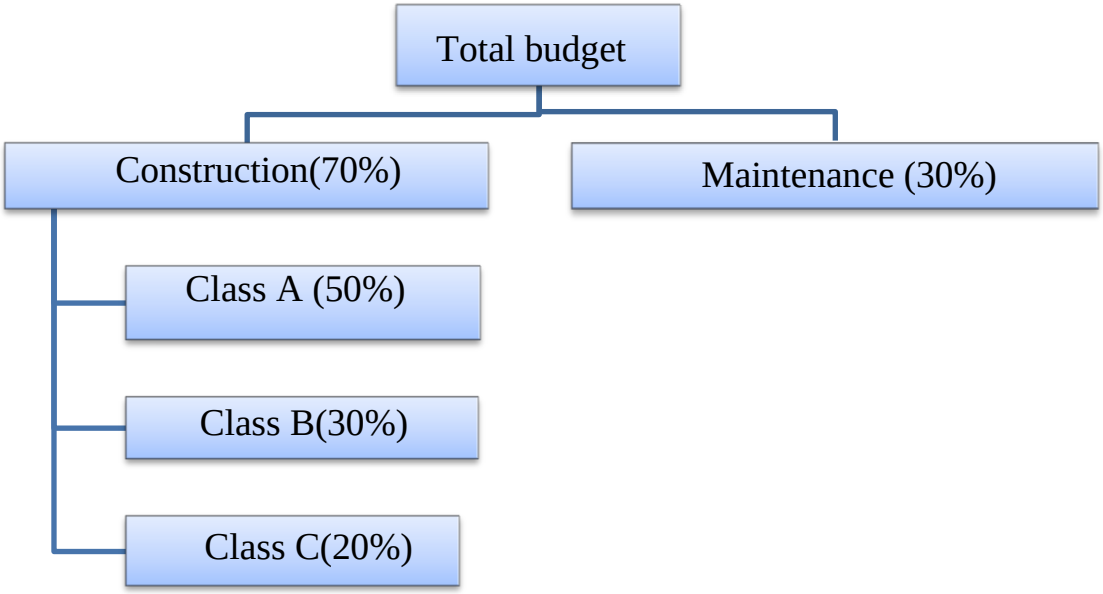
After formulation of the road hierarchy, all the 127 numbers of rural municipal roads are prioritized according to the criteria for prioritization. This prioritization will help for the priority wise development of the road network and this should be considered on implementation from the upcoming fiscal year.

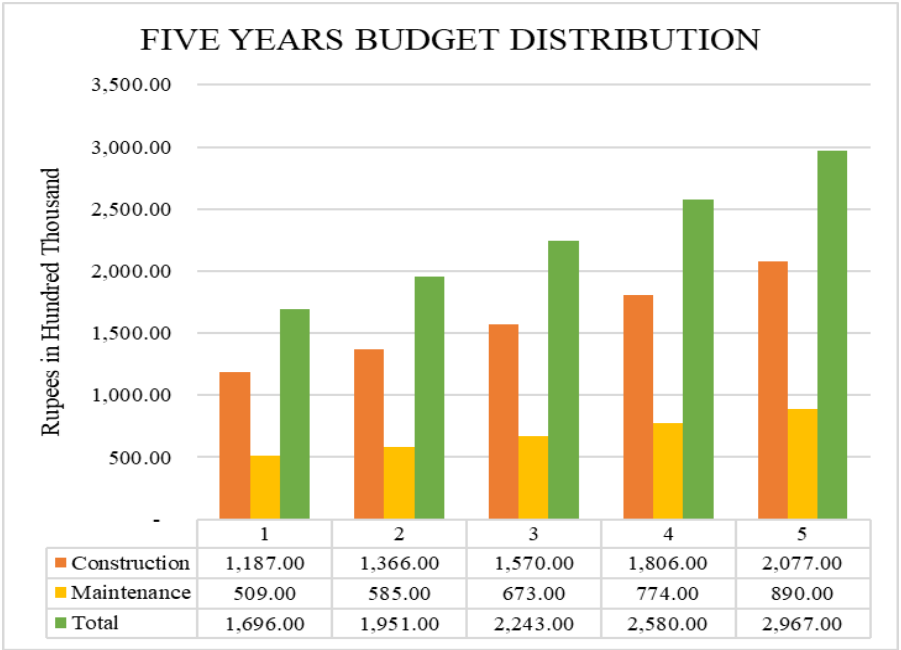
From long term planning perspective of twenty years,entire road network is considered to all weather and development to its full RoW with all cross drainage structures,retaining walls,drains and pavement status. Based on the requirement of interventions and the rate of DoLI for those items, the budget requirement for perspective period is projected and is estimated to be approximately 1737.67 Crore for the period of twenty years.

For the short term planning of coming five years, implementation plan is prepared to meet the 20 years perspective planning. For this, the estimated financial

requirement for this period is estimated to be NRs 114.37 Crore .: This projected financial requirement could not be fulfilled from the internal resources of this rural municipality only. So the funding from Federal government, Province government and other donor agencies could be the solution for the implementation of this RMTMP.

This estimated amount is further divided for different class of roads as follows:





Chapter 1: Introduction

1.1.Background

Life in organized human settlements, which are mostly referred to as communities, is only possible if people have mobility in daily basis. Residential area is spatially separated from workplaces, major shopping is concentrated in identifiable centers, and larger entertainment and relaxation facilities are found at specific locations. They have to have accessibility.

Transport facilities help in developing access with the rural-urban linkages. Road accessibility can reduce isolation, stimulate crop production and marketing activities, encourage public services and help to transfer technology. Road building has been seen to bring about notable enthusiasm and visible changes in rural life. Road infrastructure is considered as "the infrastructure for infrastructure". However, in the absence of notable criteria and rational guidelines, road construction is carried out in adverse manner resulting in haphazard use and wastage of limited resources.

Haphazard development of settlement in the urban area is a great problem which we learned from the past earthquake. From disaster risk management and reducing the problem of congestion we should go for planned development. Construction of roads after the settlement is made or extension of road only after the congestion problem creates different types of problem in the society which we are closely observing from different metropolitan cities. In this regard, formulation of Rural Municipal Transport Master Plan was initiated for assessing the present road and transport infrastructures and facilities within the Rural Municipality and the surrounding Municipalities. So as to be presented as proper rural municipality or a city, it must have a very good mobility and accessibility by public or private means of transportation.

1.2. Objective of RMTMP

The prime objective of this study is to prepare the Rural Municipality Transport Master Plan (RMTMP) for Paribartan Rural municipality. The planning approach is participatory and bottom-up from the settlement level. It will include a constructive plan to incorporate all the transportation needs and facilities for now and tomorrow. The specific objectives of the RMTMP are mentioned below:

1. Prepare the Rural municipality Inventory Map (RMIM) of all road networks.
2. Identify the major road networks linking the Rural Municipality with the surrounding areas.
3. Prepare Indicative Development Potential Map (IDPM).
4. Finalize visionary city development plan if Comprehensive Town Development Plan is not prepared.
5. Collection of demands for new/rehabilitation transport linkages from Municipalities / settlements based on city development plan.
6. Analyze the present mobility and accessibility situation.
7. Identify and prioritize the interventions based on mobility and accessibility situation.
8. Develop scoring criteria and its approval from Rural Municipality.
9. Prepare the Perspective Plan of transport services and facilities (Rural Municipal Transport Perspective Plan)
10. Prepare physical and financial implementation plan of prioritized roads for the RMTMP period.
11. Prepare a five years Rural Municipality Transport Master Plan (RMTMP).

1.3. Scope and Limitation of RMTMP

The scope of this work and service the consultant will provide for the project is given below:

a. Accessibility data Collection and Analysis.

   The accessibility situation shall be evaluated from the settlement level and data shall be collected using a GPS. Various surveys may be carried out to gain such data including their travel patterns, questionnaire surveys and origin-destination survey.

b. Analyze Mobility status of the rural municipality

   The consultant will also conduct mobility study, incorporated in the O-D survey. This is important especially because the road network in capital has provided access to majority of the population. The question then arises on how -efficiently, economically and safely the goods and passengers are transported, which is indicated by mobility.

c. Access the condition of public transportation

   The consultant will collect data on different public transportation routes and their operation characteristics, which operate within the municipal area and to other adjoining area.

d. Access safety status and issues

   The consultant shall also access the road safety status and issues. For this, roadside condition survey during road inventory survey and other accident data will be reviewed. Possible interventions to make the roads safer will be proposed and recommended.

e. Prepare the Indicative Rural municipality Development Potential Map (IDPM)

The consultant shall prepare IDPM using topographical base maps and digitized GIS maps. In the IDPM, the consultant shall identify potential areas for development and prioritize through ranking. The consultant shall validate the IDPM from the MRCC and Rural municipality.

f. Prepare Rural Municipality Inventory Map (RMIM) of existing roads within Paribartan Rural municipality.

The consultant will prepare the Rural Municipality Inventory Map linking to strategic road networks such as national highways, district core road network, main trails and bridges. This shall be done by walkover surveys using enumerators. The inventory map shall include the road names, total length and breadth of the roads, surface type, existing condition, Right of way, vehicular traffic and pedestrian traffic flow etc.

g. Collection of demands for New/Upgrading/Rehabilitation transport Linkages from Wards/Settlements

The consultant shall collect data regarding the construction, maintenance or rehabilitation of roads according to the existing condition and demand. The consultant will also seek to collect these data through ward meeting or community level discussion. The demand data shall be collected in priority order for each ward. The roadside condition of all the linkages will be noted during the road inventory survey.

h. Scoring criteria

The consultant shall develop scoring criteria to screen and prioritize all interventions potential interventions for proper allocation of limited budget. Scoring and prioritization criteria shall be checked with all linkages and interventions and approved by the rural municipality.

i. Road classification and Nomenclature

The consultant shall use metric system of nomenclature and apply the same classification throughout the data collection.

j. Preparation of perspective plan of interventions of services and facilities.

The data collected through accessibility survey, demand survey and inventory maps shall be used to prepare a perspective plan of interventions of services and facilities. All the identified interventions shall be screened and rated on the basis of approved criteria and forwarded to Rural municipality council meetings. The final perspective plan shall be shown in GIS maps.

k. Prepare a realistic physical and Financial Implementation Plan of Prioritized Roads for the RMTMP period

The consultant shall collect information on the resources that can be spent on the construction or rehabilitation of transportation infrastructures by the rural municipality. The consultant may also carry out studies to project the resources to fund the transport infrastructures for the next five years. From the total projected resources, the consultant shall discuss with the rural municipality to find out the appropriate proportion to be spent on ongoing roads and new interventions proposed. The projected resources should be

able to cope with the total number of roads and new interventions proposed.

l. Prepare Rural Municipal Transport Master Plan (RMTMP) of Paribartan Rural municipality

The consultant shall prepare Rural Municipal Transport Master Plan (RMTMP) for Paribartan Rural municipality with due consideration to the existing situation of: vehicular parking, travel routes, modes of transport, etc and propose for future urban growth. The consultant shall prepare a base scenario of the existing road and transport network and management based on the O-D survey and O-D matrix and prepare road inventory map and transport infrastructure network and management plan based on the travel demand forecast, population growth forecast, and growth rate of vehicular and transport infrastructure.

m. Prepare framework for medium term and long-term planning

The consultant shall also forecast the demand for medium term (10 years) and long term (20 years) and recommend a framework to guide future interventions and planning processes. The long-term plan shall consider the proposed East-West Railway and other major transport sector interventions in the long term.

1.4. Approach and Methodology

Rural roads are supposed to provide both access and mobility to all possible and potential areas. RMTMP will help to assist the planning of such roads to fulfil the stated objectives. Better planning is incomplete without relevant quality data and quality data can only be acquired by use of properly selected survey methods. The chapter deals with the methodological framework adopted for data collection

covering all used survey method, sampling techniques, quality and quantity of data along with data processing, analysis and presentation methodology.

1.4.1. Approach:

Rural Municipal Transport Master Plan has been prepared using participatory bottom up approach and differs from conventional practices of trickle down approach. Techno-Political interface has been incorporated in the planning process, where active participation from representatives of political parties, line agencies, rural municipality officials is crucial. The Rural Municipal Road Coordination Committee (RMRCC) has been constituted as authorized legislative body of rural municipality. This body, comprising all political parties' representatives and concerned technical officials, helps in necessary policy decisions during the RMTMP preparation and implementation process.

1.4.2. Methodological Framework:

The study started with preliminary planning or desk study where basic background of rural municipality is studied with help of secondary data including census data, GIS data. The study got acceleration with formation of RMRCC and inspection report. Various field surveys were carried out with objective of collecting primary data on transportation network, trip characteristics and service facilities. Along with the primary data, demands for various transportation projects (construction/upgrading/maintenance) were obtained from each ward. Also, potential areas/locations for various facilities were also identified based on interaction with local people and MRCC. The scoring criteria for prioritizing road network was identified based on ToR and will be approved by rural municipality. Then, the hierarchy of roads will be purposed and perspective plan of various interventions will be purposed and analysed based on available fund and finally physical and financial implementation plan of prioritized roads for RMTMP period. After analysis, the

study will come up with potential roads, that need immediate intervention and roads that need to be given consideration for effective future planning.

All the above-mentioned strategy adopted for data collection, processing and analysis is summarized in the following figure in next page.

Secondary Data Collection

Any sorts of data that were collected from secondary sources are called secondary data. These data were collected from annual report published by district level offices and consultation with various concerned stakeholders. Rural Municipal Road Coordination Committee (RMRCC), which compromises people from various fields and political parties, is the next source for various secondary data. Field study was also carried out for general socioeconomic assessment of the Rural municipality that includes collection of data regarding high development potential areas such as extensive agriculture, horticulture, livestock farming, high value cash crops, cottage and agro-based industries, centre for business/commerce/markets places, tourism area, service centres (hospital, health post, agriculture service sub-centre etc.). The information about demographic data of rural municipality, various maps showing service centres, transport infrastructure inventory, past plans and sector study reports, sector standards and policy targets were collected from the secondary sources, which includes Bureau of Statistics, Survey Department, Local NGOs, line agencies, DDC, Rural Municipality etc. Digitized topographic maps, administrative map of rural municipality, strategic road network map prepared by DoR, etc. were some other secondary data that were used during the study.

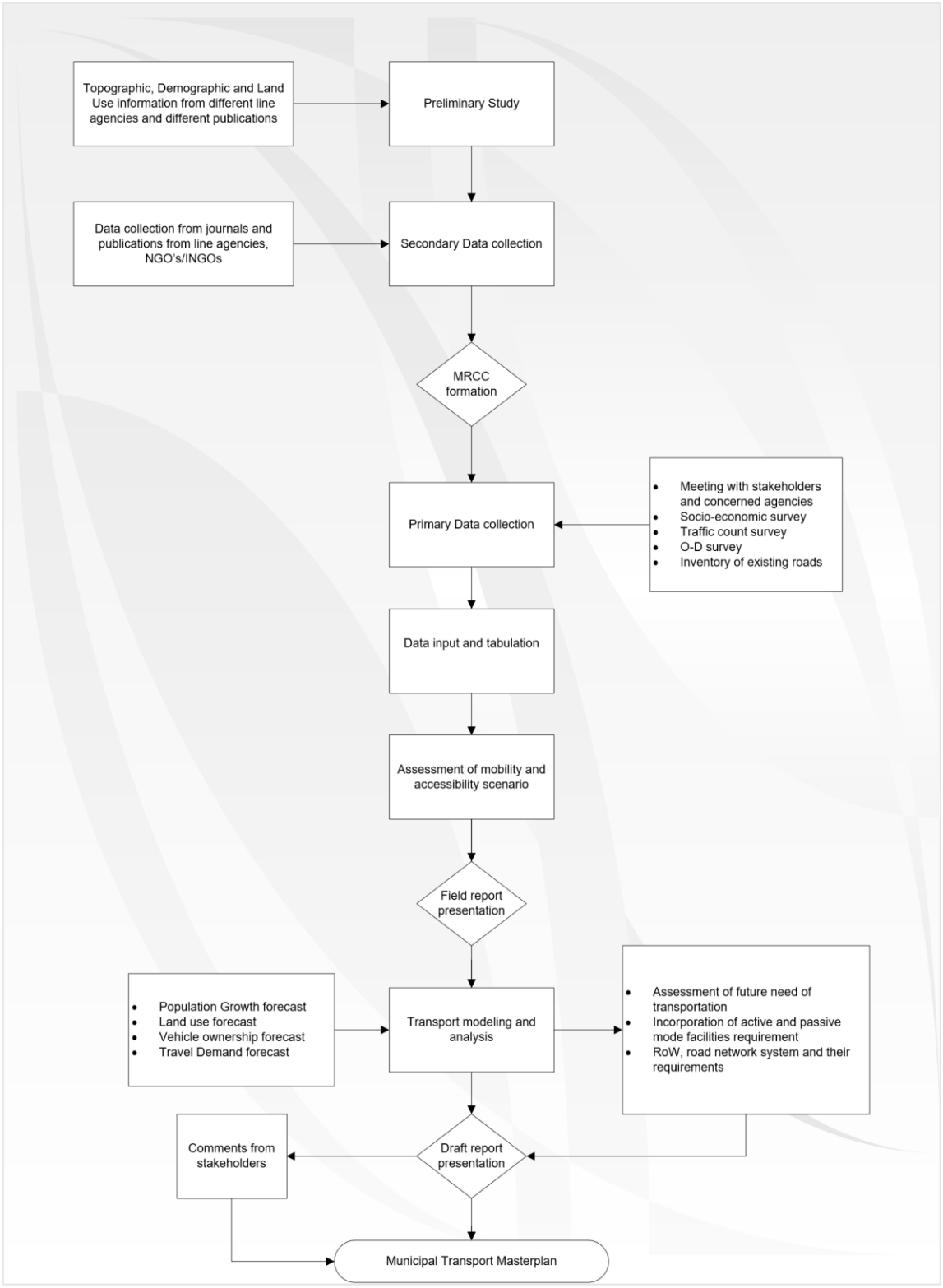


Figure 1: Methodological framework

Primary Data Collection:

Primary information on present household and trip characteristics, traffic characteristics, existing accessibility and mobility level of settlements, prioritized road network required for each ward are obtained via various reliable methods. Tracking of the existing road network along with detail information of its width, surface type and possible intervention required for the effectiveness of services is also carried out.

The primary data collection methods carried out in the field was:

- Origin and Destination (OD) Survey
- Road Inventory Survey
- Demand Survey
- Public Transport and Services Study

Household questionnaire method is used to conduct the OD surveys which give various information on questionnaire reflecting personal, household and trip making characteristics. This survey will also help to visualize the accessibility and mobility scenario of road network and to public transportation from the settlement/wards. As all the household can't be covered a realistic and statistically significant sample size was calculated based on probabilistic method.

Road inventory survey was conducted to collect data on its condition of road, road linkage, road safety status and issues that need to be highlight. It helps in field validation of base maps and also assists in preparation of road inventory map, nomenclature and coding of the road linkages and to propose various interventions.

Road Demand survey comprised of interaction session with the members of ward committee followed by asking them to fill up demand survey form, which

includes demand of new facility or interventions to improve existing roads based on priority.

Classified vehicle counts have been conducted so as to reflect the usage of various vehicles in the certain route, especially where maximum volume occurs. Twelve-hour count has been done at five locations and the vehicles have been classified to different types and finally traffic volume have been converted to passenger car unit (PCU) to visualize the exact condition.

Public Transport and Services Study highlights the services provided by public transportation and location of various services and facilities. It was carried out by directly interviewing the route operators.

Data Processing, Analysis and Presentation of Reports

Data collected at field were first entered at MS office tools (MS excel and Word) and GIS database. All the complete and reliable sets of data were transformed into useable information and the present scenario of rural municipality are shown through graphs, figures and tables. Similarly, those which were entered into GIS database provide various types of maps. Population and traffic were forecasted for the RMTMP and RMTPP time period. Various transportation models were used for interpretation and forecasting. And, finally various intervention was purposed and their economic analysis were also performed.

Preparation of Visionary city development plan

A creative description of Paribartan future, the vision guides our decisions, helps us set direction and encourages us to align our priorities as we work to make Paribartan Gaupalika, the city we want it to become in the year 2098/99 is the visionary city development plan. This will be finalised by the rural municipality. Based on this vision, the urban transportation planning is to be done.

Preparation of Indicative Development Potential Map (IDPM)

IDPM is basically the indication of the existing and potential market/service centres (key growth centres) and the areas having various development potentials such as high value cash crops, agro-based industries and tourism. Thus, IDPM shows the areas of high value cash crops, tourism potential, extensive agriculture, extensive horticulture, livestock farming, fisheries, hydropower location and the other social service centres areas such as hospital, post office, telecommunication, school, campus, VDC centres, security offices and large settlements, important historic and religious places. Finally, it indicates the grading of various markets of the district thus providing the basis of network planning.

Chapter 2: Review of existing infrastructure situation

The chapter deals with the present condition and scenario of the rural municipality based on various primary and secondary data sources. Socio-economic, trip, land use and transportation characteristics are basically dealt in this chapter along with analyzing accessibility and mobility scenario within the rural municipality. The basic data source of the analysis is the collected primary data.

3.1 Transportation

a. Road inventory

For the collection of existing road infrastructure data, GPS survey was used and total length of road surveyed was 263.56 km, All of them are earthen.

Table 1: Existing Road condition based on Surface Type

Ward No.	Surface type/ Length of roads in km			Sub-Total
	Blacktopped	Concrete Pavement	Earthen	
1		-	43.08	43.08
2	-	-	63.37	63.37
3	-	-	38.34	38.34
4	-	-	49.25	49.25
5	-	-	37.05	37.05
6	-	-	32.47	32.47
Total	**-**	**-**	**263.56**	**263.56**

Based on the data collected, it can be seen that the road density per 1000 population is 12.68 km per 1000 population and 1.62 km per square kilometre of

area. This value is high as compared to national statistics such as 1.91 km per 1000 population and 0.344 km per square kilometer.

Table 2: Road Density ward wise

S. N	New Ward	Total Population	Area (Sq. km)	Length of Road (km)	Road per Sq. km	Road per 1000 Population
1	1	2989	47.76	43.08	0.90	14.41
2	2	4650	32.69	63.37	1.94	13.63
3	3	3098	12.68	38.34	3.02	12.38
4	4	4333	31.72	49.25	1.55	11.37
5	5	3527	24.96	37.05	1.48	10.50
6	6	2181	13.2	32.47	2.46	14.89
Total		**20778**	**163.01**	**263.561**	**1.62**	**12.68**

In this road inventory survey, it was found that the roads of this rural municipality are narrow and their width is insufficient to cross two vehicles from opposite direction at a time.

According to the District Transport Master Plan (DTMP) of Rolpa District, one roads of total length 3.2 Km of this rural municipality are listed as district road core networks (DRCN)

Table 3: District Road Core Networks inside Paribartan Rural Municipality

S.N.	Name	Length (Km)	Remarks
1	Holeri-Thabang (District Border) (Sahidmarg)	3.2	District Road
Total		3.2	

These District Roads were under the responsibility of the District Development Committee and now they are under the responsibility of Rural Municipality itself.

Note:as these road are considered as rural municipality roads for implementation purpose, the RoW should remain as was in DTMP.

b. Foot Trails

This rural municipality is one of the major tourist attractions of Nepal. Tourist visiting this rural municipality prefer trekking over travelling.

c. Bridge/Crossings

This rural Municipality consists of steep hills, fast flowing streams, glaciers. Travelling across such geographical surface requires large number of bridges and crossings. Suspension bridges are widely used for crossing over streams along foot trails in this rural municipality. Currently 5 motorable bridges, 18 culverts and 2 causeways are under operation.

d. Road Priority

From the ward level workshop, the most demanding five roads for each ward are collected and these roads will be used for the road priority and while developing road hierarchy.

Table 4: Priority road length based on order of priority (in Km)

Ward No.	Priority order/ Length of roads in km					Sub-Total
	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	
1	20.27	8.04	2.00	5.69	5.20	41.20
2	19.09	10.04	6.71	9.81	7.77	53.42
3	10.49	4.46	4.49	4.37	10.60	34.41
4	8.72	9.80	8.48	11.66	9.09	47.76
5	19.38	7.53	7.61	5.00	10.32	49.85

6	13.59	6.32	7.07	4.82	3.11	34.90
Total	**91.54**	**46.19**	**36.37**	**41.35**	**46.09**	**261.54**

Table 5: Priority Road length based on intervention required

Ward No.:	Upgrading	New Construction	Total
1	24.83	16.37	41.20
2	52.42	1.00	53.42
3	27.74	6.67	34.41
4	38.28	9.48	47.76
5	23.35	26.50	49.85
6	26.99	7.92	34.90
Total	**193.60**	**67.94**	**261.54**

Table 6: Priority Road list

Road Code	Name of Road	Ward	Length (km)	Priority
A01	Jankot-Kureli-Rukum	1	20.27	1
B01	Botanekhang-Mabang-Jogi Dhada-Dangbasa-Vhootkhola-Ransi		8.04	2
C01	Taran-Kholabang		2.00	3
C05	Haimkhola-Marke-Kureli-Galkot		5.69	4
C03	Sarabang-Ipaldhara-Tanglang-Galsuka-Rangkot		5.20	5
A02	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	2	19.09	1
A03	Sisne-Pokhara-Chaudhara-Vabang		10.04	2
C06	Vanvane-Ongelikhe-Pakhabang-Pokhara		6.71	3
B02	Pokhara-Rimul-Kalabang Chaur-Kureli		9.81	4

B03	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur		7.77	5
A05	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	3	10.49	1
B04	Duekholi-Bagmara-Kungri Thok-Chunbang		4.46	2
C09	Keuri-Thunikot 3No Ward Office		4.49	3
C12	Purnaghau-Urim Ghau-Haibang-Aagra		4.37	4
A04	Kunpa-Keuri-Iribang-Kalapokhara		10.60	5
A06	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	4	8.72	1
B06	Salli Bazar-Agra Khola- Salla Bot- Kalapokhara		9.80	2
B05	Rapapokhari-Aarkhola-Raksebang-Lumcheri-Kalapokhari		8.48	3
A07	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale		11.66	4
C14	Sunarpani-Kholaghau-Basundhara-Dabare-Jareni-Masingaira-Tila-Rukum		9.09	5
B07	Gramgim-Koral-Triveni-Ragnam-Bagmara	5	19.38	1
A08	Putalachaur-Gorichaur		7.53	2
B08	Koral-Ninmyang-Maulabot-Jhakri Khola		7.61	3
C17	Duikholi-Jhakri Khola(Sahid Marga)		5.00	4
C16	Triveni Khola-Twang-Shyanilekh-Ranibot		10.32	5
A09	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	6	13.59	1
B09	Chhapka-Gurase		6.32	2
C19	Oha-Veerkuna-Sukudaha-Pachpunni		7.07	3
C20	Kolbot -Sukudaha		4.82	4
B10	Richibi Chahara-Obang-Rakulichour-Duekholi		3.11	5

e. Traffic condition

This rural municipality possess mixed traffic. The number of traffic in Holeri-Thabang(District Border)(Sahidmarg) is very high mainly due to vehicles serving districts. Traffic condition in other roads of rural municipality is very low. Public vehicles are easily available in highway but they are barely seen on other areas. Due to low number of public vehicles, motorcycle number is increasing rapidly within the rural municipality. For the goods transportation purpose, large and small trucks are being used and for the transportation of construction materials such as sand, stone and gravel, tractors and trippers are being used.

3.2 Visionary city development plan

The vision of this Paribartan Rural Municipality is to develop an environment friendly and clean rural settlement by fostering its potential for tourism, agriculture, and animal husbandry.

For this the main visionary city development plan of the rural municipality is to develop/preserve the following:

1. Tourism
2. Animal Husbandry
3. Agriculture

1. Tourism

   This rural municipality lies in the neighbourhood of major touristic hub, rolpa. Thus, the rural municipality bears a huge potential to develop its economy and uplift the living standards of local peoples, but this needs proper planning and management of touristic areas and routes to those places.

2. Animal Husbandry

   The climate of this Rural Municipality varies largely in very short distance. This gives favorable environment for animal husbandry in this Rural Municipality. Sheep and Goats are common livestock in high altitudes. The use of advanced technology and availability of market place can greatly increase the profit margin in animal husbandry.

3. Agriculture

   This rural municipality has landscape and climate favorable for high value cash crops. To cash in such potential of agriculture the method of agriculture must be transformed into modern agriculture system. The availability of proper irrigation facility and market is the key to success in agriculture, which is possible in this rural municipality with proper planning approach.

Chapter 3: Indicative Development Potential Map

3.1 Location

Paribartan Rural Municipality lies in Rolpa district of Lumbini Province. In 2073, the government of Nepal implemented a new local administrative structure consisting of 753 local units. With this implementation of the new local administrative structure, VDCs have been replaced with the municipal and rural municipal councils.

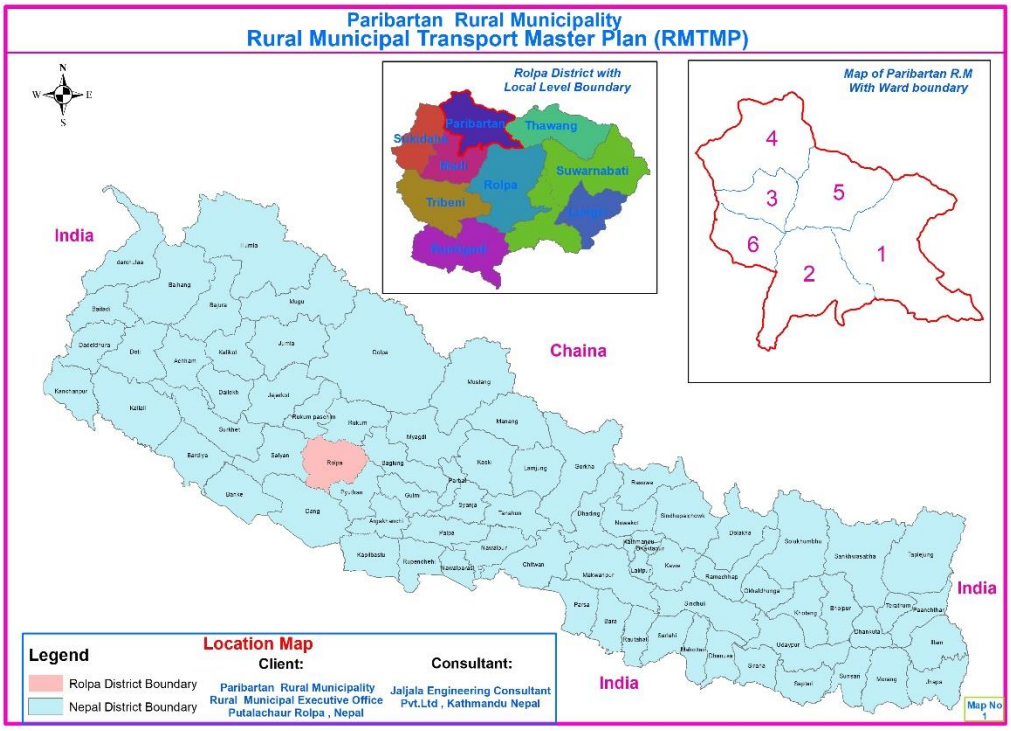


Figure 2: Local Levels of Rolpa District

The Paribartan Rural Municipality was established by merging the existing Kureli, Rangsi, iriwang, Pachhawang and Rangkot village development committees (VDCs) having a total of 163.01 square km. The center of the Rural Municipality is established in Putalachaur. After merging the five VDCs it had a total population of 20778 according to 2011 AD Nepal census. The population density of Paribartan is 128 person/sq. km. Paribartan Rural Municipality has altogether 6 wards.

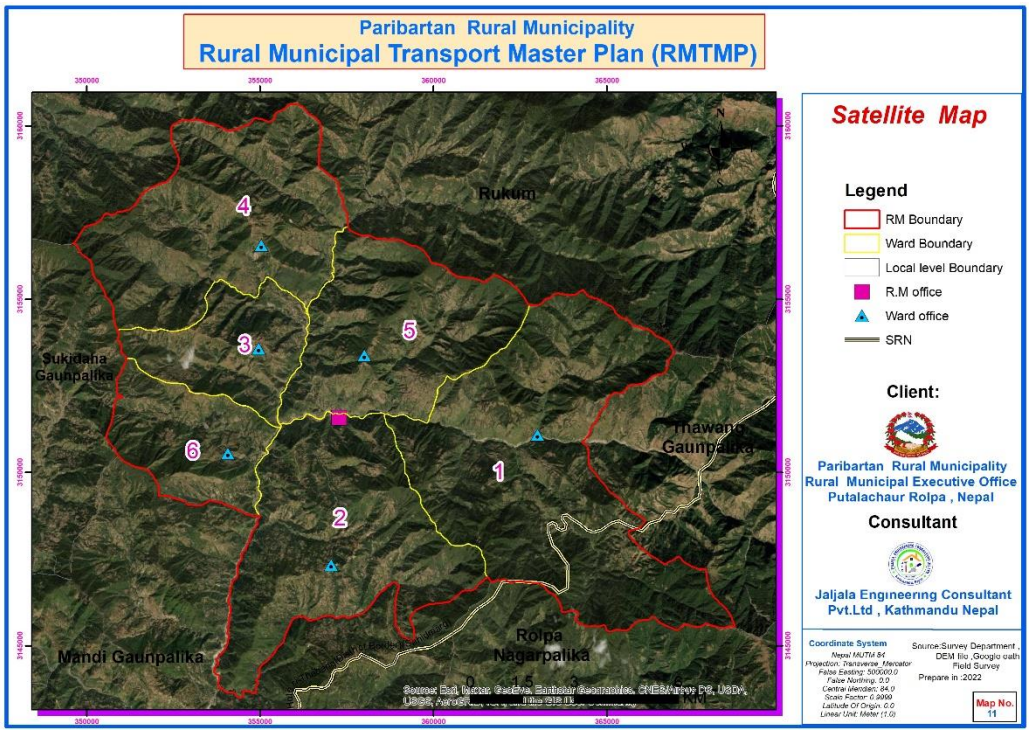


Figure 3: Satellite Map of Paribartan Rural Municipality

Table 7: Formation of wards of Paribartan Rural Municipality

S.N.	New Ward	Merged Vdcs	Popoulation	Area (sq.Km)
1	1	Kureli (1-9)	2989	47.76
2	2	Rangsi (1-9)	4650	32.69
3	3	Iriwang (5-9)	3098	12.68
4	4	Pachhawang (1-9)	4333	31.72
5	5	Rangkot (1-9)	3527	24.96
6	6	Iriwang (1-4)	2181	13.2
Total			**20778**	**163.01**

3.2 Socio-demographic

Population of this rural municipality in the year of 2068 was 20778 out of which 9279 are male and 11499 are female.The population density of this rural municipality is 128 persons per square kilometre .The rate of increment of population yearly is as people of this Rural Municipality tend to migrate to other places in search of opportunities and better infrastructure facilities.

Table 8: population prediction in paribartan rural municipality

Population as of 2011	20778
Population as of 2021	22001
Estimated Population after 5 years	
Arithematical Increase Method	22613
Geometrical Increase Method	22639
Estimated Population after 20 years	
Arithematical Increase Method	24447
Geometrical Increase Method	24667

3.3 Land-use condition

Being a rural area of hilly region almost 60.53% of the land is covered with forest area and nearly 38.22% of the land is used for shurb. The detail land use pattern of Paribartan Rural Municipality is shown in table below.

Table 9: Land use condition in the study area

Land-use Class	Area (sq.km)	Percentage Area
Barren Land	0.012	0.01
Built up area	1.756	1.08
Crops	0.185	0.11
Grassland	0.089	0.05
Shurb	62.303	38.22
Forest	98.672	60.53
water	0.001	0.00
Total	**163.01**	**100.00**

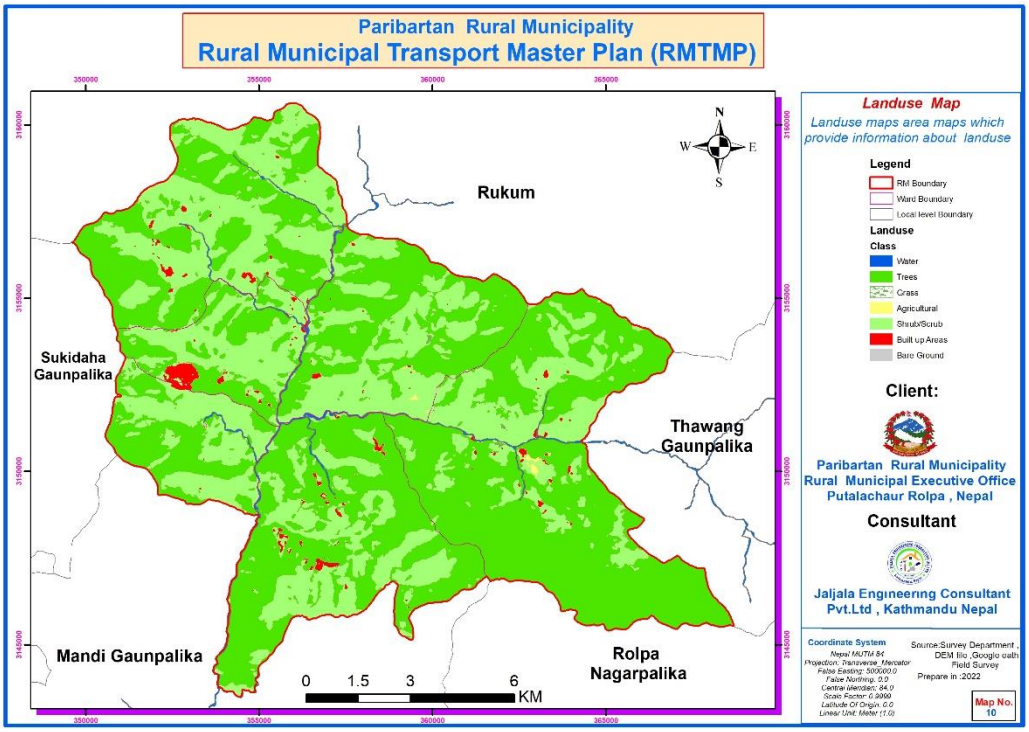


Figure 4; Land Use Map

3.4 Indicative development potential

IDP is basically the indication of the existing and potential market center/service centers (key growth centers) and the areas having various development potentials such as agro-based industries, high value cash crops and tourism. Thus, IDP shows high value cash crops, tourism area, and area of service centers such as hospital, post office, telecommunication, school, campus, security offices and large settlements, important historic and religious places. Finally, it prepares the ranking of the markets of the rural municipality as the basis of network planning.

Existing/potential areas are defined as:

- Existing/potential areas for development of small and large industries.
- Area with service centers such as hospital, post office, telecommunication, school, campus, security offices, Bus Park, sport and recreational centers etc.

- Potential areas for tourism development.
- Area with large settlements.
- Area with important historic and religious places.
- Areas with extensive high value cash crops
- Areas with extensive horticulture.
- Areas with extensive livestock farming.

Chapter 4: Rural municipality Inventory Map of Road Network

The Rural Municipal Transport Master Plan (RMTMP) that covers the next five years is prepared based on the projected financial requirement to fulfil the perspective plan. Year wise targets are prepared for the different roads and intervention types.

4.1 Road Classification

Roadways serve a variety of functions, including but not limited to the provision of direct access to properties, pedestrian and bicycle paths, bus routes and catering for through traffic that is not related to immediate land uses. Many roads serve more than one function and to varying degrees, but it is clear that the mixing of incompatible functions can lead to problems. Thus it is important to distinguish road in different class or type based on various criteria. A road hierarchy is a means of defining each roadway in terms of its function such that appropriate objectives for that roadway can be set and appropriate design criteria can be implemented. It is an important tool of road network and land use planning to asset management.

Road hierarchy restricts or reduces direct connections between certain types of links, for example residential streets and arterial roads, and allows connections between similar order streets (e.g. arterial to arterial) or between street types that are separated by one level in the hierarchy (e.g. arterial to highway and collector to arterial.) These hierarchical distinctions of road types become clearer when considering the recommended design specifications for the number of through lanes, design speed, intersection spacing and driveway access.

A well-formed road hierarchy will reduce overall impact of traffic by concentrating longer distance flow onto routes in less sensitive locations, ensuring land uses and activities that are incompatible with traffic flow are

restricted from routes where traffic movement should predominate and preserving areas where through traffic is discouraged.

The road hierarchy principles will assist planning agencies via orderly planning and provision of public transport routes, pedestrian and bicycle routes. It also identifies the effects of development decisions in and on surrounding areas and roadways within the hierarchy and also facilitates urban design principles such as accessibility, connectivity, efficiency, amenity and safety. Further, it also identifies treatments such as barriers, buffers and landscaping to preserve amenity for adjacent land uses.

This study also formulates the road hierarchy for the various roads. After going through large number of literature, the study has proposed four level hierarchy roads namely Class A, B, C and D. Class C & D basically deals with access while Class A and B basically deals with mobility and accessibility to higher services.

Based on various literature, the recommended right of way of ToR doesn't seems to be justifiable one as there is necessity of arterial road within the municipality. Also, the road space needs to be distributed to all road users equally with provision of green belt, cycle track thus there need to be a provision for green belt cycle track and footpath. After proper study the RoW of 14, 10, 8 and 6m is recommended for class A, B, C and D road respectively.

Type of City	Criteria	ROW based on Road Hierarchy (m)				
		Expressway	Arterial	Sub arterial	Collector	Local
Sub city	10,000-40,000	-	-	30	20	10
City	40,000- 100,000	-	50	30	20	10
Sub Metro City	**100,000-300,000**	50	30	20	10	10

Ref: Planning Norms and Standard 2015, GoN, DUDBC

ROW based on Road Hierarchy (m)				
Expressway	Arterial	Sub arterial	Collector	Local
-	50-60	30-40	20-30	10-20

Ref: Nepal Urban Road Standard 2068 (draft)

Standard	Cycle Track	Footpath (Minimum)	Median Strip
NURS 2068 draft	2 m on both side	2 m on both side	5 m
NRS 2070	2 m on both side	1.5 m on both side	5 m

Table 10: Comparison of Criterion of Road hierarchy

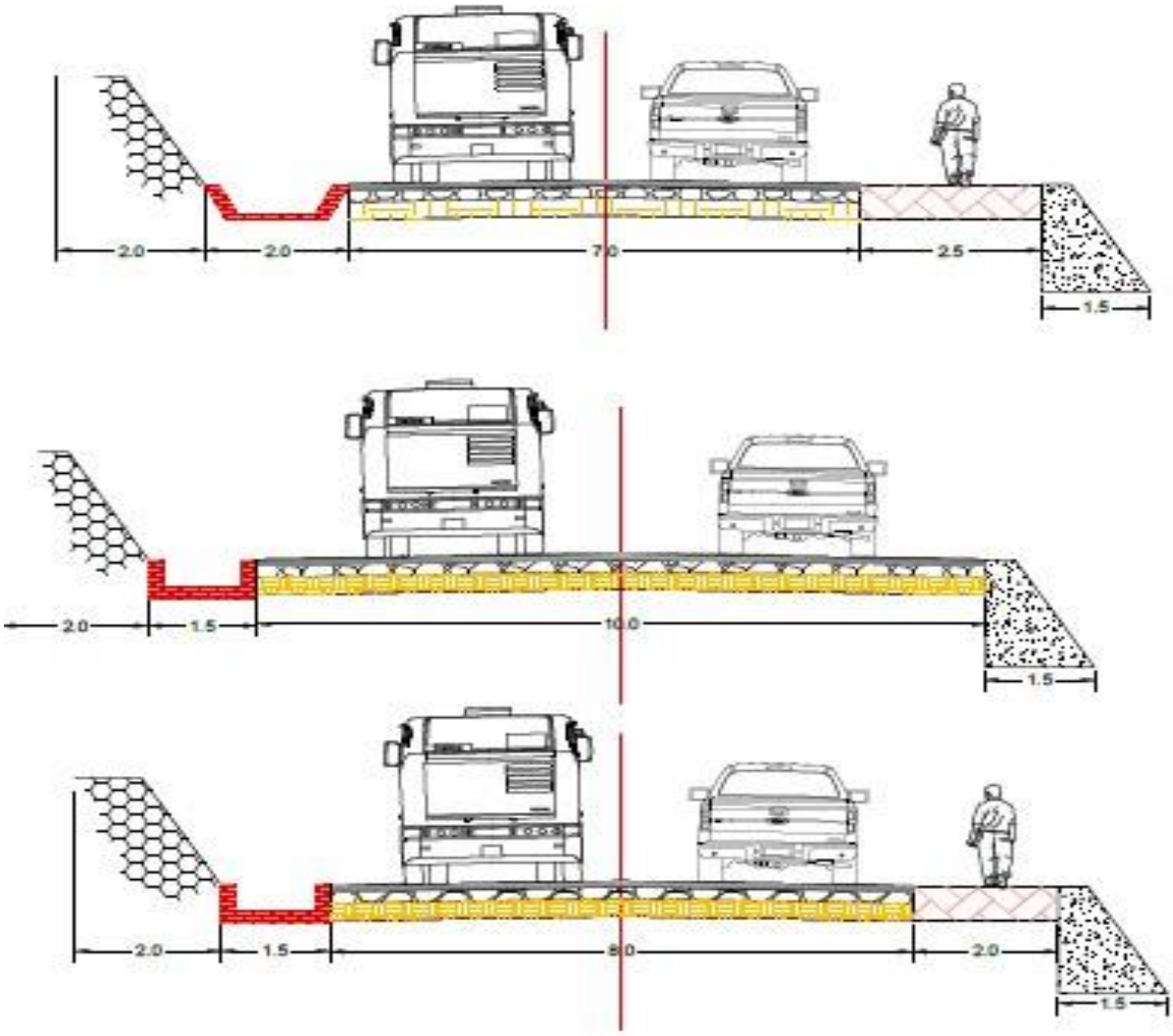
Criteria	**Class A**	**Class B**	**Class C**	**Class D**
Purpose	Mobility	Mobility and control access	Access and mobility	Access

Criteria	**Class A**	**Class B**	**Class C**	**Class D**
Function	Through and long distance movement	Connection between Class A and C roads; and also Provide alternative connection routes between Class A	Connects higher order roads and mobility to local trips	Connect local trips to higher level roads
	High network coverage	Support through movement of traffic	Access to property	direct access to property
	Segregated NMT facilities and Bus lay-bys	Segregated NMT facilities and Bus lay-bys	Segregated NMT facilities	Local NMT movement
	Complete access to public transport	High access to Public transport	Limited access to public transport	
Maintenance Responsibility	Municipality	Municipality	Municipality & Community	Community

Criteria	**Class A**	**Class B**	**Class C**	**Class D**
Design Speed (Kmph)	40	30	25	25
Minimum Right of Way(m)	14	10	7	6*
Extra width at curve (m)	2.5	2.5	1.5	1
Setback distance (m)	2	1.5	1.5	1
Access Control	Applicable	Applicable	Not Applicable	Not Applicable
Public transport services	Local Public transport	Local Public transport	No public transportation	No public transportation

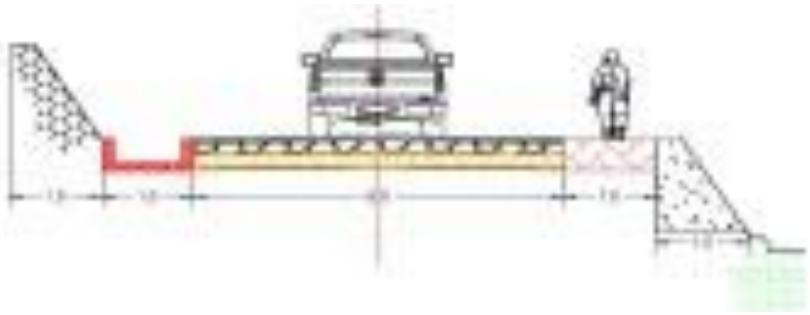
Class A Roads

All major roads which connect one or more major Growth Centres (market, tourism Centre, industry, etc.) or several Wards with high network coverage, connected directly or through the National Strategic Road Network or district road falls on the road class A. The proposed right of way for this class of road is 14m which includes footpath, greenery, and the carriageway as shown below in the cross section.



Class B road

All roads which connect to a major road network and other roads of similar hierarchy with a road connecting major Growth Centre of the same or neighbouring wards which provide access between Class A and class C road falls on the category of **class B.** The right of way of this class road is 10m.



4.2 List of Rural municipality Roads of Class A

There are nine municipal roads of class A of total length 108.12 Km out of which 96.32 km is earthen and 11.80 km is proposed new track. Detail of inventory of Class A roads is illustrated in table 11 below;

Table 11: List of Rural Municipal roads of Class A

Road Code	Name of Road	Length (km)	Ward	Surface
A01	Jankot-Kureli-Rukum	20.27	1	Earthen & New
A02	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	19.09	2	Earthen
A03	Sisne-Pokhara-Chaudhara-Vabang	10.04	2	Earthen
A04	Kunpa-Keuri-Iribang-Kalapokhara	10.60	3	Earthen
A05	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	10.49	3	Earthen
A06	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	8.72	4	Earthen & New
A07	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale	11.66	4	Earthen & New
A08	Putalachaur-Gorichaur	7.53	5	Earthen
A09	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	9.72	6	Earthen
Total		**108.12**		

4.3 List of Rural municipality Roads Class B

There are ten municipal roads of class B of total length 84.74 km out of which 60.83 km is earthen and 23.95 km is planned. The detail of road inventory of Class B roads is illustrated in table below:

Table 12: List of Rural municipality roads of Class B

Road Code	Name of Road	Length (km)	Ward	Surface
B01	Botanekhang-Mabang-Jogi Dhada-Dangbasa-Vhootkhola-Ransi	8.04	1	Earthen & New
B02	Pokhara-Rimul-Kalabang Chaur-Kureli	9.81	2	Earthen & New
B03	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur	7.77	2	Earthen
B04	Duekholi-Bagmara-Kungri Thok-Chunbang	4.46	3	Earthen

B05	Rapapokhari-Aarkhola-Raksebang-Lumcheri-Kalapokhari	8.48	4	Earthen & New
B06	Salli Bazar-Agra Khola- Salla Bot-Kalapokhara	9.80	4	Earthen
B07	Gramgim-Koral-Triveni-Ragnam-Bagmara	19.38	5	Earthen & New
B08	Koral-Ninmyang-Maulabot-Jhakri Khola	7.61	5	Earthen & New
B09	Chhapka-Gurase	6.32	6	Earthen
B10	Richibi Chahara-Obang-Rakulichour-Duekholi	3.11	6	Earthen
Total		**84.78**		

4.4 List Rural Municipal Roads of Class C

The following is the list of ward roads of class C. Total length of class road is 113.02 Km out of which 71.71 Km is earthen and 41.31 Km is proposed new track.

Table 13: List of Rural Municipal roads of Class C

Road Code	Name of Road	Length (km)	Ward	Surface
C01	Taran-Kholabang	2.00	1	Earthen & New
C02	Upabang-Jhakrikhola-Basaibang-Rukum	7.75	1	Earthen
C03	Sarabang-Ipaldhara-Tanglang-Galsuka-Rangkot	5.20	1	New
C04	Jharja Khola-Singmang(Sahid Marga)	5.22	1	Earthen
C05	Haimkhola-Marke-Kureli-Galkot	5.69	1	Earthen & New
C06	Vanvane-Ongelikhe-Pakhabang-Pokhara	6.71	2	Earthen
C07	Khebang Khola-Rade-Ralbang	5.83	2	Earthen & New
C08	Bagmara-Sallibazar	1.77	3	Earthen
C09	Keuri-Thunikot 3No Ward Office	4.49	3	Earthen & New
C10	Bagmara-Rapa	3.35	3	Earthen
C11	Dhadkamd-Khame-Haibang-Charch Hale	6.57	3	Earthen & New
C12	Purnaghau-Urim Ghau-Haibang-Aagra	4.37	3	New
C13	Likibang-Ratapokhara-Taibang	2.91	3	New
C14	Sunarpani-Kholaghau-Basundhara-Dabare-Jareni-Masingaira-Tila-Rukum	9.09	4	Earthen & New
C15	Agra Khola -Kafalbot-Panchhe	5.81	4	Earthen
C16	Triveni Khola-Twang-Shyanilekh-Ranibot	10.32	5	Earthen & New

C17	Duikholi-Jhakri Khola(Sahid Marga)	5.00	5	Earthen
C18	Bajikot-Tyam-Jumaransi-Rukum	9.04	5	Earthen
C19	Oha-Veerkuna-Sukudaha-Pachpunni	7.07	6	Earthen & New
C20	Kolbot -Sukudaha	4.82	6	New
Total		**113.02**		

4.5 List Rural Municipal Roads of Class D

The following is the list of ward roads of class D. Total length of class road is 274.76 Km out of which 34.70 Km is earthen and 240.06 Km is proposed new track.

Table 14: List of Rural Municipal roads of Class D

Road Code	Name of Road	Length (km)	Ward	Surface
D01	Sibari-Lampokhara-Jaya	5.49	1	New
D02	Upabang-Chaitelek-Mirul	2.99	1	Earthen & New
D03	Dalim-Sibari-Mirul	2.42	1	Earthen & New
D04	Kureli-Ring-Sattale	7.11	1	New
D05	Chaitelek-Fulbari School	0.43	1	New
D06	Konte Dhada-Sirgatne	3.50	1	Earthen & New
D07	Sarsubari Khola-Mukhya Dera	2.61	1	Earthen & New
D08	Kharibot-Kunabara-Darpan	3.08	1	New
D09	Goppo-Chipchipe-Thamdhuri	2.70	1	New
D10	Jogidhada-Likyang	0.42	1	New
D11	Semapu-Danabara-Bayeldhada-Mirul	1.94	1	New
D12	Pokharadhada-Jogidhada	0.47	1	New
D13	Konte Dhada-Tule Dhada-Kureli	2.19	1	New
D14	Khasaibang Khola-Jurkhung-	1.49	1	New
D15	Dahagaira-Sapka-Darpan	5.31	1	New
D16	Litung Khola-Darpan-Samarekharka-Lendhara-Rangkot	4.55	1	New
D17	Pokhara-Raubang-Parlesima-Tarkebang	4.05	2	New
D18	Pokhara-Wiebang-Parlesima-Chaibang	5.02	2	Earthen & New
D19	Jharma-Jakhar	2.93	2	New
D20	Pelendhara-Dangi-Shyalachaur	1.64	2	Earthen & New

D21	Kuibang-Khebang-Chaibang-Riwangkuna	6.60	2	Earthen & New
D22	Pokhara-Jhyapkhola-Vanabg	4.48	2	New
D23	Malemar-Kalabang-Goprdhara	3.68	2	New
D24	Sisnebari-Hiriban-Ralbang	2.25	2	Earthen & New
D25	Bisanabot-Khame	0.94	2	Earthen & New
D26	Ghameri Khola-Valaka-Jogidaha	6.49	2	New
D27	Obang-Parabang-Jakhar	6.74	2	New
D28	Khatrigade-Vibang-Varbang-Nijbang	3.63	2	Earthen & New
D29	Pipal Chautara-Vultung School	0.39	2	New
D30	Jungepani-Gopal Khola-Kharkhare	2.32	2	New
D31	Chaur Takne-Dhupigaira	3.57	2	New
D32	Simalgaira-Dhakari-Liwang(Krishi Sadak)	1.81	2	New
D33	Panera-Jaga	1.29	2	New
D34	Dhadagaun-Nijbang-Ghorneti	4.65	2	New
D35	Taibang-Khostipole-Dhadaghau	1.42	3	Earthen
D36	Duikholi-Jhipri	1.07	3	New
D37	Tallo Keuri-Tila Dhada	0.89	3	New
D38	Thanibot-Jurdhunga-Dahaban School	2.38	3	New
D39	Dhadaghau-Ranipipal-Tallo Keuri-Health Post	3.83	3	New
D40	Aadbare-Garkha-Lurimuni-Iribang	3.50	3	New
D41	Aadbare-Charch Hale-Lupa-Muthabang	2.33	3	New
D42	Kaulabot-Sallinaware-Bahuntakura	1.83	3	New
D43	Chukbot Narkhoriya	1.57	3	New
D44	Duikholi-Chunbang	2.81	4	New
D45	Verikharkha-Sijakhola-Dabare Sadak	4.71	4	New
D46	Dhotera - Aarkhola	2.56	4	Earthen & New
D47	Khani Khola -Doyerkhoye-Chakhar Dhada-Kortha Sirwali	2.52	4	Earthen & New
D48	Sukidaha-Kalapokhara-Masingaira-Halhale - Jharpokhara-Tila	7.04	4	Earthen & New
D49	Verikharkha-Bacheokhar-Lumcheri-	4.68	4	New
D50	Bacheokhar- Raksebang 4 Ward Office	1.17	4	New
D51	Lumcheri-Ghuyeldhada-Chipdhada Supegaira	3.61	4	New
D52	Pahabang-Veri Kharkha	1.85	4	New
D53	Dume Khola -Supegaira-Halhale-Tila	4.78	4	New
D54	Kochibang-Gothdhale-Kopre-Kalapokhara	5.62	4	New
D55	Bagtare-Sukidaha -Salyan	5.25	4	Earthen & New
D56	Khanikhola-Kebang-Arkhola	2.72	4	New
D57	Sallabot-Tharkhola-Ratavir-Kalapokhara	4.53	4	New

D58	Pokhdhada-Sijakhola-Basundhara	0.55	4	New
D59	Dumai Khola-Pataledhada-Kalapokhara	1.47	4	New
D60	Kochibang-Muthabang-Lupa	0.40	4	New
D61	Ghaudera-Maisthan-Dwangdwane	2.38	4	New
D62	Simri-Kakal Dhada-Kalapokhara-Gangadev Rm	4.54	4	New
D63	Agra Khola-Jhalke Dhunga-Ghaulate-Pakhapani-Pokhardhada	6.10	4	New
D64	Maisthan-Markauta-Sirwali-Bajange-Woda Office	3.66	4	New
D66	Jhakrikhola-Rokadera	1.04	5	New
D67	Koral-Galsuka-Kureli	7.16	5	Earthen & New
D68	Khisabang-Triveni Khola	3.93	5	New
D69	Triveni Khola-Lamjhi-Galebad-Rukum	7.44	5	New
D70	Putalachaur-Ninmyang	1.56	5	New
D71	Ninmyang-Twang-Gorichaur	5.99	5	New
D72	Koral-Lendgara-Kureli	0.82	5	New
D73	Koral School-Daunrvir-Pokhara	0.94	5	New
D74	Lamidhada-Tyam-Ralekhola	2.87	5	New
D75	Tyam-Jumaransi	3.51	5	New
D76	Lamidhada-Aagradhada-Chipal Dhunde	2.20	5	Earthen & New
D77	Okharni Khola-Bajeni	4.30	5	Earthen & New
D78	Jumaransi-Bajeni-Raknam	5.49	5	New
D79	Khalneta-Jamasing-Lijbang	2.63	5	New
D81	Pra Bi Oha-Madi Rm	0.99	6	Earthen
D82	Valakharka-Madi Rm	1.00	6	New
D83	Iribang -Jhinja	4.41	6	Earthen & New
D84	Lupa-Ratamata-Til Dhada	1.93	6	Earthen & New
D85	Khaldhada Pra Bi-Chabang-Iribang	1.38	6	New
D86	Mahibang-Ratamata	2.79	6	New
D87	Oha-Valakharka-Jasamkot- 3 No Ward Office	2.51	6	New
D88	6 No Ward Office - Chabang	1.93	6	New
D89	Rakulichour-Haklang	1.95	6	Earthen
D90	Oha-Sadudera-Lachare-Madi Rm	1.21	6	New
Total		**274.76**		

4.6 Rural municipality Inventory Map of Road Network

Road inventory survey was conducted through the rural municipality as far as possible except the new construction considered. In the inventory survey, the surface condition, width of road, and intervention required were collected. These data are presented in rural municipality inventory map of road by surface condition, by width and invention needed. Similarly the map of road infrastructure is also prepared. Refer annex of this report for map in detail.

Table 15: Length of Roads based on surface condition

Road Class	Road Surface/Length of Roads in km				Sub-Total
	Blacktopped	Concrete Pavement	Earthen	Proposed	
A	-	-	100.19	11.80	111.99
B	-	-	60.83	23.95	84.78
C	-	-	71.71	41.31	113.02
D	-	-	30.83	240.06	270.89
Total	**-**	**-**	**263.56**	**317.12**	**580.68**

Chapter 5: Perspective Plan of Rural municipality Transport Network

5.1 Process and procedure for collection of demand

For the collection of ward road demand, ward level workshop on each ward was conducted. With discussion with the concerned stakeholders of each ward, five roads from each ward with their significance were selected as the ward road for the MTMP period.

5.2 Scoring system for screening, grading and prioritization

As the financial resources of rural municipality is less as compared to the demand of people there is always conflict among the leaders from different parts for the development of road infrastructure. For this we have to prioritize roads, based on the certain conditions. For this MTMP, we have adopted the criteria given by the ministry with discussion and minor modification with the concerned stakeholders. Based on this criteria, municipal and ward roads have been prioritized class wise. The details of prioritization criteria are included in chapter 1 of Volume II of this report and prioritized roads are shown in Annex with detail of score on each criteria and ranking.

5.3 Possible inter-rural municipality/district linkages

This rural municipality is supported with 3.2 Km long district roads which are now under the rural municipality itself. This highway and district roads mainly serve for the inter municipality and inter district mobility. The municipal roads planned on this RMTMP also serves for inter-municipality/district mobility.

5.4 Interventions for MTPP

a. Maintenance

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

Emergency maintenance - Basic repairs aimed at removing landslides and repairing damage to the road that inhibit the proper use of the road and make it impassable. This mainly takes place during and after the rainy season. A provisional lump sum is reserved for the entire road 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.

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 road network. The specific requirements for routine maintenance are determined on an annual basis through the road condition survey.

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 municipal road 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.

Periodic maintenance - Larger repairs to the road largely aimed at renewing the road surface through re-gravelling, resealing or overlays. It is generally carried out with several years interval. Although periodic maintenance is only required for specific sections of the road network, a lump sum allocation is made for the entire road 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.

The length of roads in km to be included under each Maintenance type for the first year is indicated below.

Table 16: Length of road for maintenance work

Road Code	Length of road in km for maintenance (Km)						
	Emergency	**Routine**	**Recurrent (earthen)**	**Recurrent (Black-topped)**	**Recurrent (Gravelled)**	**Periodic (Black-Topped)**	**Periodic (Gravelled)**
A01	14.27	14.27	14.27	-	-	-	-
A02	6.37	6.37	6.37	-	-	-	-
A03	0.50	0.50	0.50	-	-	-	-
A04	3.69	3.69	3.69	-	-	-	-
A05	-	-	-	-	-	-	-
A06	7.75	7.75	7.75	-	-	-	-
A07	5.22	5.22	5.22	-	-	-	-

A08	-	-	-	-	-	-	-
A09	2.60	2.60	2.60	-	-	-	-
B01	1.32	1.32	1.32	-	-	-	-
B02	-	-	-	-	-	-	-
B03	-	-	-	-	-	-	-
B04	1.10	1.10	1.10	-	-	-	-
B05	0.26	0.26	0.26	-	-	-	-
B06	-	-	-	-	-	-	-
B07	-	-	-	-	-	-	-
B08	-	-	-	-	-	-	-
B09	-	-	-	-	-	-	-
B10	-	-	-	-	-	-	-
C01	-	-	-	-	-	-	-
C02	-	-	-	-	-	-	-
C03	-	-	-	-	-	-	-
C04	-	-	-	-	-	-	-
C05	19.09	19.09	19.09	-	-	-	-
C06	10.04	10.04	10.04	-	-	-	-
C07	6.71	6.71	6.71	-	-	-	-
C08	8.81	8.81	8.81	-	-	-	-
C09	7.77	7.77	7.77	-	-	-	-
C10	2.13	2.13	2.13	-	-	-	-
C11	-	-	-	-	-	-	-
C12	2.52	2.52	2.52	-	-	-	-
C13	-	-	-	-	-	-	-
C14	0.94	0.94	0.94	-	-	-	-
C15	3.30	3.30	3.30	-	-	-	-
C16	-	-	-	-	-	-	-
C17	-	-	-	-	-	-	-
C18	0.75	0.75	0.75	-	-	-	-
C19	0.79	0.79	0.79	-	-	-	-
C20	-	-	-	-	-	-	-
D01	-	-	-	-	-	-	-
D02	0.53	0.53	0.53	-	-	-	-
D03	-	-	-	-	-	-	-
D04	-	-	-	-	-	-	-
D05	-	-	-	-	-	-	-
D06	-	-	-	-	-	-	-
D07	-	-	-	-	-	-	-
D08	-	-	-	-	-	-	-
D09	10.49	10.49	10.49	-	-	-	-
D10	4.46	4.46	4.46	-	-	-	-
D11	2.19	2.19	2.19	-	-	-	-

D12	-	-	-	-	-	-	-
D13	10.60	10.60	10.60	-	-	-	-
D14	1.77	1.77	1.77	-	-	-	-
D15	3.35	3.35	3.35	-	-	-	-
D16	4.07	4.07	4.07	-	-	-	-
D17	-	-	-	-	-	-	-
D18	1.42	1.42	1.42	-	-	-	-
D19	-	-	-	-	-	-	-
D20	-	-	-	-	-	-	-
D21	-	-	-	-	-	-	-
D22	-	-	-	-	-	-	-
D23	-	-	-	-	-	-	-
D24	-	-	-	-	-	-	-
D25	-	-	-	-	-	-	-
D26	-	-	-	-	-	-	-
D27	5.42	5.42	5.42	-	-	-	-
D28	9.80	9.80	9.80	-	-	-	-
D29	7.50	7.50	7.50	-	-	-	-
D30	9.16	9.16	9.16	-	-	-	-
D31	6.39	6.39	6.39	-	-	-	-
D32	5.81	5.81	5.81	-	-	-	-
D33	-	-	-	-	-	-	-
D34	-	-	-	-	-	-	-
D35	1.76	1.76	1.76	-	-	-	-
D36	1.62	1.62	1.62	-	-	-	-
D37	0.64	0.64	0.64	-	-	-	-
D38	-	-	-	-	-	-	-
D39	-	-	-	-	-	-	-
D40	-	-	-	-	-	-	-
D41	-	-	-	-	-	-	-
D42	-	-	-	-	-	-	-
D43	-	-	-	-	-	-	-
D44	1.15	1.15	1.15	-	-	-	-
D45	-	-	-	-	-	-	-
D46	-	-	-	-	-	-	-
D47	-	-	-	-	-	-	-
D48	-	-	-	-	-	-	-
D49	-	-	-	-	-	-	-
D50	-	-	-	-	-	-	-
D51	-	-	-	-	-	-	-
D52	-	-	-	-	-	-	-
D53	-	-	-	-	-	-	-
D54	1.68	1.68	1.68	-	-	-	-

D55	7.53	7.53	7.53	-	-	-	-
D56	5.01	5.01	5.01	-	-	-	-
D57	5.00	5.00	5.00	-	-	-	-
D58	4.12	4.12	4.12	-	-	-	-
D59	9.04	9.04	9.04	-	-	-	-
D60	-	-	-	-	-	-	-
D61	1.96	1.96	1.96	-	-	-	-
D62	-	-	-	-	-	-	-
D63	-	-	-	-	-	-	-
D64	-	-	-	-	-	-	-
D66	-	-	-	-	-	-	-
D67	-	-	-	-	-	-	-
D68	-	-	-	-	-	-	-
D69	-	-	-	-	-	-	-
D70	-	-	-	-	-	-	-
D71	0.30	0.30	0.30	-	-	-	-
D72	2.40	2.40	2.40	-	-	-	-
D73	-	-	-	-	-	-	-
D74	-	-	-	-	-	-	-
D75	13.59	13.59	13.59	-	-	-	-
D76	6.32	6.32	6.32	-	-	-	-
D77	3.97	3.97	3.97	-	-	-	-
D78	-	-	-	-	-	-	-
D79	3.11	3.11	3.11	-	-	-	-
D81	0.99	0.99	0.99	-	-	-	-
D82	-	-	-	-	-	-	-
D83	2.11	2.11	2.11	-	-	-	-
D84	0.43	0.43	0.43	-	-	-	-
D85	-	-	-	-	-	-	-
D86	-	-	-	-	-	-	-
D87	-	-	-	-	-	-	-
D88	-	-	-	-	-	-	-
D89	1.95	1.95	1.95	-	-	-	-
D90	-	-	-	-	-	-	-
Total	**263.56**	**263.56**	**263.56**	**-**	**-**	**-**	**-**

Table 17: Cost of maintenance for first year of MTMP in thousands

Road Code	Maintainance Cost in Thousands						
	Emergency	**Routine**	**Recurrent (earthen)**	**Recurrent (Black-topped)**	**Recurrent (Gravelled)**	**Periodic (Black-Topped)**	**Periodic (Gravelled)**
A01	1,223	815	11,212	-	-	-	-
A02	546	364	5,005	-	-	-	-
A03	43	29	397	-	-	-	-
A04	316	211	2,896	-	-	-	-
A05	-	-	-	-	-	-	-
A06	665	443	6,092	-	-	-	-
A07	447	298	4,101	-	-	-	-
A08	-	-	-	-	-	-	-
A09	223	148	2,041	-	-	-	-
B01	79	53	753	-	-	-	-
B02	-	-	-	-	-	-	-
B03	-	-	-	-	-	-	-
B04	66	44	629	-	-	-	-
B05	16	11	151	-	-	-	-
B06	-	-	-	-	-	-	-
B07	-	-	-	-	-	-	-
B08	-	-	-	-	-	-	-
B09	-	-	-	-	-	-	-
B10	-	-	-	-	-	-	-
C01	-	-	-	-	-	-	-
C02	-	-	-	-	-	-	-

C03	-	-	-	-	-	-	-
C04	-	-	-	-	-	-	-
C05	818	546	8,183	-	-	-	-
C06	430	287	4,303	-	-	-	-
C07	288	192	2,876	-	-	-	-
C08	378	252	3,776	-	-	-	-
C09	333	222	3,330	-	-	-	-
C10	91	61	911	-	-	-	-
C11	-	-	-	-	-	-	-
C12	108	72	1,080	-	-	-	-
C13	-	-	-	-	-	-	-
C14	40	27	403	-	-	-	-
C15	141	94	1,413	-	-	-	-
C16	-	-	-	-	-	-	-
C17	-	-	-	-	-	-	-
C18	32	21	320	-	-	-	-
C19	34	23	338	-	-	-	-
C20	-	-	-	-	-	-	-
D01	-	-	-	-	-	-	-
D02	18	12	188	-	-	-	-
D03	-	-	-	-	-	-	-
D04	-	-	-	-	-	-	-
D05	-	-	-	-	-	-	-
D06	-	-	-	-	-	-	-
D07	-	-	-	-	-	-	-

D08	-	-	-	-	-	-	-
D09	360	240	3,746	-	-	-	-
D10	153	102	1,594	-	-	-	-
D11	75	50	781	-	-	-	-
D12	-	-	-	-	-	-	-
D13	363	242	3,785	-	-	-	-
D14	61	40	631	-	-	-	-
D15	115	77	1,195	-	-	-	-
D16	140	93	1,454	-	-	-	-
D17	-	-	-	-	-	-	-
D18	49	32	508	-	-	-	-
D19	-	-	-	-	-	-	-
D20	-	-	-	-	-	-	-
D21	-	-	-	-	-	-	-
D22	-	-	-	-	-	-	-
D23	-	-	-	-	-	-	-
D24	-	-	-	-	-	-	-
D25	-	-	-	-	-	-	-
D26	-	-	-	-	-	-	-
D27	186	124	1,937	-	-	-	-
D28	336	224	3,501	-	-	-	-
D29	257	171	2,678	-	-	-	-
D30	314	209	3,273	-	-	-	-
D31	219	146	2,281	-	-	-	-
D32	199	133	2,075	-	-	-	-

D33	-	-	-	-	-	-	-
D34	-	-	-	-	-	-	-
D35	61	40	630	-	-	-	-
D36	55	37	578	-	-	-	-
D37	22	15	229	-	-	-	-
D38	-	-	-	-	-	-	-
D39	-	-	-	-	-	-	-
D40	-	-	-	-	-	-	-
D41	-	-	-	-	-	-	-
D42	-	-	-	-	-	-	-
D43	-	-	-	-	-	-	-
D44	39	26	409	-	-	-	-
D45	-	-	-	-	-	-	-
D46	-	-	-	-	-	-	-
D47	-	-	-	-	-	-	-
D48	-	-	-	-	-	-	-
D49	-	-	-	-	-	-	-
D50	-	-	-	-	-	-	-
D51	-	-	-	-	-	-	-
D52	-	-	-	-	-	-	-
D53	-	-	-	-	-	-	-
D54	58	38	599	-	-	-	-
D55	258	172	2,688	-	-	-	-
D56	172	115	1,791	-	-	-	-
D57	172	114	1,787	-	-	-	-

D58	141	94	1,473	-	-	-	-
D59	310	207	3,230	-	-	-	-
D60	-	-	-	-	-	-	-
D61	67	45	698	-	-	-	-
D62	-	-	-	-	-	-	-
D63	-	-	-	-	-	-	-
D64	-	-	-	-	-	-	-
D66	-	-	-	-	-	-	-
D67	-	-	-	-	-	-	-
D68	-	-	-	-	-	-	-
D69	-	-	-	-	-	-	-
D70	-	-	-	-	-	-	-
D71	10	7	106	-	-	-	-
D72	82	55	858	-	-	-	-
D73	-	-	-	-	-	-	-
D74	-	-	-	-	-	-	-
D75	466	311	4,854	-	-	-	-
D76	217	144	2,256	-	-	-	-
D77	136	91	1,419	-	-	-	-
D78	-	-	-	-	-	-	-
D79	107	71	1,110	-	-	-	-
D81	34	23	353	-	-	-	-
D82	-	-	-	-	-	-	-
D83	72	48	753	-	-	-	-
D84	15	10	153	-	-	-	-

D85	-	-	-	-	-	-	-
D86	-	-	-	-	-	-	-
D87	-	-	-	-	-	-	-
D88	-	-	-	-	-	-	-
D89	67	45	698	-	-	-	-
D90	-	-	-	-	-	-	-
Total	**11,722**	**7,814**	**116,507**	**-**	**-**	**-**	**-**

b. Improvement

Improvement refers to actions required to improve a road to bring it to a maintainable all weather standard. It includes the following actions:

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 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.

Table 17: Length for gravelling and blacktop and cost

Road code	Road Surface (In Km)						Cost in Thousands		
	Black topped	concrete	Earthen	Gravel	New	Sub-Total	Track opening cost	Gravelling Cost	Black-topping Cost
A01	-	-	14.27	-	6.00	20.27	37,714.29	140,148.81	330,102.57
A02	-	-	6.37	-	1.67	8.04	10,497.14	55,591.05	130,937.60
A03	-	-	0.50	-	1.50	2.00	9,428.57	13,862.63	32,651.65
A04	-	-	3.69	-	2.00	5.69	12,571.43	39,316.07	92,603.97
A05	-	-	-	-	5.20	5.20	32,709.41	35,980.35	84,747.11
A06	-	-	7.75	-	-	7.75	-	53,606.92	126,264.22
A07	-	-	5.22	-	-	5.22	-	36,085.81	84,995.50
A08	-	-	-	-	5.49	5.49	34,491.47	37,940.61	89,364.26
A09	-	-	2.60	-	0.39	2.99	2,451.43	20,657.69	48,656.54
B01	-	-	1.32	-	1.10	2.42	5,028.57	12,156.73	27,559.86
B02	-	-	-	-	7.11	7.11	32,483.22	35,731.54	81,005.04
B03	-	-	-	-	0.43	0.43	1,946.84	2,141.52	4,854.93
B04	-	-	1.10	-	2.40	3.50	10,971.43	17,600.00	39,900.00
B05	-	-	0.26	-	2.35	2.61	10,742.86	13,146.91	29,804.63
B06	-	-	-	-	3.08	3.08	14,090.29	15,499.32	35,137.66
B07	-	-	-	-	2.70	2.70	12,321.50	13,553.65	30,726.75
B08	-	-	-	-	0.42	0.42	1,910.62	2,101.69	4,764.62
B09	-	-	-	-	1.94	1.94	8,888.07	9,776.88	22,164.62
B10	-	-	-	-	0.47	0.47	2,159.15	2,375.07	5,384.39
C01	-	-	-	-	2.19	2.19	7,511.21	8,262.33	17,839.13
C02	-	-	-	-	1.49	1.49	5,098.64	5,608.50	12,109.26
C03	-	-	-	-	5.31	5.31	18,215.43	20,036.97	43,261.64

C04	-	-	-	-	4.55	4.55	15,604.68	17,165.14	37,061.11
C05	-	-	19.09	-	-	19.09	-	72,008.10	155,472.04
C06	-	-	10.04	-	-	10.04	-	37,866.82	81,757.90
C07	-	-	6.71	-	-	6.71	-	25,311.64	54,650.14
C08	-	-	8.81	-	1.00	9.81	3,428.57	36,997.02	79,879.94
C09	-	-	7.77	-	-	7.77	-	29,303.98	63,269.96
C10	-	-	2.13	-	3.70	5.83	12,685.71	21,973.32	47,442.39
C11	-	-	-	-	4.05	4.05	13,889.34	15,278.27	32,987.17
C12	-	-	2.52	-	2.50	5.02	8,571.43	18,929.86	40,871.29
C13	-	-	-	-	2.93	2.93	10,031.61	11,034.77	23,825.08
C14	-	-	0.94	-	0.70	1.64	2,400.00	6,189.50	13,363.69
C15	-	-	3.30	-	3.30	6.60	11,314.29	24,881.12	53,720.61
C16	-	-	-	-	4.48	4.48	15,344.44	16,878.88	36,443.04
C17	-	-	-	-	3.68	3.68	12,623.97	13,886.36	29,981.92
C18	-	-	0.75	-	1.50	2.25	5,142.86	8,469.38	18,286.17
C19	-	-	0.79	-	0.15	0.94	514.29	3,538.41	7,639.75
C20	-	-	-	-	6.49	6.49	22,238.90	24,462.79	52,817.38
D01	-	-	-	-	6.74	6.74	19,255.89	21,181.48	43,903.43
D02	-	-	0.53	-	3.10	3.63	8,857.14	11,394.08	23,616.82
D03	-	-	-	-	0.39	0.39	1,122.07	1,234.28	2,558.32
D04	-	-	-	-	2.32	2.32	6,638.52	7,302.37	15,135.82
D05	-	-	-	-	3.57	3.57	10,188.41	11,207.25	23,229.57
D06	-	-	-	-	1.81	1.81	5,163.82	5,680.20	11,773.50
D07	-	-	-	-	1.29	1.29	3,694.36	4,063.80	8,423.14

D08	-	-	-	-	4.65	4.65	13,292.35	14,621.59	30,306.57
D09	-	-	10.49	-	-	10.49	-	32,961.71	68,320.63
D10	-	-	4.46	-	-	4.46	-	14,024.66	29,069.29
D11	-	-	2.19	-	2.30	4.49	6,571.43	14,101.22	29,227.98
D12	-	-	-	-	4.37	4.37	12,492.23	13,741.46	28,482.29
D13	-	-	10.60	-	-	10.60	-	33,311.86	69,046.39
D14	-	-	1.77	-	-	1.77	-	5,554.75	11,513.47
D15	-	-	3.35	-	-	3.35	-	10,519.62	21,804.31
D16	-	-	4.07	-	2.50	6.57	7,142.86	20,649.66	42,801.11
D17	-	-	-	-	2.91	2.91	8,319.74	9,151.72	18,969.01
D18	-	-	1.42	-	-	1.42	-	4,467.29	9,259.48
D19	-	-	-	-	1.07	1.07	3,044.28	3,348.71	6,940.96
D20	-	-	-	-	0.89	0.89	2,530.88	2,783.97	5,770.41
D21	-	-	-	-	2.38	2.38	6,787.08	7,465.79	15,474.54
D22	-	-	-	-	3.83	3.83	10,949.88	12,044.87	24,965.73
D23	-	-	-	-	3.50	3.50	9,992.59	10,991.85	22,783.11
D24	-	-	-	-	2.33	2.33	6,665.97	7,332.57	15,198.41
D25	-	-	-	-	1.83	1.83	5,216.65	5,738.32	11,893.97
D26	-	-	-	-	1.57	1.57	4,498.33	4,948.16	10,256.19
D27	-	-	5.42	-	3.30	8.72	9,428.57	27,417.89	56,829.81
D28	-	-	9.80	-	-	9.80	-	30,811.69	63,864.23
D29	-	-	7.50	-	0.98	8.48	2,800.00	26,644.92	55,227.66
D30	-	-	9.16	-	2.50	11.66	7,142.86	36,655.43	75,976.71
D31	-	-	6.39	-	2.70	9.09	7,714.29	28,557.79	59,192.51

D32	-	-	5.81	-	-	5.81	-	18,256.40	37,840.55
D33	-	-	-	-	2.81	2.81	8,034.67	8,838.13	18,319.04
D34	-	-	-	-	4.71	4.71	13,451.07	14,796.18	30,668.45
D35	-	-	1.76	-	0.80	2.56	2,285.71	8,060.14	16,706.47
D36	-	-	1.62	-	0.90	2.52	2,571.43	7,912.67	16,400.80
D37	-	-	0.64	-	6.40	7.04	18,285.71	22,133.08	45,875.83
D38	-	-	-	-	4.68	4.68	13,381.56	14,719.72	30,509.97
D39	-	-	-	-	1.17	1.17	3,353.70	3,689.07	7,646.43
D40	-	-	-	-	3.61	3.61	10,318.34	11,350.17	23,525.82
D41	-	-	-	-	1.85	1.85	5,273.92	5,801.31	12,024.54
D42	-	-	-	-	4.78	4.78	13,668.51	15,035.36	31,164.19
D43	-	-	-	-	5.62	5.62	16,054.23	17,659.65	36,603.64
D44	-	-	1.15	-	4.10	5.25	11,714.29	16,485.37	34,169.68
D45	-	-	-	-	2.72	2.72	7,763.06	8,539.37	17,699.78
D46	-	-	-	-	4.53	4.53	12,942.01	14,236.22	29,507.79
D47	-	-	-	-	0.55	0.55	1,559.11	1,715.02	3,554.78
D48	-	-	-	-	1.47	1.47	4,186.64	4,605.30	9,545.54
D49	-	-	-	-	0.40	0.40	1,140.38	1,254.42	2,600.08
D50	-	-	-	-	2.38	2.38	6,806.01	7,486.61	15,517.69
D51	-	-	-	-	4.54	4.54	12,975.05	14,272.56	29,583.12
D52	-	-	-	-	6.10	6.10	17,433.41	19,176.76	39,748.18
D53	-	-	-	-	3.66	3.66	10,464.07	11,510.48	23,858.08
D54	-	-	1.68	-	17.70	19.38	50,571.43	60,901.98	126,233.20
D55	-	-	7.53	-	-	7.53	-	23,651.28	49,022.66

D56	-	-	5.01	-	2.60	7.61	7,428.57	23,932.66	49,605.87
D57	-	-	5.00	-	-	5.00	-	15,728.42	32,600.72
D58	-	-	4.12	-	6.20	10.32	17,714.29	32,444.19	67,247.95
D59	-	-	9.04	-	-	9.04	-	28,423.07	58,913.27
D60	-	-	-	-	1.04	1.04	2,967.92	3,264.71	6,766.85
D61	-	-	1.96	-	5.20	7.16	14,857.14	22,489.05	46,613.67
D62	-	-	-	-	3.93	3.93	11,219.98	12,341.98	25,581.56
D63	-	-	-	-	7.44	7.44	21,258.24	23,384.07	48,468.79
D64	-	-	-	-	1.56	1.56	4,465.84	4,912.42	10,182.11
D66	-	-	-	-	5.99	5.99	17,104.50	18,814.95	38,998.26
D67	-	-	-	-	0.82	0.82	2,348.89	2,583.78	5,355.47
D68	-	-	-	-	0.94	0.94	2,697.88	2,967.67	6,151.17
D69	-	-	-	-	2.87	2.87	8,186.72	9,005.40	18,665.73
D70	-	-	-	-	3.51	3.51	10,027.36	11,030.10	22,862.38
D71	-	-	0.30	-	1.90	2.20	5,428.57	6,908.41	14,319.26
D72	-	-	2.40	-	1.90	4.30	5,428.57	13,524.17	28,031.92
D73	-	-	-	-	5.49	5.49	15,699.59	17,269.55	35,795.06
D74	-	-	-	-	2.63	2.63	7,506.95	8,257.64	17,115.84
D75	-	-	13.59	-	-	13.59	-	42,715.75	88,538.09
D76	-	-	6.32	-	-	6.32	-	19,853.95	41,151.83
D77	-	-	3.97	-	3.10	7.07	8,857.14	22,225.71	46,067.83
D78	-	-	-	-	4.82	4.82	13,764.34	15,140.77	31,382.69
D79	-	-	3.11	-	-	3.11	-	9,764.09	20,238.30
D81	-	-	0.99	-	-	0.99	-	3,103.15	6,431.98

D82	-	-	-	-	1.00	1.00	2,852.70	3,137.97	6,504.16
D83	-	-	2.11	-	2.30	4.41	6,571.43	13,859.16	28,726.27
D84	-	-	0.43	-	1.50	1.93	4,285.71	6,063.83	12,568.67
D85	-	-	-	-	1.38	1.38	3,939.00	4,332.91	8,980.93
D86	-	-	-	-	2.79	2.79	7,972.51	8,769.76	18,177.33
D87	-	-	-	-	2.51	2.51	7,178.41	7,896.25	16,366.77
D88	-	-	-	-	1.93	1.93	5,509.37	6,060.31	12,561.37
D89	-	-	1.95	-	-	1.95	-	6,141.05	12,728.72
D90	-	-	-	-	1.21	1.21	3,447.87	3,792.66	7,861.15
Total	**-**	**-**	**263.56**	**-**	**317.12**	**580.68**	**1,047,485.67**	**2,177,494.18**	**4,696,009.20**

Table 18: Roads requiring cross drainage structures

Road Code	Road Name	Type of Cross Drainage Structures		
		Bridge	Culvert	Causeway
A01	Jankot-Kureli-Rukum	1	3	4
A03	Taran-Kholabang	1	1	-
A06	Upabang-Jhakrikhola-Basaibang-Rukum	1	1	-
A07	Jharja Khola-Singmang(Sahid Marga)	-	1	-
B01	Dalim-Sibari-Mirul	-	1	1
B02	Kureli-Ring-Sattale	-	1	-
B03	Chaitelek-Fulbari School	-	2	-
B06	Kharibot-Kunabara-Darpan	1	2	-
B07	Goppo-Chipchipe-Thamdhuri	-	2	-
B08	Jogidhada-Likyang	-	1	-
C01	Konte Dhada-Tule Dhada-Kureli	-	1	-
C03	Dahagaira-Sapka-Darpan	-	1	-
C05	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	-	1	-
C07	Vanvane-Ongelikhe-Pakhabang-Pokhara	-	1	-
C09	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur	-	1	-

C11	Pokhara-Raubang-Parlesima-Tarkebang	-	2	-
C12	Pokhara-Wiebang-Parlesima-Chaibang	-	1	-
C16	Pokhara-Jhyapkhola-Vanabg	-	1	-
C18	Sisnebari-Hiriban-Ralbang	1	1	1
D02	Khatrigade-Vibang-Varbang-Nijbang	-	-	1
D04	Jungepani-Gopal Khola-Kharkhare	1	2	-
D06	Simalgaira-Dhakari-Liwang(Krishi Sadak)	-	2	-
D09	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	-	1	-
D14	Bagmara-Sallibazar	-	-	1
D16	Dhadkamd-Khame-Haibang-Charch Hale	-	1	-
D22	Dhadaghau-Ranipipal-Tallo Keuri-Health Post	-	1	1
D24	Aadbare-Charch Hale-Lupa-Muthabang	-	1	-
D27	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	1	-	-
D30	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale	-	2	-
D34	Verikharkha-Sijakhola-Dabare Sadak	-	1	-
D39	Bacheokhar- Raksebang 4 Ward Office	-	1	-
D40	Lumcheri-Ghuyeldhada-Chipdhada Supegaira	-	-	1
D41	Pahabang-Veri Kharkha	-	1	-
D43	Kochibang-Gothdhale-Kopre-Kalapokhara	-	1	-
D45	Khanikhola-Kebang-Arkhola	-	2	-
D46	Sallabot-Tharkhola-Ratavir-Kalapokhara	-	1	-
D47	Pokhdhada-Sijakhola-Basundhara	1	-	-
D51	Simri-Kakal Dhada-Kalapokhara-Gangadev Rm	-	1	-
D53	Maisthan-Markauta-Sirwali-Bajange-Woda Office	-	2	-
D54	Gramgim-Koral-Triveni-Ragnam-Bagmara	-	1	-
D55	Putalachaur-Gorichaur	-	-	1
D56	Koral-Ninmyang-Maulabot-Jhakri Khola	-	1	-
D57	Duikholi-Jhakri Khola(Sahid Marga)	-	1	-
D58	Triveni Khola-Twang-Shyanilekh-Ranibot	-	1	-
D62	Khisabang-Triveni Khola	-	1	-
D64	Putalachaur-Ninmyang	-	3	-
D69	Lamidhada-Tyam-Ralekhola	-	1	-
D74	Khalneta-Jamasing-Lijbang	1	1	-
D75	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	-	1	-
D76	Chhapka-Gurase	-	1	-
D78	Kolbot -Sukudaha	-	2	-
D82	Valakharka-Madi Rm	-	1	-

D86	Mahibang-Ratamata	-	1	-
D88	6 No Ward Office - Chabang	-	1	-
D89	Rakulichour-Haklang	-	1	-
D90	Oha-Sadudera-Lachare-Madi Rm	-	1	-

5.5 Perspective plan of rural municipality transport network with score and ranking

In total there are roads of length 580.68 Km within the rural municipality excluding feeder roads and National Highway, either in planned or existing condition. All the standards set by the rural municipality council are assumed not to decrease its RoW whenever these roads fall on the lower class in this MTMP.

Table 19: Arrangement of Road width

S.N	Class of Road	Minimum RoW(m)	Setback (m)	Pavement (m)	Footpath(m)
1	A	14	2	10	1.5m/1.5m(Both side)
2	B	10	1.5	7	1.5m (One side)
3	C	7	1.5	5	1.5m (One side
4	D	6	1	4	None

Note: ***The ROW of the class 'A' district roads is 20m and class 'B' roads is 15m. this previously fixed RoW of DRCN should not be reduced although they lie in different municipal road hierarchy.***

Urban Development Strategy 2015 aims to pave 50% of the municipal roads by the end of 2031AD for New Municipalitiesand this MTMP planned to pave all roads within the perspective period of 20 years i.e. by the year of 2038AD in its full width.

For the financial requirement, the rate of different interventions as given by the ToR is used. For the financial planning the following assumptions are made:

- 20% of length of road requires retaining wall on hill and valley side and the cross section of retaining is taken as 1.5 square meter

- 20% of the length of road requires gabion wall and the cross section of gabion is taken as 1.5 square meter
- full length of road requires longitudinal drainage structures
- Length of bridge in average taken as 20m
- Financial capacity of rural municipality increases by 15% each year

Based on this rate of item and total required interventions, a total of 1737.67 Crore of Nepalese rupees is projected to be required to develop road infrastructure and maintain road infrastructures. For this the assumption made is that the financial capacity of rural municipality increases by 15% each year. These costs will change slightly as the roads are improved and the standard costs change. This should be updated on annual basis.

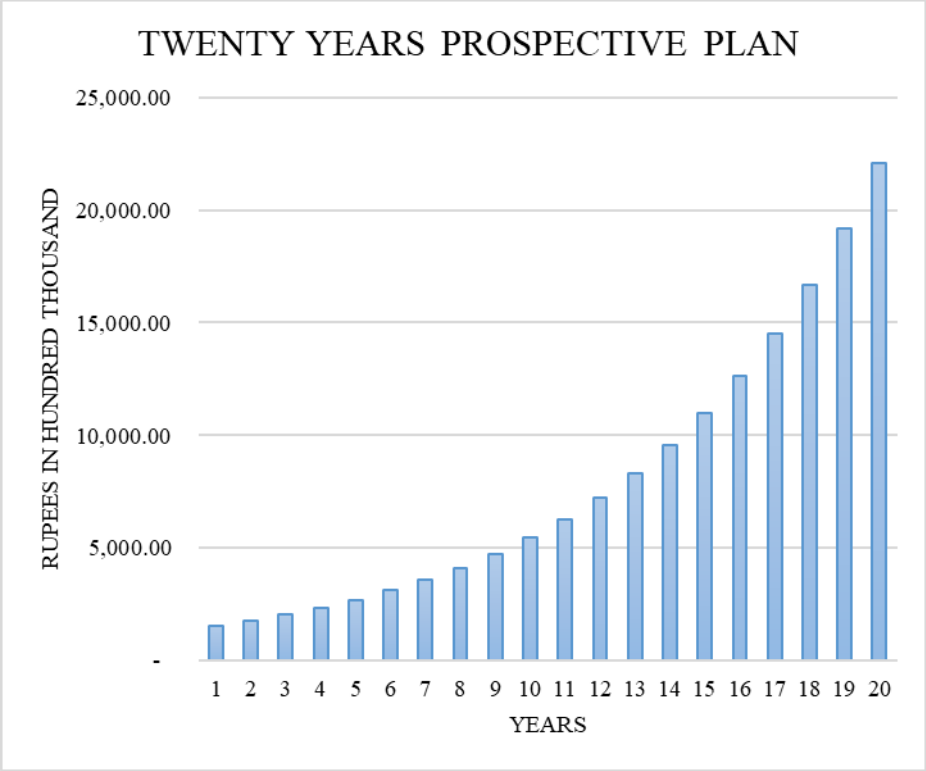


Figure 5: Perspective financial plan for 20 years

For the perspective implementation plans, the municipal and ward roads have been prioritized and ranked. Based on these ranking, the implementation should be done. The ranking of the municipal and ward roads with the score are as given under:

Table 20: Prioritization of roads

Road Code	Road Name	Score	Overall Rank	Rank in Class
A01	Jankot-Kureli-Rukum	64.70	3	2
A02	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	60.00	5	4
A03	Sisne-Pokhara-Chaudhara-Vabang	54.78	6	5
A04	Kunpa-Keuri-Iribang-Kalapokhara	60.91	4	3
A05	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	69.70	1	1
A06	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	52.29	10	8
A07	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale	53.43	8	7
A08	Putalachaur-Gorichaur	54.04	7	6
A09	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	52.05	11	9
B01	Botanekhang-Mabang-Jogi Dhada-Dangbasa-Vhootkhola-Ransi	38.80	20	6
B02	Pokhara-Rimul-Kalabang Chaur-Kureli	37.41	23	8
B03	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur	53.21	9	2
B04	Duekholi-Bagmara-Kungri Thok-Chunbang	37.38	24	9
B05	Rapapokhari-Aarkhola-Raksebang-Lumcheri-Kalapokhari	49.94	12	3
B06	Salli Bazar-Agra Khola- Salla Bot- Kalapokhara	42.81	17	4
B07	Gramgim-Koral-Triveni-Ragnam-Bagmara	65.84	2	1
B08	Koral-Ninmyang-Maulabot-Jhakri Khola	38.16	22	7
B09	Chhapka-Gurase	40.08	18	5
B10	Richibi Chahara-Obang-Rakulichour-Duekholi	31.45	29	10
C01	Taran-Kholabang	30.44	30	11
C02	Upabang-Jhakrikhola-Basaibang-Rukum	19.45	32	13
C03	Sarabang-Ipaldhara-Tanglang-Galsuka-Rangkot	37.34	25	7
C04	Jharja Khola-Singmang(Sahid Marga)	26.36	31	12
C05	Haimkhola-Marke-Kureli-Galkot	33.93	28	10

C06	Vanvane-Ongelikhe-Pakhabang-Pokhara	48.55	14	2
C07	Khebang Khola-Rade-Ralbang	14.15	35	16
C08	Bagmara-Sallibazar	8.32	47	20
C09	Keuri-Thunikot 3No Ward Office	46.43	15	3
C10	Bagmara-Rapa	11.29	37	18
C11	Dhadkamd-Khame-Haibang-Charch Hale	17.34	33	14
C12	Purnaghau-Urim Ghau-Haibang-Aagra	35.21	27	9
C13	Likibang-Ratapokhara-Taibang	10.47	39	19
C14	Sunarpani-Kholaghau-Basundhara-Dabare-Jareni-Masingaira-Tila-Rukum	38.80	19	5
C15	Agra Khola -Kafalbot-Panchhe	13.18	36	17
C16	Triveni Khola-Twang-Shyanilekh-Ranibot	49.77	13	1
C17	Duikholi-Jhakri Khola(Sahid Marga)	38.67	21	6
C18	Bajikot-Tyam-Jumaransi-Rukum	17.06	34	15
C19	Oha-Veerkuna-Sukudaha-Pachpunni	45.41	16	4
C20	Kolbot -Sukudaha	35.45	26	8
D01	Sibari-Lampokhara-Jaya	6.69	58	19
D02	Upabang-Chaitelek-Mirul	3.64	86	47
D03	Dalim-Sibari-Mirul	2.95	99	60
D04	Kureli-Ring-Sattale	8.66	45	7
D05	Chaitelek-Fulbari School	0.52	126	87
D06	Konte Dhada-Sirgatne	4.27	80	41
D07	Sarsubari Khola-Mukhya Dera	3.19	97	58
D08	Kharibot-Kunabara-Darpan	3.76	84	45
D09	Goppo-Chipchipe-Thamdhuri	3.28	96	57
D10	Jogidhada-Likyang	0.51	127	88
D11	Semapu-Danabara-Bayeldhada-Mirul	2.37	107	68

D12	Pokharadhada-Jogidhada	0.58	124	85
D13	Konte Dhada-Tule Dhada-Kureli	2.67	103	64
D14	Khasaibang Khola-Jurkhung-	1.81	113	74
D15	Dahagaira-Sapka-Darpan	6.47	62	23
D16	Litung Khola-Darpan-Samarekharka-Lendhara-Rangkot	5.55	70	31
D17	Pokhara-Raubang-Parlesima-Tarkebang	6.37	65	26
D18	Pokhara-Wiebang-Parlesima-Chaibang	7.89	50	11
D19	Jharma-Jakhar	4.60	76	37
D20	Pelendhara-Dangi-Shyalachaur	2.58	105	66
D21	Kuibang-Khebang-Chaibang-Riwangkuna	10.37	40	2
D22	Pokhara-Jhyapkhola-Vanabg	7.03	56	17
D23	Malemar-Kalabang-Goprdhara	5.79	66	27
D24	Sisnebari-Hiriban-Ralbang	3.53	89	50
D25	Bisanabot-Khame	1.47	118	79
D26	Ghameri Khola-Valaka-Jogidaha	10.19	41	3
D27	Obang-Parabang-Jakhar	10.59	38	1
D28	Khatrigade-Vibang-Varbang-Nijbang	5.70	68	29
D29	Pipal Chautara-Vultung School	0.62	123	84
D30	Jungepani-Gopal Khola-Kharkhare	3.65	85	46
D31	Chaur Takne-Dhupigaira	5.60	69	30
D32	Simalgaira-Dhakari-Liwang(Krishi Sadak)	2.84	101	62
D33	Panera-Jaga	2.03	111	72
D34	Dhadagaun-Nijbang-Ghorneti	7.31	54	15
D35	Taibang-Khostipole-Dhadaghau	2.67	102	63
D36	Duikholi-Jhipri	2.00	112	73
D37	Tallo Keuri-Tila Dhada	1.66	116	77

D38	Thanibot-Jurdhunga-Dahaban School	4.46	77	38
D39	Dhadaghau-Ranipipal-Tallo Keuri-Health Post	7.20	55	16
D40	Aadbare-Garkha-Lurimuni-Iribang	6.57	61	22
D41	Aadbare-Charch Hale-Lupa-Muthabang	4.38	79	40
D42	Kaulabot-Sallinaware-Bahuntakura	3.43	91	52
D43	Chukbot Narkhoriya	2.96	98	59
D44	Duikholi-Chunbang	3.96	81	42
D45	Verikharkha-Sijakhola-Dabare Sadak	6.63	59	20
D46	Dhotera - Aarkhola	3.61	87	48
D47	Khani Khola -Doyerkhoye-Chakhar Dhada-Kortha Sirwali	3.55	88	49
D48	Sukidaha-Kalapokhara-Masingaira-Halhale - Jharpokhara-Tila	9.92	43	5
D49	Verikharkha-Bacheokhar-Lumcheri-	6.60	60	21
D50	Bacheokhar- Raksebang 4 Ward Office	1.65	117	78
D51	Lumcheri-Ghuyeldhada-Chipdhada Supegaira	5.09	73	34
D52	Pahabang-Veri Kharkha	2.60	104	65
D53	Dume Khola -Supegaira-Halhale-Tila	6.74	57	18
D54	Kochibang-Gothdhale-Kopre-Kalapokhara	7.91	49	10
D55	Bagtare-Sukidaha -Salyan	7.39	52	13
D56	Khanikhola-Kebang-Arkhola	3.83	82	43
D57	Sallabot-Tharkhola-Ratavir-Kalapokhara	6.38	64	25
D58	Pokhdhada-Sijakhola-Basundhara	0.77	122	83
D59	Dumai Khola-Pataledhada-Kalapokhara	2.06	110	71
D60	Kochibang-Muthabang-Lupa	0.56	125	86
D61	Ghaudera-Maisthan-Dwangdwane	3.36	95	56
D62	Simri-Kakal Dhada-Kalapokhara-Gangadev Rm	6.40	63	24
D63	Agra Khola-Jhalke Dhunga-Ghaulate-Pakhapani-Pokhardhada	8.59	46	8

D64	Maisthan-Markauta-Sirwali-Bajange-Woda Office	5.16	72	33
D66	Jhakrikhola-Rokadera	1.39	119	80
D67	Koral-Galsuka-Kureli	9.54	44	6
D68	Khisabang-Triveni Khola	5.24	71	32
D69	Triveni Khola-Lamjhi-Galebad-Rukum	9.92	42	4
D70	Putalachaur-Ninmyang	2.08	109	70
D71	Ninmyang-Twang-Gorichaur	7.98	48	9
D72	Koral-Lendgara-Kureli	1.10	121	82
D73	Koral School-Daunrvir-Pokhara	1.26	120	81
D74	Lamidhada-Tyam-Ralekhola	3.82	83	44
D75	Tyam-Jumaransi	4.68	75	36
D76	Lamidhada-Aagradhada-Chipal Dhunde	2.93	100	61
D77	Okharni Khola-Bajeni	5.74	67	28
D78	Jumaransi-Bajeni-Raknam	7.33	53	14
D79	Khalneta-Jamasing-Lijbang	3.50	90	51
D81	Pra Bi Oha-Madi Rm	1.73	115	76
D82	Valakharka-Madi Rm	1.75	114	75
D83	Iribang -Jhinja	7.74	51	12
D84	Lupa-Ratamata-Til Dhada	3.38	93	54
D85	Khaldhada Pra Bi-Chabang-Iribang	2.42	106	67
D86	Mahibang-Ratamata	4.90	74	35
D87	Oha-Valakharka-Jasamkot- 3 No Ward Office	4.41	78	39
D88	6 No Ward Office - Chabang	3.38	94	55
D89	Rakulichour-Haklang	3.43	92	53
D90	Oha-Sadudera-Lachare-Madi Rm	2.12	108	69

Chapter 6: First Five Year Rural municipality Transport Master Plan

The Rural Municipal Transport Master Plan (RMTMP) that covers the next five years is prepared based on the projected financial requirement to fulfil the perspective plan. Year-wise targets are prepared for the different roads and intervention types.

6.1. Five Year Projected Financial Plan

To fulfil the required interventions implementation plan, financial requirements should be collected from the possible funding sources. For this the present financial capacity of the rural municipality is considered to increase by 15% each year. The rural municipality aims to invest approximately 15.5 Crore of budget in road infrastructure in the following fiscal year and this budget will increase on the years following.

6.2. Sharing Of Funds

The distribution of the available road sector budget for the MTMP period is given by ToR is as given below figure. Out of 100% budget, 70% is allocated for the construction of roads and 30% is allocated for maintenance work. As this amount of budget for maintenance work is huge, this amount can also be used for the construction of drain and retaining structures while in the initial MTMP period. After large network of road is developed, this amount will be used in maintenance work.

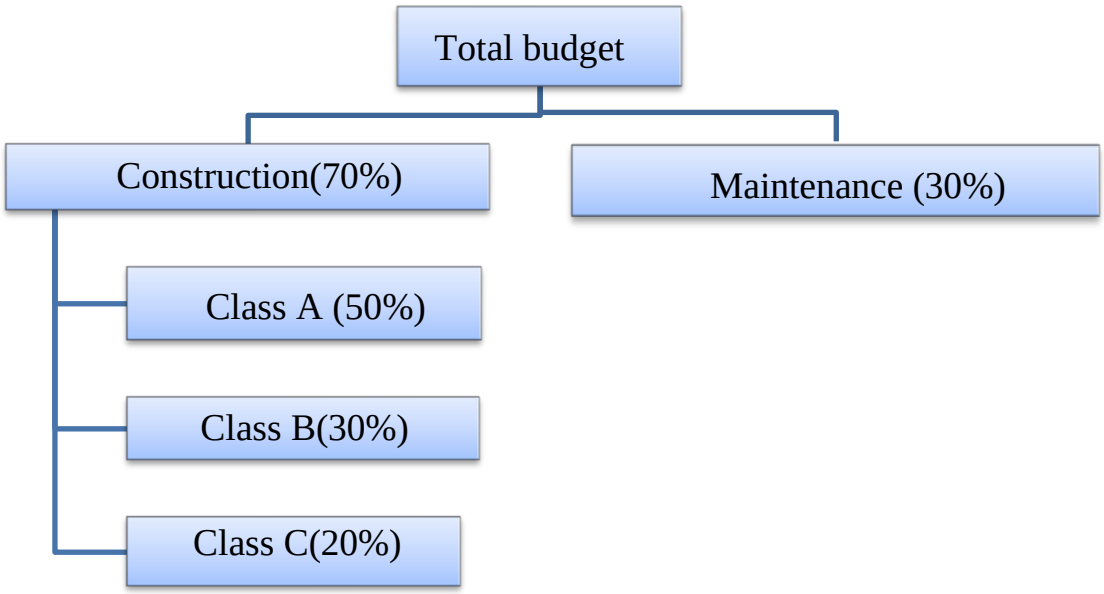
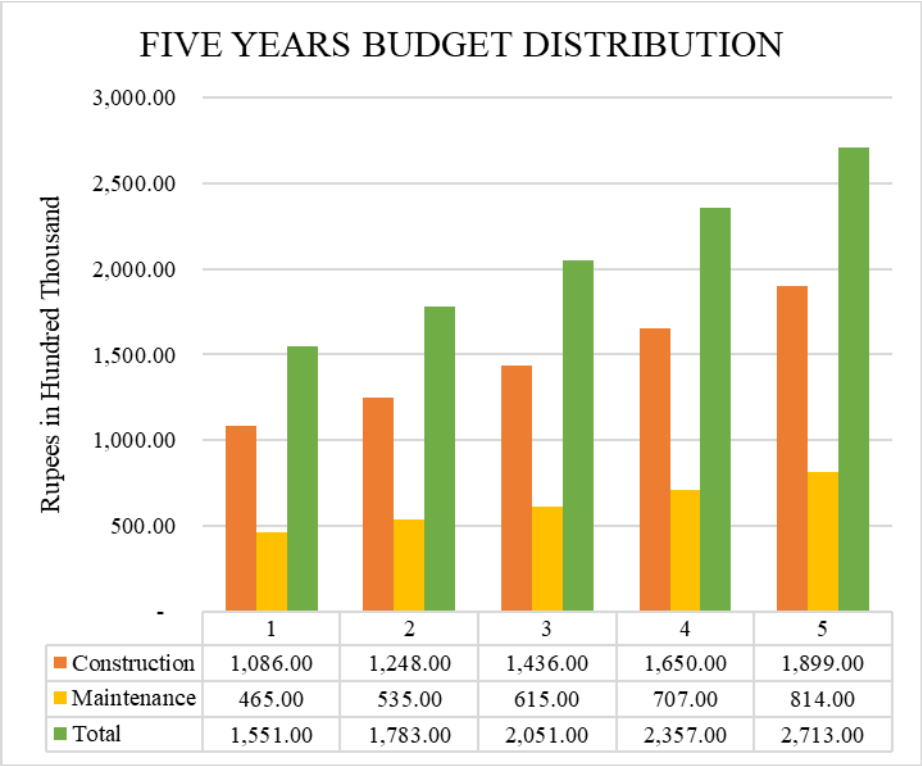


Figure 6: Distribution of Budget in MTMP period

Based on the above distribution scheme of the budget, the required annual budget will be as follows:



	1	2	3	4	5
Construction	1,086.00	1,248.00	1,436.00	1,650.00	1,899.00
Maintenance	465.00	535.00	615.00	707.00	814.00
Total	1,551.00	1,783.00	2,051.00	2,357.00	2,713.00

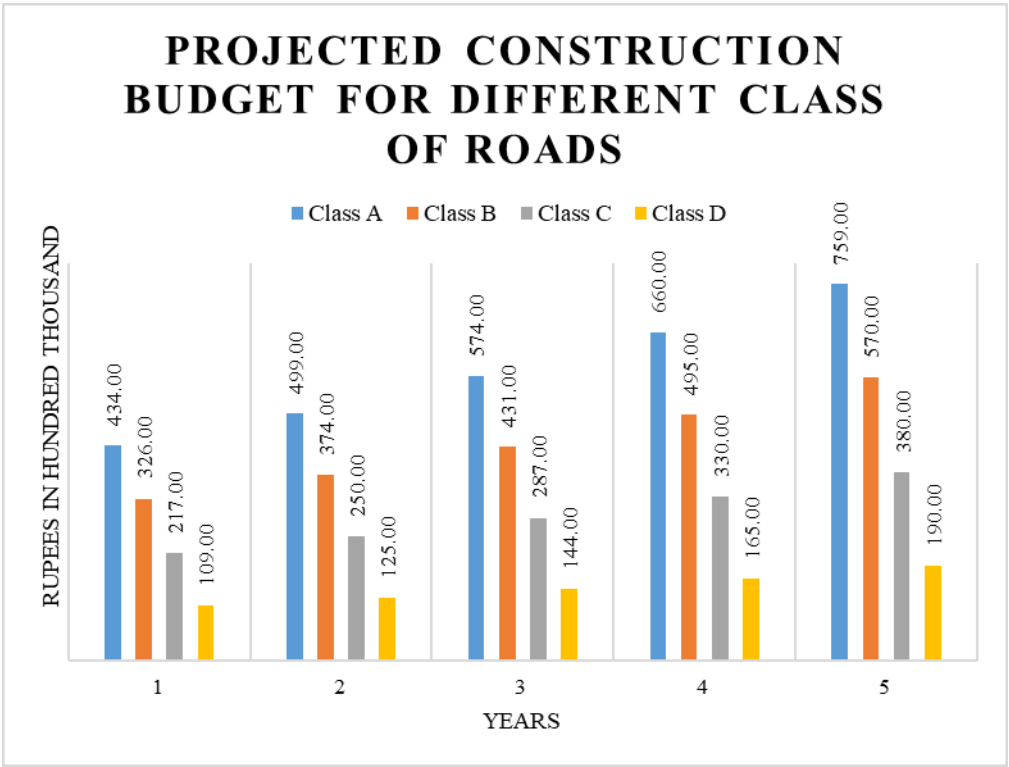


Figure 7: Investment Plan for MTMP period

6.3.First Five Year Rural municipality Transport Implementation Plan

For the implementation plan of MTMP period, the following assumptions have been made:

· Class 'A' roads are planned for intermediate lane.

· Class 'B' and 'C' roads are planned for single lane.

· All class of roads are planned for upto all weather condition only · Emphasis given to accessibility.

· Maintenance budget is considered to use in the construction/management of drain and retaining structures.

The projected budget for first five year plan is as follows:

Table 21: Projected budget distribution for first five years

Year	Projected Budget in Hundred Thousand						
	Class A	**Class B**	**Class C**	**Class D**	**Construction**	**Maintenance**	**Total**
1	434.00	326.00	217.00	109.00	1,086.00	465.00	1,551.00
2	499.00	374.00	250.00	125.00	1,248.00	535.00	1,783.00
3	574.00	431.00	287.00	144.00	1,436.00	615.00	2,051.00
4	660.00	495.00	330.00	165.00	1,650.00	707.00	2,357.00
5	759.00	570.00	380.00	190.00	1,899.00	814.00	2,713.00
Total	**2,926.00**	**2,196.00**	**1,464.00**	**733.00**	**7,319.00**	**3,136.00**	**10,455.00**

Table 22: RMTMP first three year construction Budget for Class A

Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			I Year				II Year				III Year			
			Earthen	Proposed	Total	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
A01	64.70	2	14.27	6.00	20.27	6.00	18,857,142.86	-	New Track	4.00	27,657,142.86	16.27	Gravelling	4.00	27,657,142.86	12.27	Gravelling
A02	60.00	4	19.09	-	19.09	4.00	27,657,142.86	15.09	Gravelling	4.00	27,657,142.86	11.09	Gravelling	4.00	27,657,142.86	7.09	Gravelling
A03	54.78	5	10.04	-	10.04	2.00	13,828,571.43	8.04	Gravelling		-	8.04	Gravelling		-	8.04	Gravelling
A04	60.91	3	10.60	-	10.60	2.00	13,828,571.43	8.60	Gravelling	2.00	13,828,571.43	6.60	Gravelling	6.60	45,628,941.71	-	Gravelling
A05	69.70	1	10.49	-	10.49	2.00	13,828,571.43	8.49	Gravelling	2.00	13,828,571.43	6.49	Gravelling	2.00	13,828,571.43	4.49	Gravelling
A06	52.29	8	5.42	3.30	8.72	3.30	10,371,428.57	-	New Track		-	-	New Track		-	-	New Track
A07	53.43	7	9.16	2.50	11.66	2.50	7,857,142.86	-	New Track		-	-	New Track		-	-	New Track
A08	54.04	6	7.53	-	7.53		-	7.53	Gravelling	1.50	10,371,428.57	6.03	Gravelling	2.00	13,828,571.43	4.03	Gravelling
A09	52.05	9	13.59	-	13.59	3.00	20,742,857.14	10.59	Gravelling	3.00	20,742,857.14	7.59	Gravelling	3.00	20,742,857.14	4.59	Gravelling

Table 23: RMTMP fourth and fifth year construction Budget for Class A

Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			IV Year				V Year			
			Earthen	Proposed	Total	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
A01	64.70	2	14.27	6.00	20.27	4.00	27,657,142.86	8.27	Gravelling	8.27	57,177,381.35	-	Gravelling
A02	60.00	4	19.09	-	19.09	4.00	27,657,142.86	3.09	Gravelling	3.09	21,386,282.35	-	Gravelling
A03	54.78	5	10.04	-	10.04	2.00	13,828,571.43	6.04	Gravelling	6.04	41,765,352.40	-	Gravelling
A04	60.91	3	10.60	-	10.60		-	-	Gravelling	-	-	-	Gravelling
A05	69.70	1	10.49	-	10.49	2.00	13,828,571.43	2.49	Gravelling	2.49	17,201,475.63	-	Gravelling
A06	52.29	8	5.42	3.30	8.72		-	-	New Track		-	-	New Track
A07	53.43	7	9.16	2.50	11.66		-	-	New Track		-	-	New Track
A08	54.04	6	7.53	-	7.53	2.00	13,828,571.43	2.03	Gravelling	2.03	14,004,249.19	-	Gravelling
A09	52.05	9	13.59	-	13.59	3.00	20,742,857.14	1.59	Gravelling	1.59	11,003,213.26	-	Gravelling

Table 24: RMTMP first three year construction Budget for Class B

Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			I Year				II Year				III Year			
			Earthen	Proposed	Total	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
B01	38.80	6	6.37	1.67	8.04		-	8.04	Gravelling	2.00	10,057,142.86	6.04	Gravelling	2.00	10,057,142.86	4.04	Gravelling
B02	37.41	8	8.81	1.00	9.81	1.00	2,285,714.29	-	New Track		-	8.81	Gravelling		-	8.81	Gravelling
B03	53.21	2	7.77	-	7.77	2.00	10,057,142.86	5.77	Gravelling	2.00	10,057,142.86	3.77	Gravelling	2.00	10,057,142.86	1.77	Gravelling
B04	37.38	9	4.46	-	4.46		-	4.46	Gravelling		-	4.46	Gravelling		-	4.46	Gravelling
B05	49.94	3	7.50	0.98	8.48	-	-	0.98	New Track		-	0.98	New Track		-	0.98	New Track
B06	42.81	4	9.80	-	9.80		-	9.80	Gravelling	-	-	9.80	Gravelling	3.00	15,085,714.29	6.80	Gravelling
B07	65.84	1	1.68	17.70	19.38	5.00	11,428,571.43	12.70	New Track	5.00	11,428,571.43	7.70	New Track	5.00	11,428,571.43	2.70	New Track
B08	38.16	7	5.01	2.60	7.61	3.00	15,085,714.29	4.61	Gravelling	3.00	15,085,714.29	1.61	Gravelling		-	1.61	Gravelling
B09	40.08	5	6.32	-	6.32		-	6.32	Gravelling		-	6.32	Gravelling	1.50	7,542,857.14	4.82	Gravelling
B10	31.45	10	3.11	-	3.11		-	3.11	Gravelling		-	3.11	Gravelling		-	3.11	Gravelling

Table 25: RMTMP fourth and fifth year construction Budget for Class B

Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			IV Year				V Year			
			Earthen	Proposed	Total	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
B01	38.80	6	6.37	1.67	8.04	2.00	10,057,142.86	2.04	Gravelling	2.04	10,258,427.69	-	Gravelling
B02	37.41	8	8.81	1.00	9.81	-	-	8.81	Gravelling		-	8.81	Gravelling
B03	53.21	2	7.77	-	7.77	1.77	8,900,549.20	-	Gravelling	-	-	-	Gravelling
B04	37.38	9	4.46	-	4.46		-	4.46	Gravelling	4.46	22,439,450.61	-	Gravelling
B05	49.94	3	7.50	0.98	8.48		-	0.98	New Track	0.98	2,240,000.00	-	New Track
B06	42.81	4	9.80	-	9.80	3.00	15,085,714.29	3.80	Gravelling	3.80	19,127,276.89	-	Gravelling
B07	65.84	1	1.68	17.70	19.38	2.70	6,171,428.57	-	New Track		-	-	New Track
B08	38.16	7	5.01	2.60	7.61		-	1.61	Gravelling	1.61	8,120,822.91	-	Gravelling
B09	40.08	5	6.32	-	6.32	1.50	7,542,857.14	3.32	Gravelling	3.32	16,680,611.10	-	Gravelling
B10	31.45	10	3.11	-	3.11		-	3.11	Gravelling		-	3.11	Gravelling

Table 26: RMTMP first three year construction Budget for Class C

						I Year				II Year				III Year			
Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
			Earthen	Proposed	Total												
C01	30.44	11	0.50	1.50	2.00		-	1.50	New Track		-	1.50	New Track	1.50	2,571,428.57	-	New Track
C02	19.45	13	7.75	-	7.75		-	7.75	Gravelling		-	7.75	Gravelling		-	7.75	Gravelling
C03	37.34	7	-	5.20	5.20		-	5.20	New Track	5.20	8,920,748.47	-	New Track		-	-	New Track
C04	26.36	12	5.22	-	5.22		-	5.22	Gravelling		-	5.22	Gravelling	3.00	11,314,285.71	2.22	Gravelling
C05	33.93	10	3.69	2.00	5.69		-	2.00	New Track		-	2.00	New Track	2.00	3,428,571.43	-	New Track
C06	48.55	2	6.71	-	6.71	3.00	11,314,285.71	3.71	Gravelling	3.71	13,997,359.18	-	Gravelling		-	-	Gravelling
C07	14.15	16	2.13	3.70	5.83		-	3.70	New Track		-	3.70	New Track		-	3.70	New Track
C08	8.32	20	1.77	-	1.77		-	1.77	Gravelling		-	1.77	Gravelling		-	1.77	Gravelling
C09	46.43	3	2.19	2.30	4.49	2.30	3,942,857.14	-	New Track		-	-	New Track		-	-	New Track
C10	11.29	18	3.35	-	3.35		-	3.35	Gravelling		-	3.35	Gravelling		-	3.35	Gravelling
C11	17.34	14	4.07	2.50	6.57		-	2.50	New Track		-	2.50	New Track		-	2.50	New Track
C12	35.21	9	-	4.37	4.37		-	4.37	New Track		-	4.37	New Track	4.37	7,495,339.97	-	New Track
C13	10.47	19	-	2.91	2.91		-	2.91	New Track		-	2.91	New Track		-	2.91	New Track
C14	38.80	5	6.39	2.70	9.09		-	2.70	New Track	2.70	4,628,571.43	-	New Track		-	-	New Track
C15	13.18	17	5.81	-	5.81		-	5.81	Gravelling		-	5.81	Gravelling		-	5.81	Gravelling
C16	49.77	1	4.12	6.20	10.32	6.20	10,628,571.43	-	New Track		-	-	New Track		-	-	New Track
C17	38.67	6	5.00	-	5.00		-	5.00	Gravelling	2.50	9,428,571.43	2.50	Gravelling	2.50	9,445,530.52	-	Gravelling
C18	17.06	15	9.04	-	9.04		-	9.04	Gravelling		-	9.04	Gravelling		-	9.04	Gravelling
C19	45.41	4	3.97	3.10	7.07	3.10	5,314,285.71	-	New Track		-	-	New Track		-	-	New Track
C20	35.45	8	-	4.82	4.82		-	4.82	New Track	4.82	8,258,602.78	-	New Track		-	-	New Track

Table 27: RMTMP Fourth and Fifth year construction Budget for Class C

						IV Year				V Year			
Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
			Earthen	Proposed	Total								
C01	30.44	11	0.50	1.50	2.00		-	-	New Track		-	-	New Track
C02	19.45	13	7.75	-	7.75		-	7.75	Gravelling	7.75	29,240,136.28	-	Gravelling
C03	37.34	7	-	5.20	5.20		-	-	New Track		-	-	New Track
C04	26.36	12	5.22	-	5.22	2.22	8,368,883.84	-	Gravelling		-	-	Gravelling
C05	33.93	10	3.69	2.00	5.69		-	-	New Track		-	-	New Track
C06	48.55	2	6.71	-	6.71		-	-	Gravelling		-	-	Maintenance
C07	14.15	16	2.13	3.70	5.83	3.70	6,342,857.14	-	New Track		-	-	New Track
C08	8.32	20	1.77	-	1.77		-	1.77	Gravelling	1.77	6,665,694.94	-	Gravelling
C09	46.43	3	2.19	2.30	4.49		-	-	New Track		-	-	New Track
C10	11.29	18	3.35	-	3.35		-	3.35	Gravelling	3.35	12,623,549.57	-	Gravelling

C11	17.34	14	4.07	2.50	6.57	2.50	4,285,714.29	-	New Track		-	-	New Track
C12	35.21	9	-	4.37	4.37		-	-	New Track		-	-	New Track
C13	10.47	19	-	2.91	2.91		-	2.91	New Track	2.91	4,991,845.26	-	New Track
C14	38.80	5	6.39	2.70	9.09		-	-	New Track		-	-	New Track
C15	13.18	17	5.81	-	5.81		-	5.81	Gravelling		-	5.81	Gravelling
C16	49.77	1	4.12	6.20	10.32		-	-	New Track		-	-	New Track
C17	38.67	6	5.00	-	5.00		-	-	Gravelling		-	-	Gravelling
C18	17.06	15	9.04	-	9.04		-	9.04	Gravelling		-	9.04	Gravelling
C19	45.41	4	3.97	3.10	7.07		-	-	New Track		-	-	New Track
C20	35.45	8	-	4.82	4.82		-	-	New Track		-	-	New Track

Table 28: RMTMP first three year construction Budget for Class D

						I Year				II Year				III Year			
Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
			Earthen	Proposed	Total												
D01	6.69	19	-	5.49	5.49		-	5.49	New Track	5.49	7,838,969.83	-	New Track		-	-	New Track
D02	3.64	47	2.60	0.39	2.99		-	0.39	New Track		-	0.39	New Track	0.39	557,142.86	-	New Track
D03	2.95	60	1.32	1.10	2.42		-	1.10	New Track		-	1.10	New Track		-	1.10	New Track
D04	8.66	7	-	7.11	7.11	7.11	10,151,006.97	-	New Track		-	-	New Track		-	-	New Track
D05	0.52	87	-	0.43	0.43		-	0.43	New Track		-	0.43	New Track		-	0.43	New Track
D06	4.27	41	1.10	2.40	3.50		-	2.40	New Track		-	2.40	New Track	2.40	3,428,571.43	-	New Track
D07	3.19	58	0.26	2.35	2.61		-	2.35	New Track		-	2.35	New Track		-	2.35	New Track
D08	3.76	45	-	3.08	3.08		-	3.08	New Track		-	3.08	New Track	3.08	4,403,215.76	-	New Track
D09	3.28	57	-	2.70	2.70		-	2.70	New Track		-	2.70	New Track		-	2.70	New Track
D10	0.51	88	-	0.42	0.42		-	0.42	New Track		-	0.42	New Track		-	0.42	New Track
D11	2.37	68	-	1.94	1.94		-	1.94	New Track		-	1.94	New Track		-	1.94	New Track
D12	0.58	85	-	0.47	0.47		-	0.47	New Track		-	0.47	New Track		-	0.47	New Track
D13	2.67	64	-	2.19	2.19		-	2.19	New Track		-	2.19	New Track		-	2.19	New Track
D14	1.81	74	-	1.49	1.49		-	1.49	New Track		-	1.49	New Track		-	1.49	New Track
D15	6.47	23	-	5.31	5.31		-	5.31	New Track	5.31	7,589,761.37	-	New Track		-	-	New Track
D16	5.55	31	-	4.55	4.55		-	4.55	New Track	4.55	6,501,948.66	-	New Track		-	-	New Track
D17	6.37	26	-	4.05	4.05		-	4.05	New Track	4.05	5,787,223.02	-	New Track		-	-	New Track
D18	7.89	11	2.52	2.50	5.02	2.50	3,571,428.57	-	New Track		-	-	New Track		-	-	New Track
D19	4.60	37	-	2.93	2.93		-	2.93	New Track		-	2.93	New Track	2.93	4,179,838.40	-	New Track
D20	2.58	66	0.94	0.70	1.64		-	0.70	New Track		-	0.70	New Track		-	0.70	New Track
D21	10.37	2	3.30	3.30	6.60	3.30	4,714,285.71	-	New Track		-	-	New Track		-	-	New Track
D22	7.03	17	-	4.48	4.48	4.48	6,393,515.95	-	New Track		-	-	New Track		-	-	New Track
D23	5.79	27	-	3.68	3.68		-	3.68	New Track	3.68	5,259,986.68	-	New Track		-	-	New Track
D24	3.53	50	0.75	1.50	2.25		-	1.50	New Track		-	1.50	New Track		-	1.50	New Track
D25	1.47	79	0.79	0.15	0.94		-	0.15	New Track		-	0.15	New Track		-	0.15	New Track
D26	10.19	3	-	6.49	6.49	6.49	9,266,206.48	-	New Track		-	-	New Track		-	-	New Track
D27	10.59	1	-	6.74	6.74	6.74	9,627,944.54	-	New Track		-	-	New Track		-	-	New Track
D28	5.70	29	0.53	3.10	3.63		-	3.10	New Track	3.10	4,428,571.43	-	New Track		-	-	New Track

D29	0.62	84	-	0.39	0.39		-	0.39	New Track		-	0.39	New Track		-	0.39	New Track
D30	3.65	46	-	2.32	2.32		-	2.32	New Track		-	2.32	New Track	2.32	3,319,259.27	-	New Track
D31	5.60	30	-	3.57	3.57		-	3.57	New Track	3.57	11,207,250.36	-	Gravelling		-	-	
D32	2.84	62	-	1.81	1.81		-	1.81	New Track		-	1.81	New Track		-	1.81	New Track
D33	2.03	72	-	1.29	1.29		-	1.29	New Track		-	1.29	Gravelling		-	1.29	Gravelling
D34	7.31	15	-	4.65	4.65	4.65	6,646,176.87	-	New Track		-	-	New Track		-	-	
D35	2.67	63	1.42	-	1.42		-	1.42	Gravelling		-	1.42	Gravelling		-	1.42	Gravelling
D36	2.00	73	-	1.07	1.07		-	1.07	New Track		-	1.07	Gravelling		-	1.07	Gravelling
D37	1.66	77	-	0.89	0.89		-	0.89	New Track		-	0.89	New Track		-	0.89	New Track
D38	4.46	38	-	2.38	2.38		-	2.38	New Track		-	2.38	New Track	2.38	3,393,540.36	-	New Track
D39	7.20	16	-	3.83	3.83	3.83	5,474,940.90	-	New Track		-	-	New Track		-	-	
D40	6.57	22	-	3.50	3.50		-	3.50	New Track	3.50	4,996,295.93	-	New Track		-	-	Blacktopping
D41	4.38	40	-	2.33	2.33		-	2.33	New Track		-	2.33	New Track	2.33	3,332,985.22	-	New Track
D42	3.43	52	-	1.83	1.83		-	1.83	New Track		-	1.83	New Track	1.83	2,608,327.37	-	New Track
D43	2.96	59	-	1.57	1.57		-	1.57	New Track		-	1.57	New Track	1.57	2,249,164.62	-	New Track
D44	3.96	42	-	2.81	2.81		-	2.81	New Track		-	2.81	New Track	2.81	4,017,333.17	-	New Track
D45	6.63	20	-	4.71	4.71		-	4.71	New Track	4.71	6,725,536.58	-	New Track		-	-	
D46	3.61	48	1.76	0.80	2.56		-	0.80	New Track		-	0.80	New Track	0.80	1,142,857.14	-	New Track
D47	3.55	49	1.62	0.90	2.52		-	0.90	New Track		-	0.90	New Track	0.90	1,285,714.29	-	New Track
D48	9.92	5	0.64	6.40	7.04	6.40	9,142,857.14	-	New Track		-	-	New Track		-	-	
D49	6.60	21	-	4.68	4.68		-	4.68	New Track	4.68	6,690,782.21	-	New Track		-	-	
D50	1.65	78	-	1.17	1.17		-	1.17	New Track		-	1.17	New Track			1.17	New Track
D51	5.09	34	-	3.61	3.61		-	3.61	New Track	3.61	5,159,169.96	-	New Track		-	-	
D52	2.60	65	-	1.85	1.85		-	1.85	New Track		-	1.85	New Track		-	1.85	New Track
D53	6.74	18	-	4.78	4.78		-	4.78	New Track		-	4.78	New Track		-	4.78	New Track
D54	7.91	10	-	5.62	5.62		-	5.62	New Track		-	5.62	New Track		-	5.62	New Track
D55	7.39	13	1.15	4.10	5.25		-	4.10	New Track		-	4.10	New Track		-	4.10	New Track
D56	3.83	43	-	2.72	2.72		-	2.72	New Track		-	2.72	New Track	2.72	3,881,530.50	-	New Track
D57	6.38	25	-	4.53	4.53		-	4.53	New Track	4.53	6,471,007.38	-	New Track		-	-	
D58	0.77	83	-	0.55	0.55		-	0.55	New Track		-	0.55	New Track		-	0.55	New Track
D59	2.06	71	-	1.47	1.47		-	1.47	New Track		-	1.47	New Track		-	1.47	New Track
D60	0.56	86	-	0.40	0.40		-	0.40	New Track		-	0.40	New Track		-	0.40	New Track
D61	3.36	56	-	2.38	2.38		-	2.38	New Track		-	2.38	New Track		-	2.38	New Track
D62	6.40	24	-	4.54	4.54		-	4.54	New Track	4.54	6,487,525.50	-	New Track		-	-	
D63	8.59	8	-	6.10	6.10	6.10	8,716,706.86	-	New Track		-	-	New Track		-	-	
D64	5.16	33	-	3.66	3.66		-	3.66	New Track	3.66	5,232,034.91	-	New Track		-	-	
D66	1.39	80	-	1.04	1.04		-	1.04	New Track		-	1.04	New Track		-	1.04	New Track
D67	9.54	6	1.96	5.20	7.16	5.20	7,428,571.43	-	New Track		-	-	New Track		-	-	
D68	5.24	32	-	3.93	3.93		-	3.93	New Track	3.93	5,609,991.03	-	New Track		-	-	
D69	9.92	4	-	7.44	7.44		-	7.44	New Track		-	7.44	New Track		-	7.44	New Track
D70	2.08	70	-	1.56	1.56		-	1.56	New Track		-	1.56	New Track		-	1.56	New Track
D71	7.98	9	-	5.99	5.99		-	5.99	New Track		-	5.99	New Track		-	5.99	New Track
D72	1.10	82	-	0.82	0.82		-	0.82	New Track		-	0.82	New Track		-	0.82	New Track
D73	1.26	81	-	0.94	0.94		-	0.94	New Track		-	0.94	Gravelling		-	0.94	Gravelling
D74	3.82	44	-	2.87	2.87		-	2.87	New Track		-	2.87	Gravelling	2.87	9,005,397.38	-	Gravelling
D75	4.68	36	-	3.51	3.51		-	3.51	New Track	3.51	11,030,095.74	-	Gravelling		-	-	Gravelling
D76	2.93	61	0.30	1.90	2.20		-	1.90	New Track		-	1.90	New Track		-	1.90	New Track
D77	5.74	28	2.40	1.90	4.30		-	1.90	New Track	1.90	2,714,285.71	-	New Track		-	-	New Track
D78	7.33	14	-	5.49	5.49		-	5.49	New Track		-	5.49	New Track	5.49	7,849,793.39	-	New Track
D79	3.50	51	-	2.63	2.63		-	2.63	New Track		-	2.63	Gravelling	2.63	8,257,643.85	-	Gravelling
D81	1.73	76	0.99	-	0.99		-	0.99	Gravelling		-	0.99	Gravelling		-	0.99	Gravelling

D82	1.75	75	-	1.00	1.00		-	1.00	New Track		-	1.00	New Track		-	1.00	New Track
D83	7.74	12	2.11	2.30	4.41	2.30	3,285,714.29	-	New Track		-	-			-	-	
D84	3.38	54	0.43	1.50	1.93		-	1.50	New Track		-	1.50	New Track	1.50	2,142,857.14	-	New Track
D85	2.42	67	-	1.38	1.38		-	1.38	New Track		-	1.38	New Track		-	1.38	New Track
D86	4.90	35	-	2.79	2.79		-	2.79	New Track	2.79	3,986,256.26	-	New Track		-	-	New Track
D87	4.41	39	-	2.51	2.51		-	2.51	New Track		-	2.51	New Track	2.51	3,589,204.22	-	New Track
D88	3.38	55	-	1.93	1.93		-	1.93	New Track		-	1.93	New Track		-	1.93	New Track
D89	3.43	53	1.95	-	1.95		-	1.95	Gravelling		-	1.95	Gravelling	1.95	6,141,049.88	-	Gravelling
D90	2.12	69	-	1.21	1.21		-	1.21	New Track		-	1.21	New Track		-	1.21	New Track

Table 29: RMTMP Fourth and Fifth year construction Budget for Class D

						IV Year				V Year			
Road Code	Score	Rank Class-wise	Road Surface/ Length of Roads (KM)			Length Completed	Cost	Remaining Length	Intervention	Length Completed	Cost	Remaining Length	Intervention
			Earthen	Proposed	Total								
D01	6.69	19	-	5.49	5.49		-	-					
D02	3.64	47	2.60	0.39	2.99		-	-	New Track		-	-	New Track
D03	2.95	60	1.32	1.10	2.42	1.10	1,571,428.57	-	New Track		-	-	New Track
D04	8.66	7	-	7.11	7.11		-	-	New Track		-	-	New Track
D05	0.52	87	-	0.43	0.43		-	0.43	New Track	0.43	608,387.19	-	New Track
D06	4.27	41	1.10	2.40	3.50		-	-	New Track		-	-	New Track
D07	3.19	58	0.26	2.35	2.61	2.35	3,357,142.86	-	New Track		-	-	New Track
D08	3.76	45	-	3.08	3.08		-	-	New Track		-	-	New Track
D09	3.28	57	-	2.70	2.70	2.70	3,850,469.90	-	New Track		-	-	New Track
D10	0.51	88	-	0.42	0.42		-	0.42	New Track	0.42	597,069.95	-	New Track
D11	2.37	68	-	1.94	1.94		-	1.94	New Track	1.94	2,777,521.38	-	New Track
D12	0.58	85	-	0.47	0.47		-	0.47	New Track	0.47	674,735.02	-	New Track
D13	2.67	64	-	2.19	2.19	2.19	3,129,671.31	-	New Track		-	-	New Track
D14	1.81	74	-	1.49	1.49		-	1.49	New Track	1.49	2,124,432.04	-	New Track
D15	6.47	23	-	5.31	5.31		-	-	New Track		-	-	New Track
D16	5.55	31	-	4.55	4.55		-	-	New Track		-	-	New Track
D17	6.37	26	-	4.05	4.05		-	-	New Track		-	-	
D18	7.89	11	2.52	2.50	5.02		-	-	New Track		-	-	
D19	4.60	37	-	2.93	2.93		-	-	New Track		-	-	
D20	2.58	66	0.94	0.70	1.64	0.70	1,000,000.00	-	New Track		-	-	New Track
D21	10.37	2	3.30	3.30	6.60		-	-	New Track		-	-	New Track
D22	7.03	17	-	4.48	4.48		-	-	New Track		-	-	New Track
D23	5.79	27	-	3.68	3.68		-	-	New Track		-	-	
D24	3.53	50	0.75	1.50	2.25	1.50	2,142,857.14	-	New Track		-	-	New Track
D25	1.47	79	0.79	0.15	0.94		-	0.15	New Track	0.15	34,285.71	-	
D26	10.19	3	-	6.49	6.49		-	-	New Track		-	-	
D27	10.59	1	-	6.74	6.74		-	-	New Track		-	-	
D28	5.70	29	0.53	3.10	3.63		-	-	New Track		-	-	
D29	0.62	84	-	0.39	0.39		-	0.39	New Track	0.39	89,765.64	-	
D30	3.65	46	-	2.32	2.32		-	-	New Track		-	-	
D31	5.60	30	-	3.57	3.57		-	-			-	-	
D32	2.84	62	-	1.81	1.81	1.81	2,581,907.76	-	New Track		-	-	
D33	2.03	72	-	1.29	1.29	1.29	4,063,796.69	-	Gravelling		-	-	

D34	7.31	15	-	4.65	4.65		-	-			-	-	
D35	2.67	63	1.42	-	1.42	1.42	4,467,293.16	-	Gravelling		-	-	
D36	2.00	73	-	1.07	1.07		-	1.07	Gravelling		-	1.07	Gravelling
D37	1.66	77	-	0.89	0.89		-	0.89	New Track	0.89	1,265,440.92	-	New Track
D38	4.46	38	-	2.38	2.38		-	-			-	-	
D39	7.20	16	-	3.83	3.83		-	-			-	-	
D40	6.57	22	-	3.50	3.50		-	-			-	-	
D41	4.38	40	-	2.33	2.33		-	-			-	-	
D42	3.43	52	-	1.83	1.83		-	-			-	-	
D43	2.96	59	-	1.57	1.57		-	-	Gravelling		-	-	
D44	3.96	42	-	2.81	2.81		-	-	Gravelling		-	-	
D45	6.63	20	-	4.71	4.71		-	-			-	-	
D46	3.61	48	1.76	0.80	2.56		-	-			-	-	
D47	3.55	49	1.62	0.90	2.52		-	-			-	-	
D48	9.92	5	0.64	6.40	7.04		-	-			-	-	
D49	6.60	21	-	4.68	4.68		-	-			-	-	
D50	1.65	78	-	1.17	1.17		-	1.17	New Track	1.17	1,676,848.15	-	New Track
D51	5.09	34	-	3.61	3.61		-	-			-	-	
D52	2.60	65	-	1.85	1.85	1.85	2,636,960.20	-	New Track		-	-	
D53	6.74	18	-	4.78	4.78		-	4.78	New Track	4.78	6,834,252.62	-	New Track
D54	7.91	10	-	5.62	5.62		-	5.62	New Track	5.62	8,027,113.57	-	New Track
D55	7.39	13	1.15	4.10	5.25		-	4.10	New Track	4.10	5,857,142.86	-	New Track
D56	3.83	43	-	2.72	2.72		-	-			-	-	
D57	6.38	25	-	4.53	4.53		-	-			-	-	
D58	0.77	83	-	0.55	0.55		-	0.55	New Track	0.55	779,555.98	-	New Track
D59	2.06	71	-	1.47	1.47	1.47	2,093,319.10	-	New Track		-	-	
D60	0.56	86	-	0.40	0.40		-	0.40	New Track	0.40	570,192.31	-	New Track
D61	3.36	56	-	2.38	2.38	2.38	3,403,003.20	-	New Track		-	-	
D62	6.40	24	-	4.54	4.54		-	-			-	-	
D63	8.59	8	-	6.10	6.10		-	-			-	-	
D64	5.16	33	-	3.66	3.66		-	-			-	-	
D66	1.39	80	-	1.04	1.04		-	1.04	New Track	1.04	1,483,957.61	-	New Track
D67	9.54	6	1.96	5.20	7.16		-	-			-	-	
D68	5.24	32	-	3.93	3.93		-	-			-	-	
D69	9.92	4	-	7.44	7.44	7.44	10,629,120.98	-	New Track		-	-	
D70	2.08	70	-	1.56	1.56	1.56	2,232,919.02	-	New Track		-	-	
D71	7.98	9	-	5.99	5.99	5.99	8,552,249.05	-	New Track		-	.	
D72	1.10	82	-	0.82	0.82		-	0.82	New Track	0.82	1,174,446.12	-	New Track
D73	1.26	81	-	0.94	0.94		-	0.94	Gravelling		-	0.94	Gravelling
D74	3.82	44	-	2.87	2.87		-	-			-	-	
D75	4.68	36	-	3.51	3.51		-	-			-	-	
D76	2.93	61	0.30	1.90	2.20	1.90	2,714,285.71	-	New Track		-	-	
D77	5.74	28	2.40	1.90	4.30		-	-			-	-	
D78	7.33	14	-	5.49	5.49		-	-			-	-	
D79	3.50	51	-	2.63	2.63		-	-			-	-	
D81	1.73	76	0.99	-	0.99		-	0.99	Gravelling		-	0.99	Gravelling
D82	1.75	75	-	1.00	1.00		-	1.00	New Track	1.00	1,426,351.00	-	New Track
D83	7.74	12	2.11	2.30	4.41		-	-			-	-	
D84	3.38	54	0.43	1.50	1.93		-	-			-	-	
D85	2.42	67	-	1.38	1.38	1.38	1,969,502.31	-	New Track		-	-	
D86	4.90	35	-	2.79	2.79		-	-			-	-	

D87	4.41	39	-	2.51	2.51		-	-			-	-	
D88	3.38	55	-	1.93	1.93	1.93	2,754,686.35	-	New Track		-	-	
D89	3.43	53	1.95	-	1.95		-	-			-	-	
D90	2.12	69	-	1.21	1.21	1.21	1,723,936.55	-	New Track		-	-	

Chapter 7: Conclusion and Recommendation

The draft report of RMTMP of Paribartan Rural Municipality is prepared after the analysis of field data and requirement of the rural municipality itself. The short term and long term plan is prepared for five year and twenty years period. This planning is based on the assumption that the spending capacity of Rural Municipality increases by 15% per year. The total budget for 20 years of implementation of this RMTMP is projected to be 1,737.67 Crore, 70% of which is allocated for construction and 30% is allocated for maintenance of existing structures. The ultimate goal of this RMTMP is to blacktop all the rural municipality roads to their full extent.

The concept of RMTMP is to develop sustainable and economic road network, therefore the Rural Municipality should focus on strengthening existing road network to operate them in all weather conditions rather than opening new tracks. Moreover, strategically important tracks should be opened after proper planning and design. Due to unavailability of intra municipal transport system, the number of private vehicles is increasing in the Rural Municipality which may cause severe problem of traffic congestion in future. So, Rural Municipality should take immediate action to operate local transport system inside the Rural municipality by Rural municipality itself or with collaboration with private entities. Similarly, the rural municipality should allocate different land use zones based on their present and future use, which will be applicable in future planning of infrastructure facilities inside Rural Municipality.

References

Australia, M. R. (2011). *Road Hierarchy Criteria.*

Central Bureau of Statistics. (2013). *National Census 2011.* Kathmandu: Government of Nepal, National Planning Commission Secretariat.

Cole, S. (2005). *Applied Transport Economics Policy, Management and Decision Making.* London: Kogan Page Limited.

Elgar, E. (2002). *Transport Economics.* Cheltenham: Edward ELgar Publishing Limited.

Eppell, V. A., Bunker, J., & McClurg, B. (2001). A four level road hierarchy for network planning and management. *Proceedings 20th ARRB Conference.* Melbourne: Jaeger, Vicki, Eds.

kadiyali, D. L. (2011). *Traffic Engineering and Transport planning.*

Litman, T. (2015). *Evaluating Active Transport Benefits and Costs (Guide to valuing walking and cycling improvements and encouragement programs).* Victooria Transport Policy Institute.

McClurg, B., Bunker , J., & Eppell, V. (2001). A four level road hierarchy for network planning and management. *ARRB.* Melbourne.

Meyer M.D & Miller E.J. *Urban Transportation Planning.*

National Planning Commission. (2012). *National population and housing census (A national report).* Kathmandu: Central Bureau of Statistics.

Government of Nepal, (2068). *Nepal Urban Road Standard 2068 (Draft).*

Department of Roads, *Nepal Road Standard 2070.*

TRB. (2013). *Transit capacity and quality of service manual.* Washington D.C.: Transit cooperative research program.

National Urban Development Strategy 2015, GoN, Ministry of Urban Development

District transport master plan, Rolpa

Mofaga.gov.np

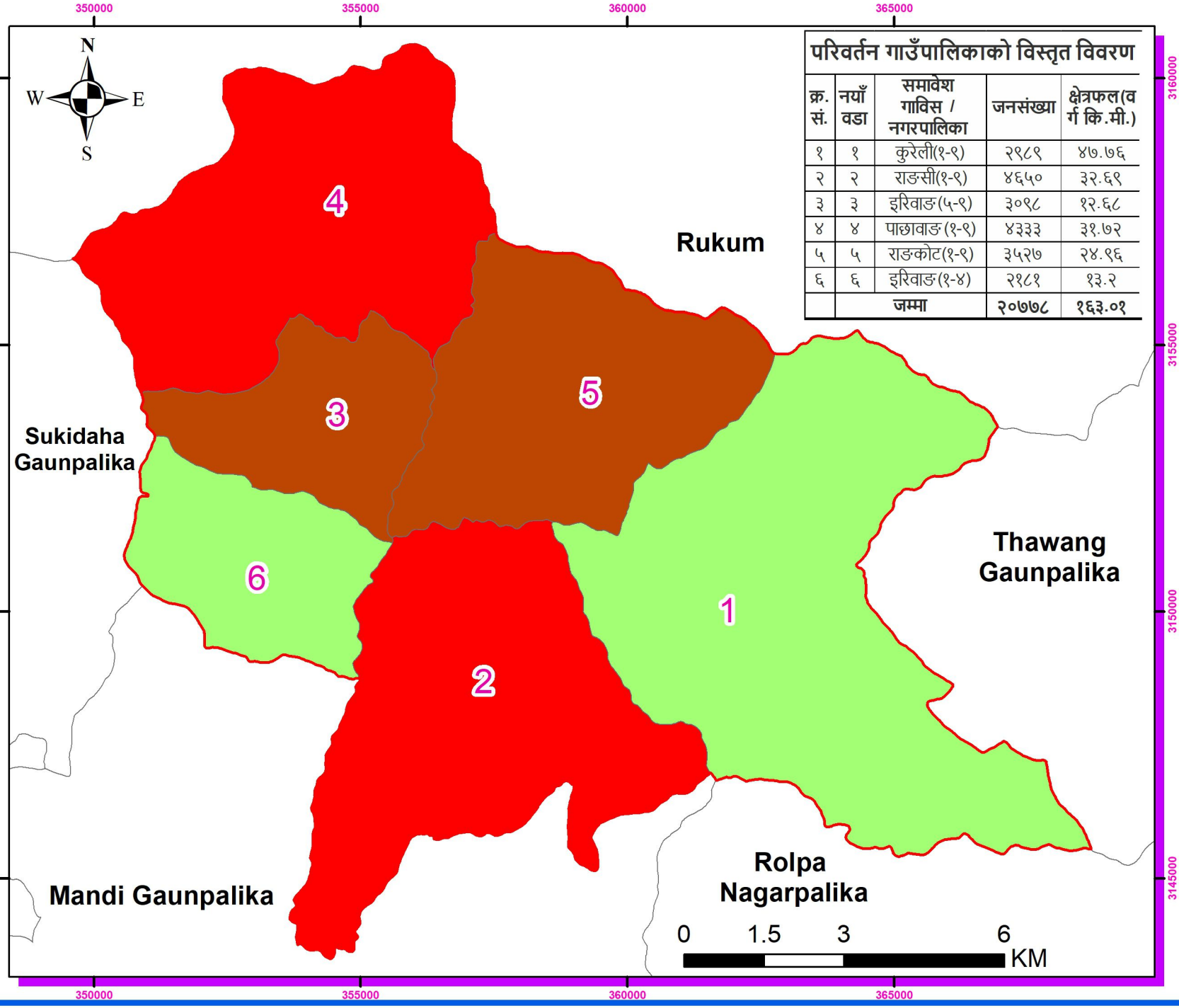
Citypopulation.de

ANNEX-I

Maps:

1. Location Map
2. Strategic Road Network and District Road Core Network
3. Elevation Map
4. Aspect Map
5. Hillshade Map
6. Slope Map
7. TIN Map
8. Geology Map
9. Contour Map
10. Landuse Map
11. Satellite Map
12. Demographic Map
13. Road Network
    - I. Existing Road Network
    - II. Proposed New Roads
    - III. Proposed Priority road Map
    - IV. Proposed Width Map
    - V. A class Road Map
    - VI. B class Road Map
    - VII. C Class Road Map
    - VIII. D class Road Map
    - IX. Proposed Class Map
14. IDP Map

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



परिवर्तन गाउँपालिकाको विस्तृत विवरण

क्र. सं.	नयाँ वडा	समावेश गाविस / नगरपालिका	जनसंख्या	क्षेत्रफल(वर्ग कि.मी.)
१	१	कुरेली(१-९)	२९८९	४७.७६
२	२	राङसी(१-९)	४६५०	३२.६९
३	३	इरिवाङ(५-९)	३०९८	१२.६८
४	४	पाछावाङ (१-९)	४३३३	३१.७२
५	५	राङकोट(१-९)	३५२७	२४.९६
६	६	इरिवाङ(१-४)	२१८१	१३.२
		जम्मा	२०७७८	१६३.०१

Demographic Map

Demographic Mapping is a way of using GIS mapping technology to show data on population characteristics by region or geographic area .

Legend

- RM Boundary
- Local level Boundary

Population

- 2181 - 3000
- 3001 - 4000
- 4001 - 4650

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant Pvt.Ltd , Kathmandu Nepal

Coordinate System

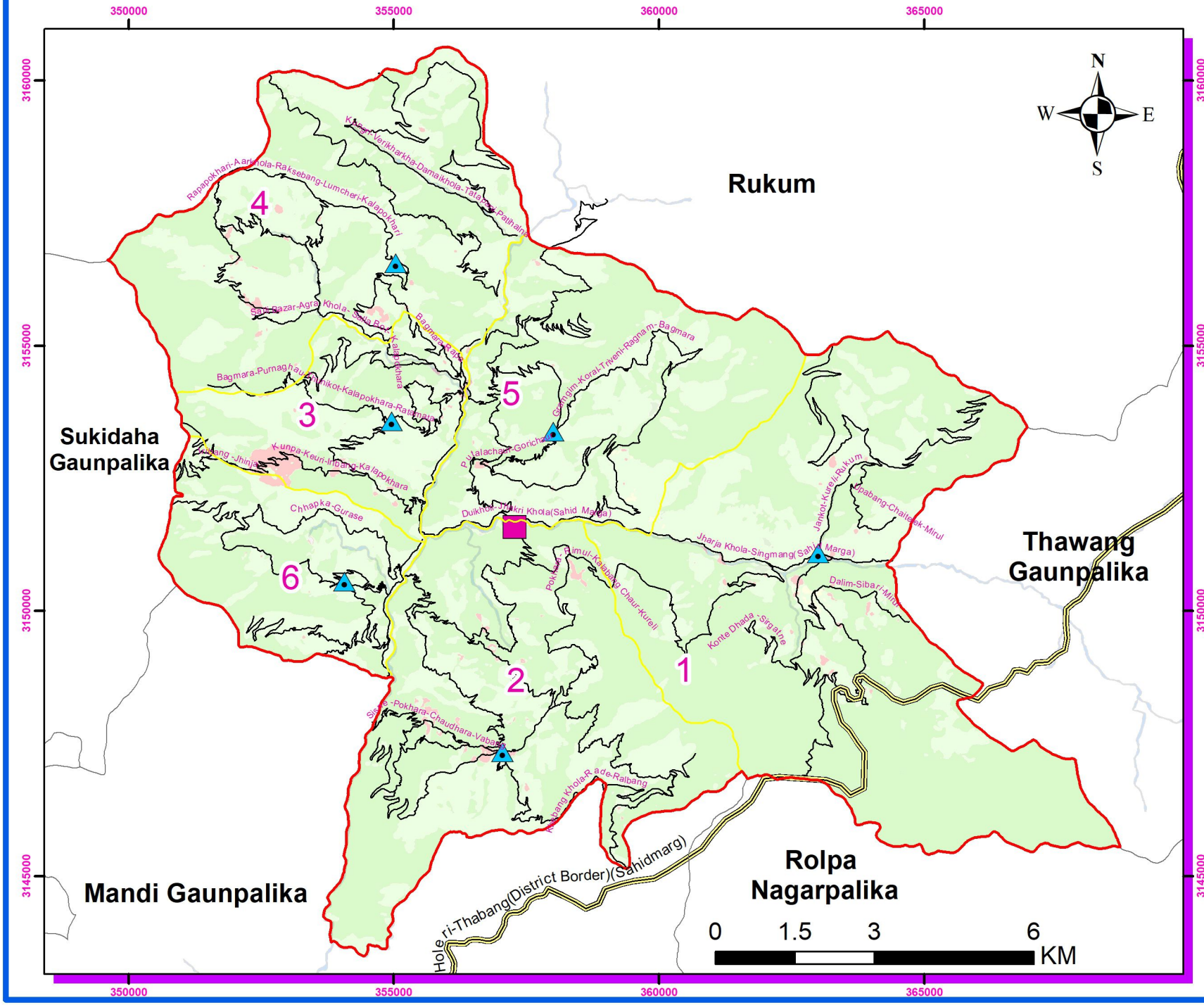
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 12

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Existing Road Network

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- Existing Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

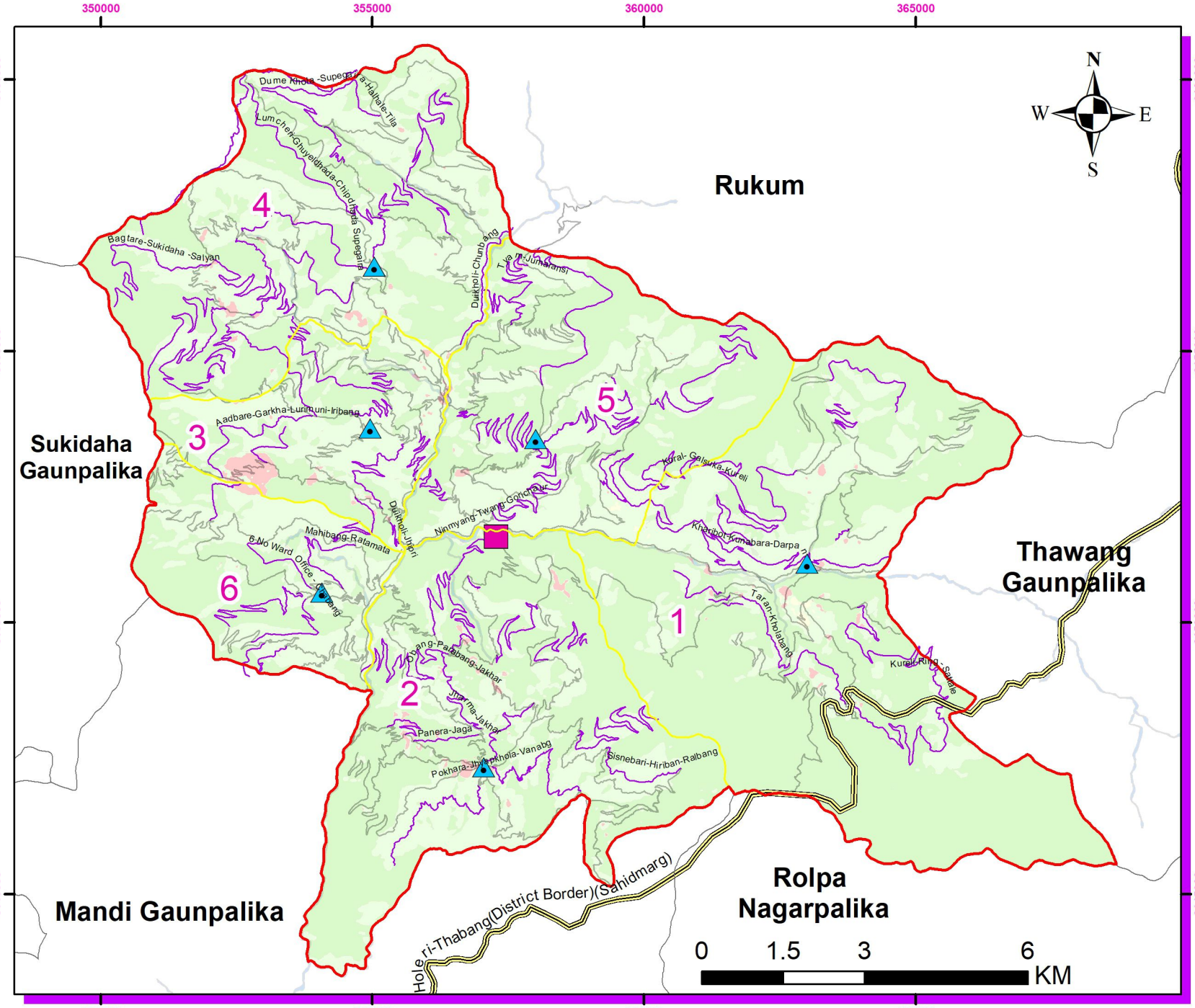
Coordinate System

Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey
Prepare in :2022

Map No. 13

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Purposed Road Network

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- Existing Road
- Purpose Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

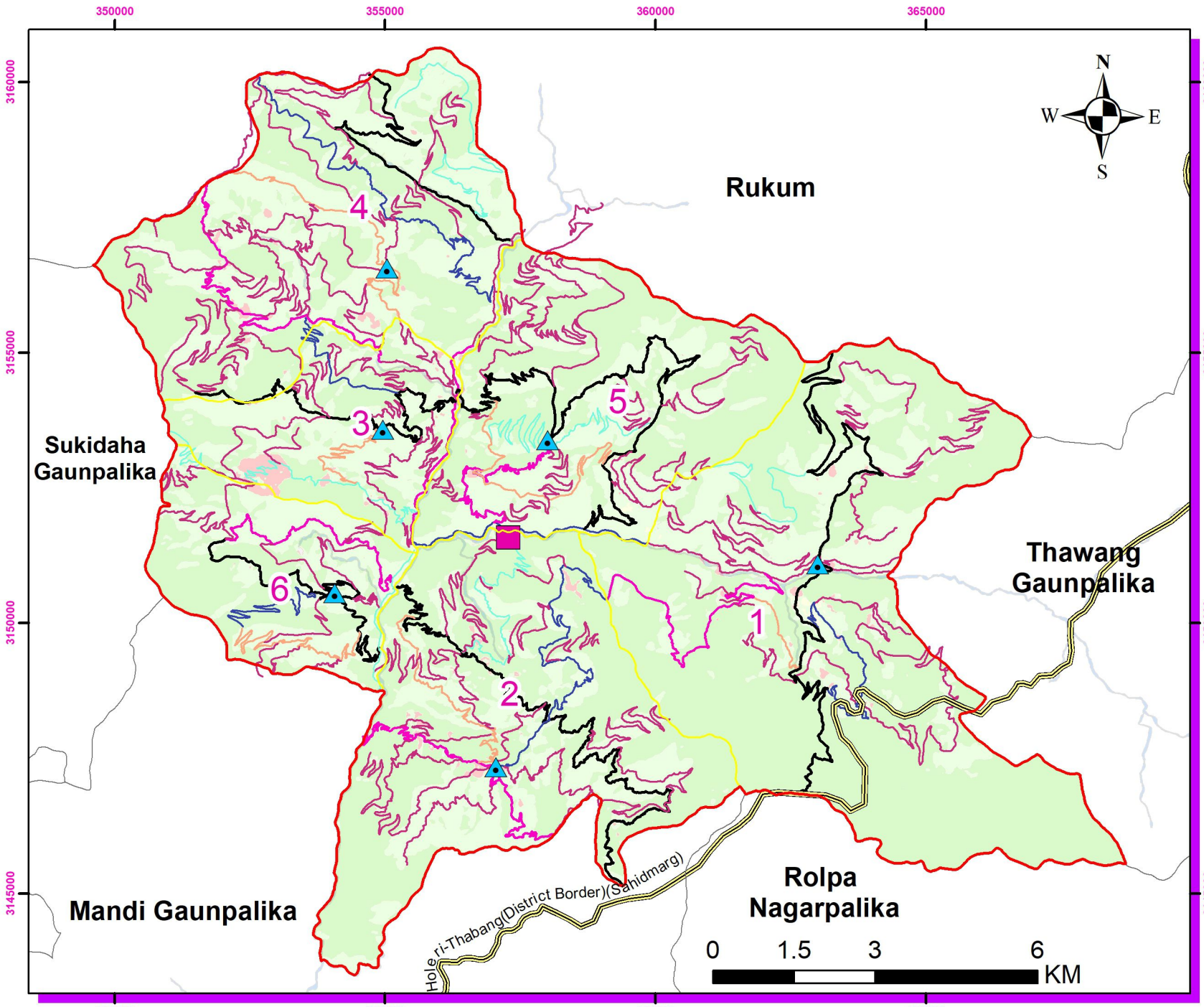
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 14

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy

By Purposed Priority

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN

Road Priority

- 1
- 2
- 3
- 4
- 5
- Other Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

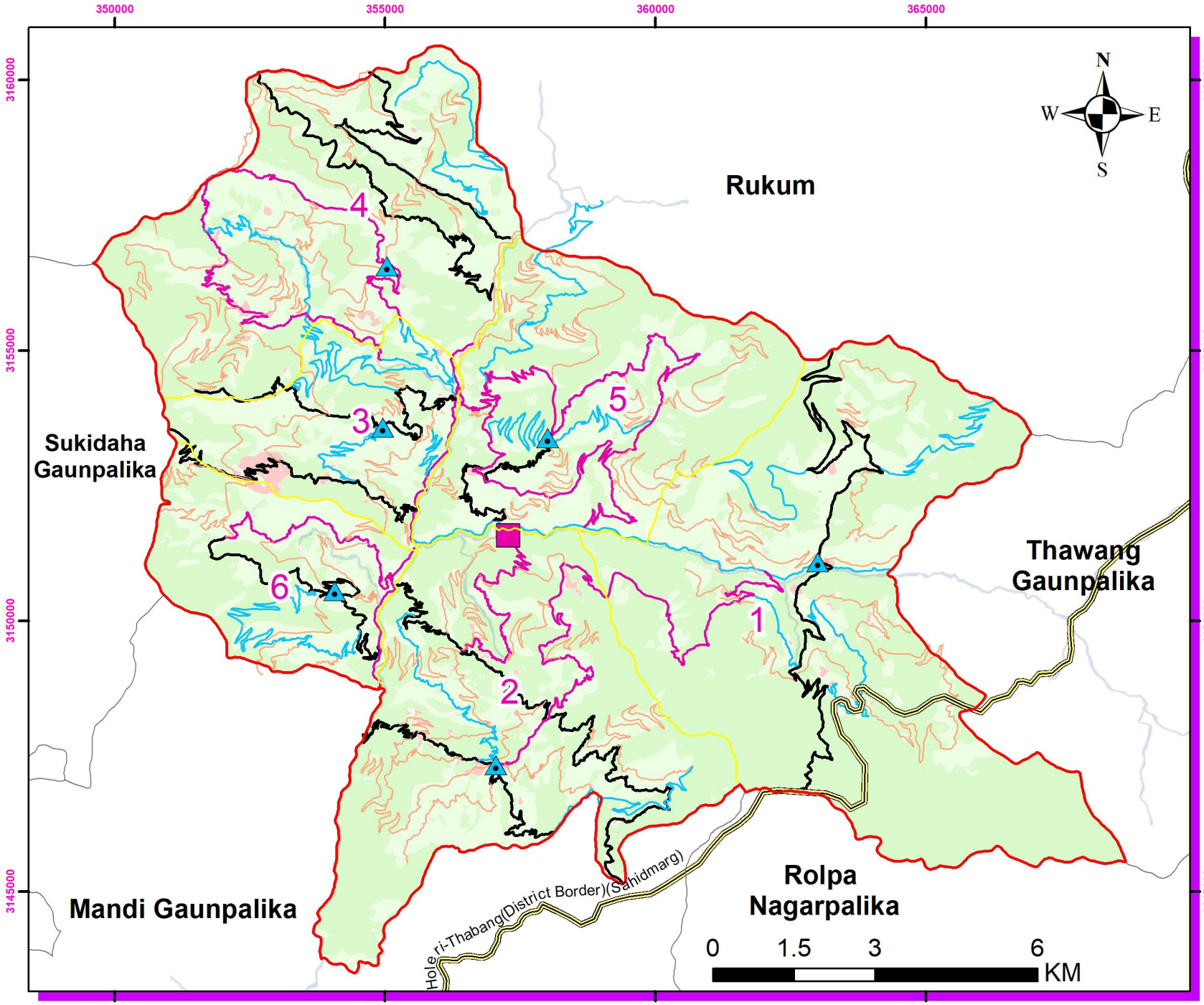
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 15

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy
By Purposed Width

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN

Road Pruposed Width(m)

- 6
- 7
- 10
- 14

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

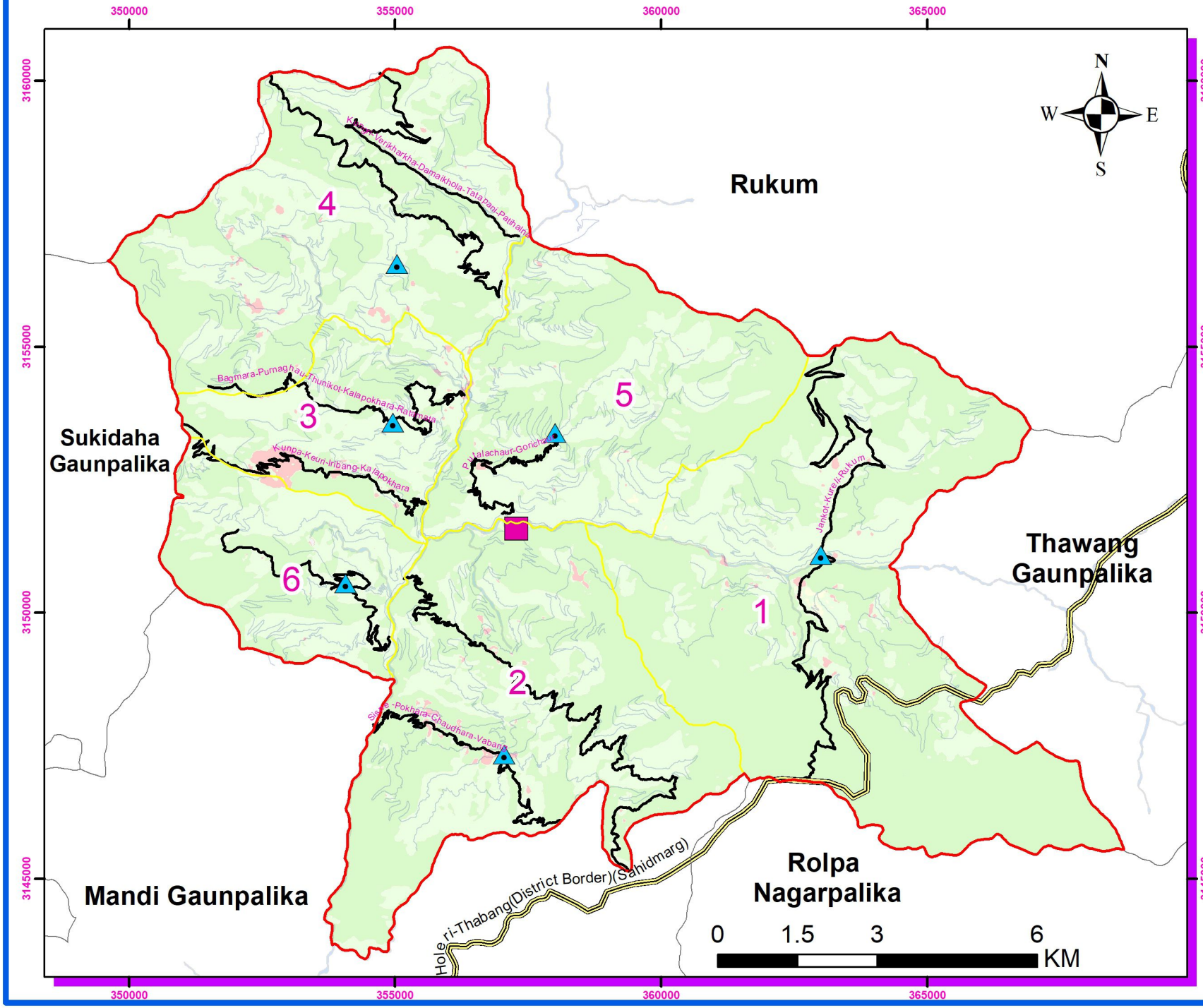
Coordinate System

Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey
Prepare in :2022

Map No. 16

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy

By Purposed Class

A Class Class Road

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- A Class Road
- Other Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

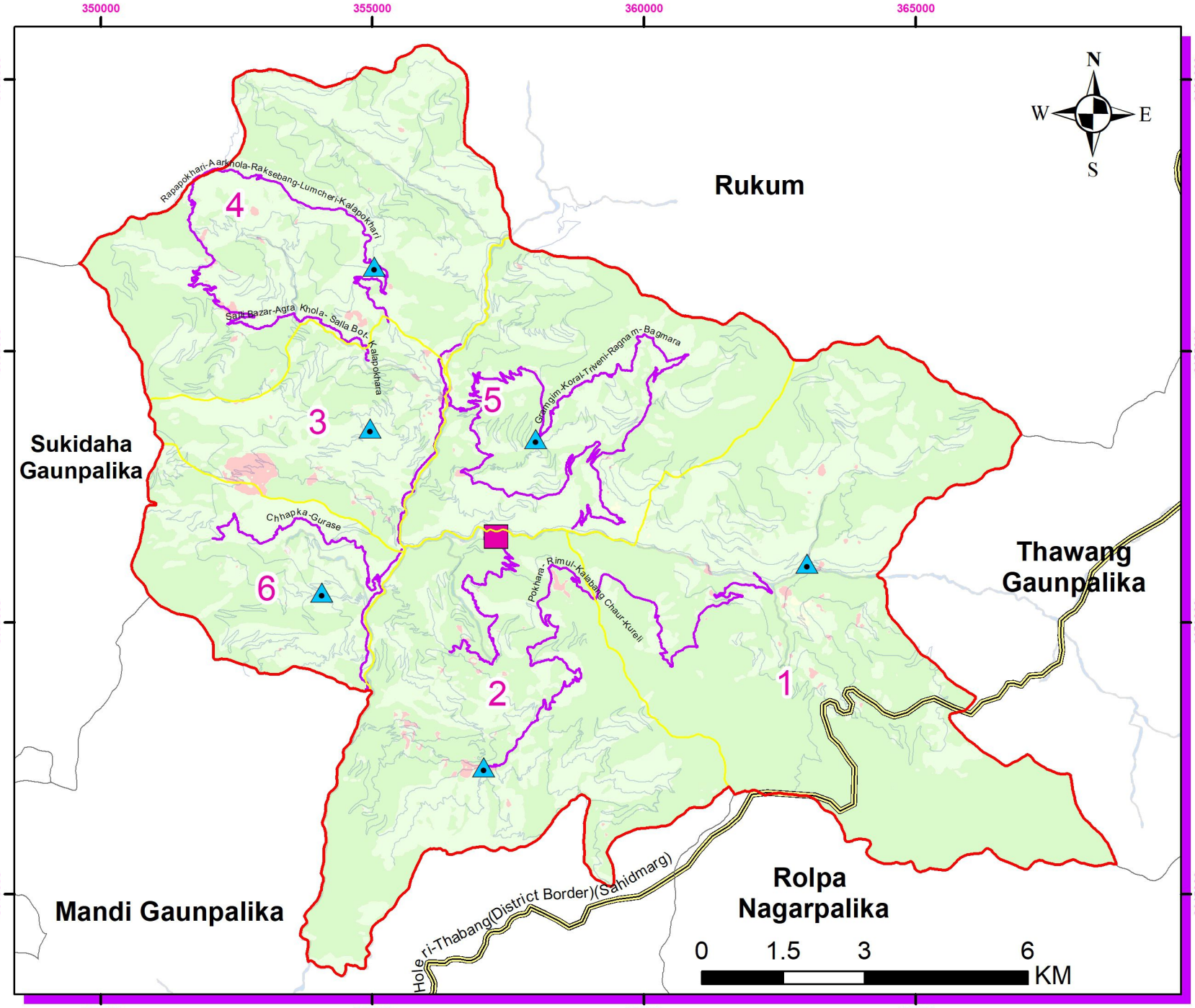
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 17

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy

By Purposed Class

B Class Class Road

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- B Class Road
- Other Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

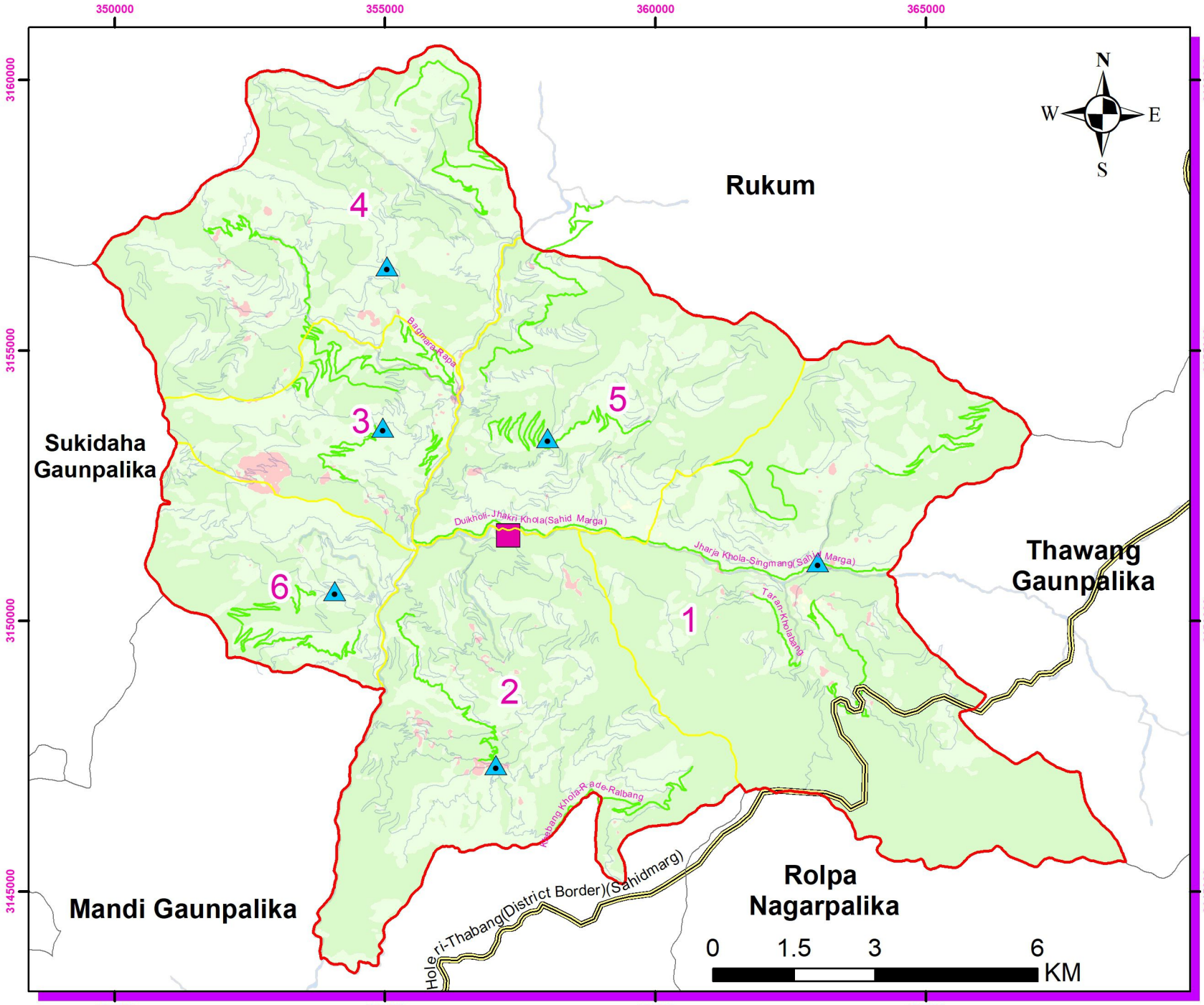
Coordinate System

Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey
Prepare in :2022

Map No. 17

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy

By Purposed Class

C Class Class Road

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- C Class Road
- Other Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

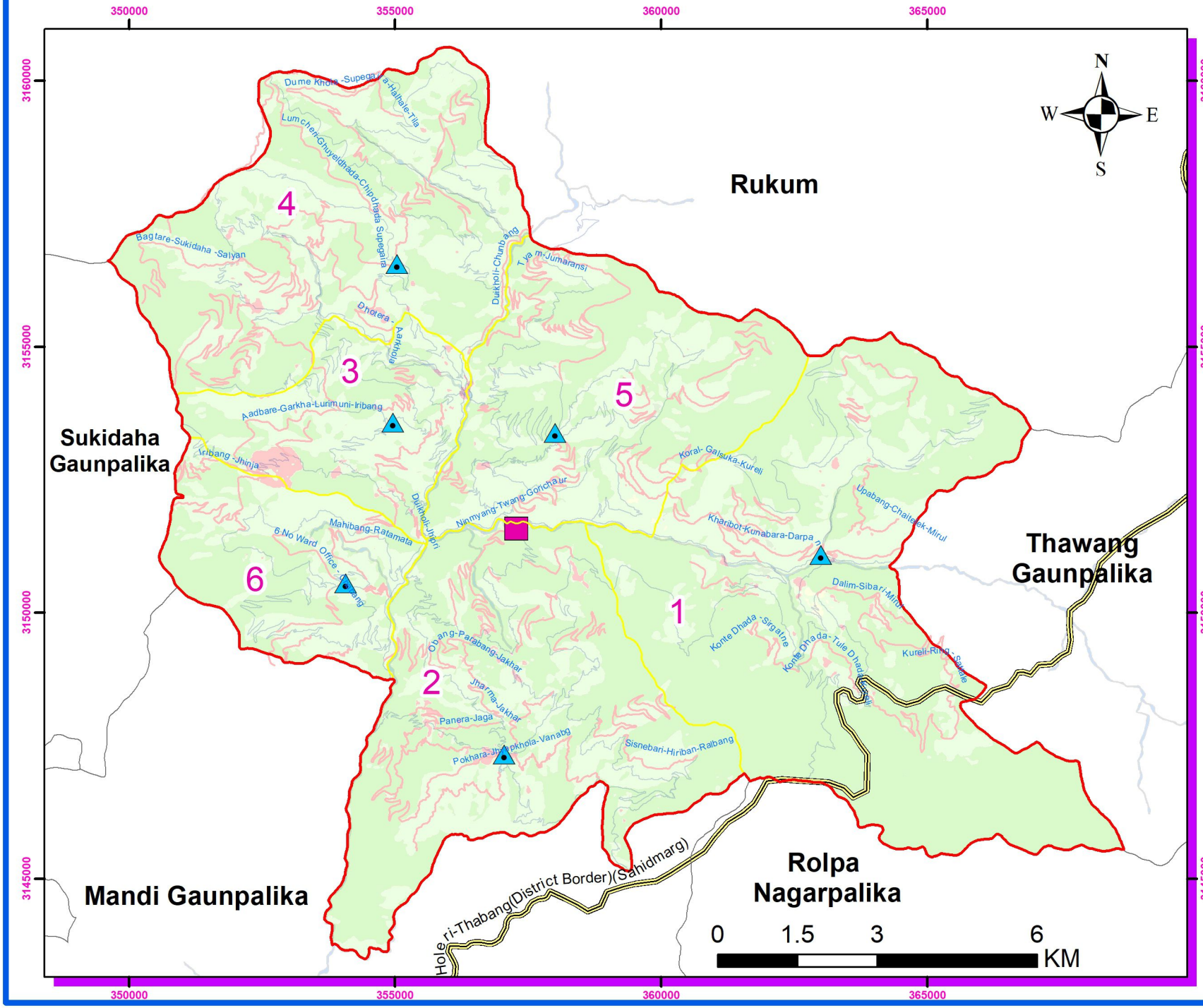
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 17

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy

By Purposed Class

D Class Class Road

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- D Class Road
- Other Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant Pvt.Ltd , Kathmandu Nepal

Coordinate System

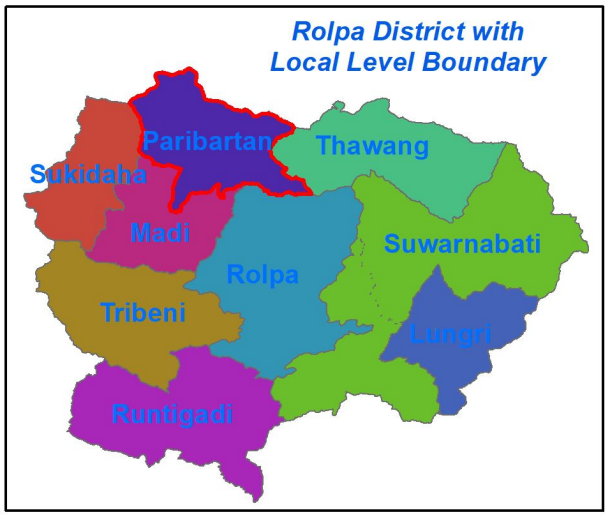
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

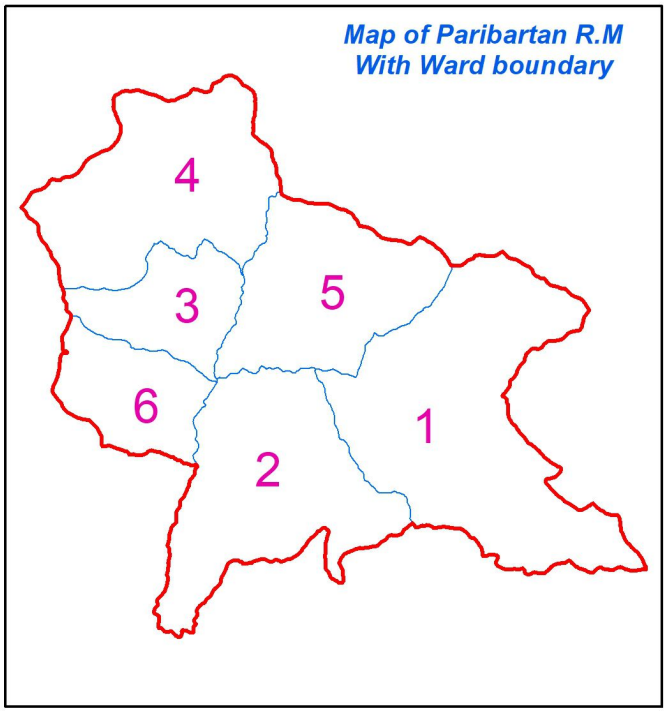
Source:Survey Department , DEM file ,Google eath Field Survey

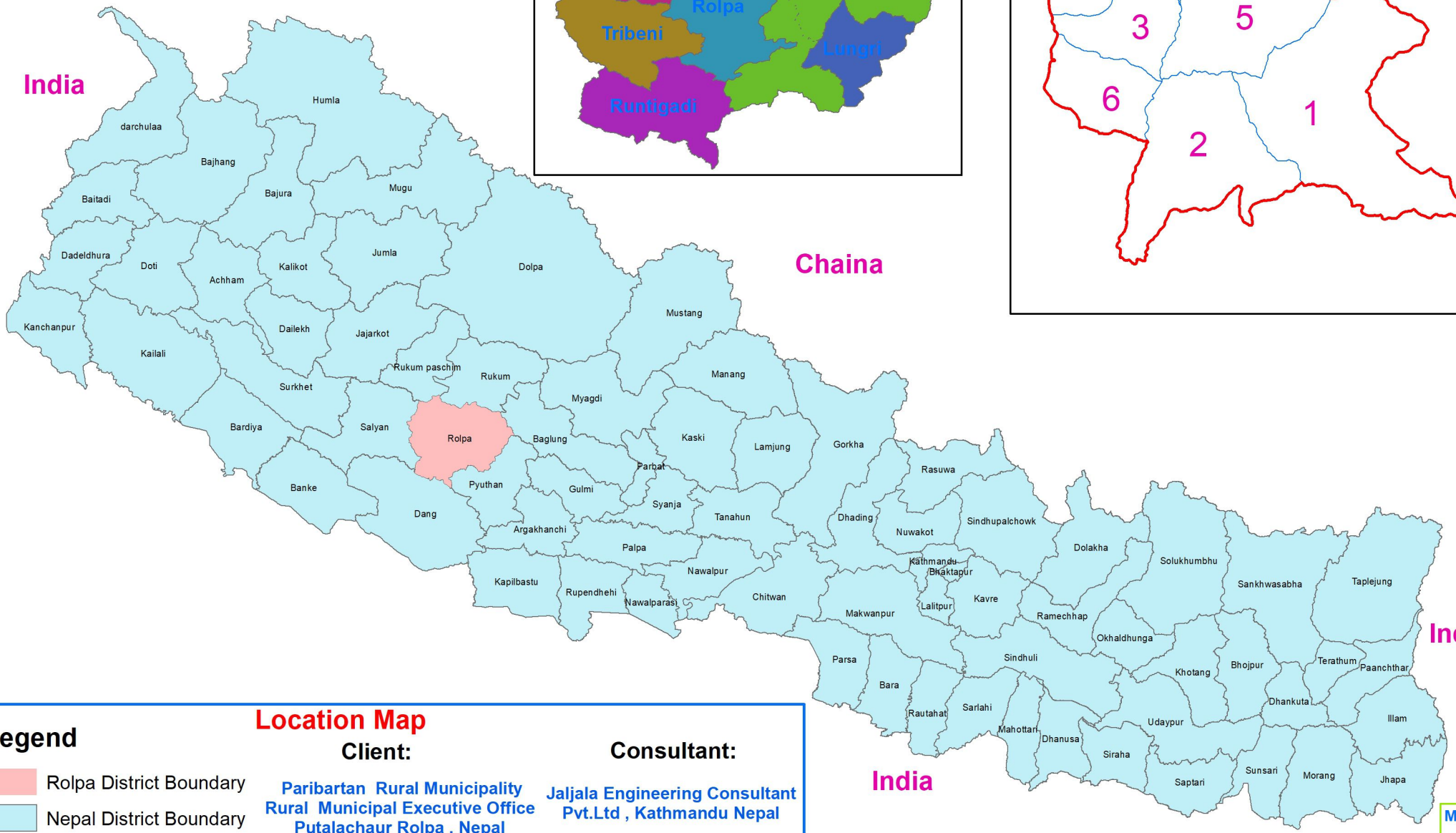
Prepare in :2022

Map No. 17

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)







Legend

- Rolpa District Boundary
- Nepal District Boundary

Location Map

Client:

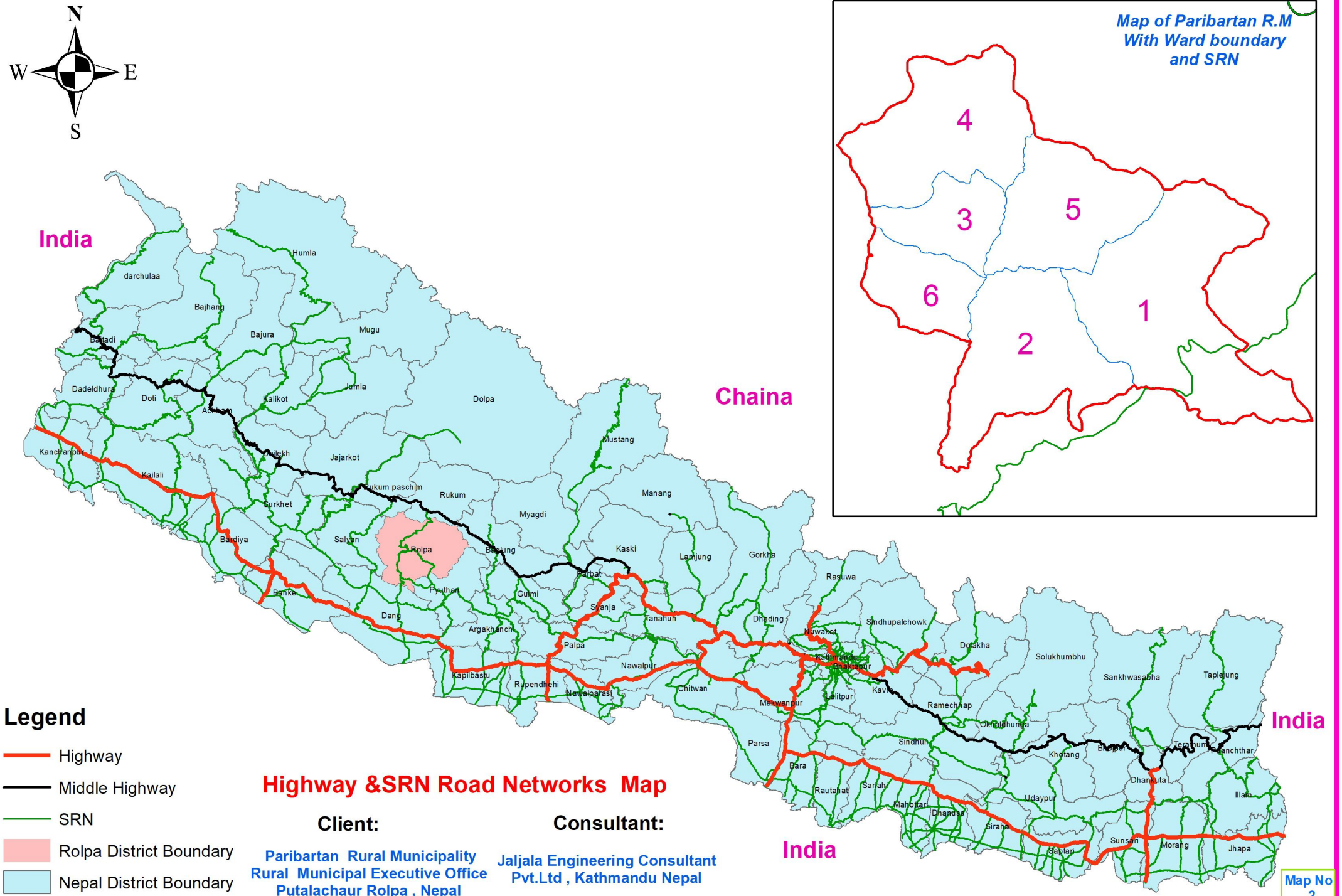
Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant:

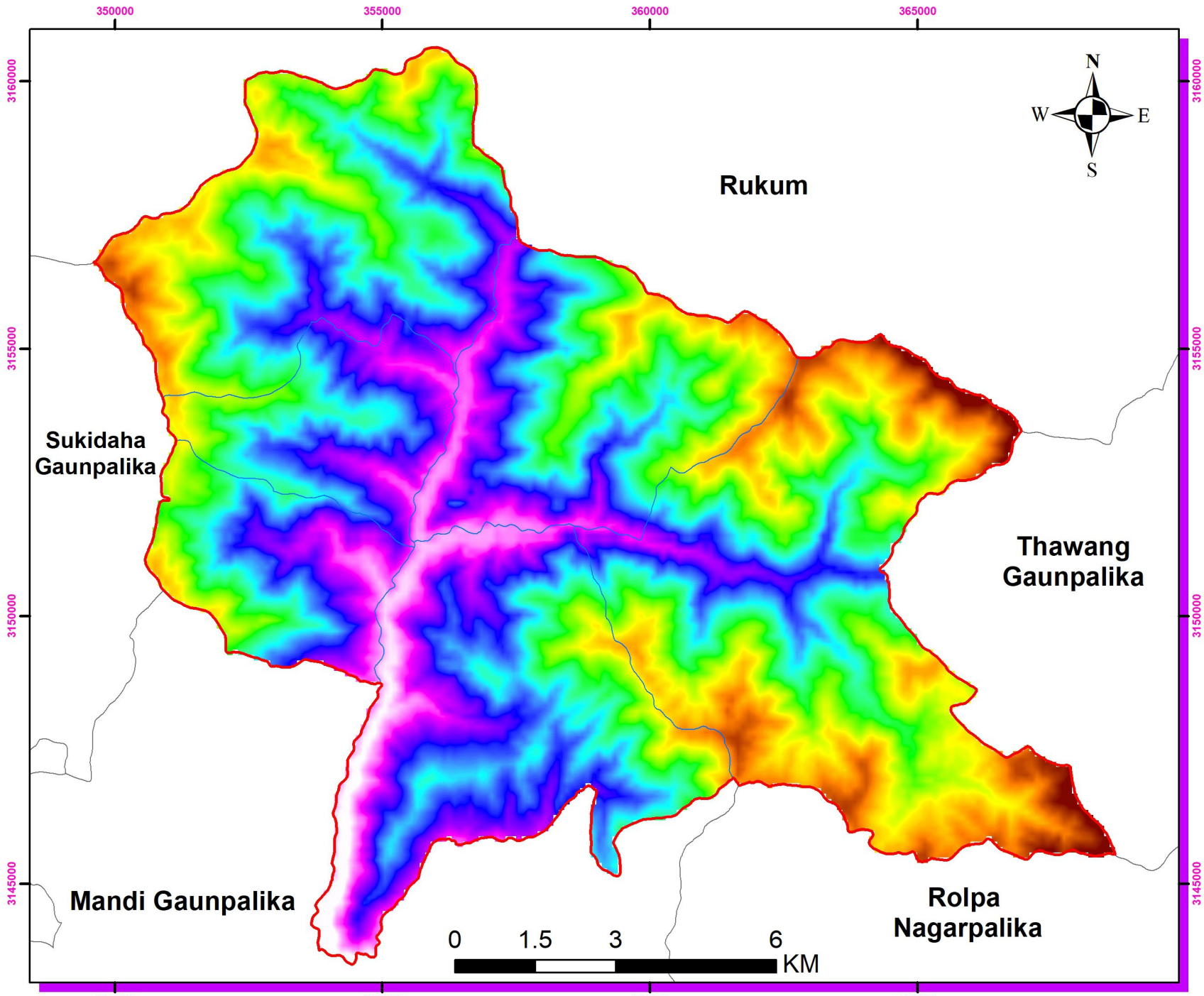
Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Map No 1

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Elevation (DEM) Map

A digital elevation model (DEM) is a 3D representation of a terrain's surface - commonly of a planet (e.g Earth.Moon) or asteroid -created from a terrain's elevation data .

Legend

- RM_Boundary
- Ward_Boundary
- Local level Boundary

DEM

Elevation in M

High : 2945.57

Low : 1220

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant Pvt.Ltd , Kathmandu Nepal

Coordinate System

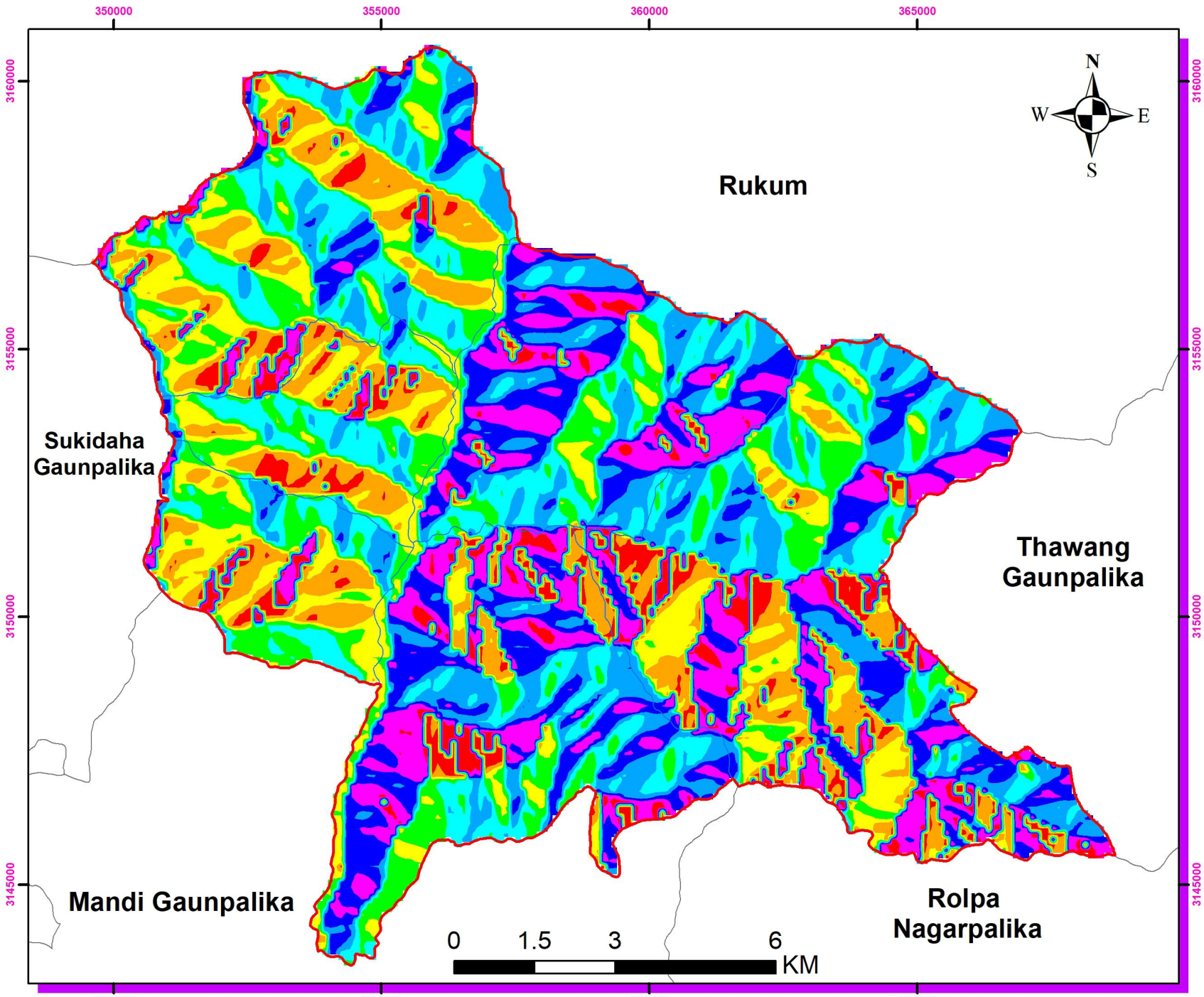
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 3

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Aspect Map

Aspect:A particular status or phase in which something appears or may regraded

Legend

- RM_Boundary
- Ward_Boundary
- Local level Boundary
- Flat (-1)
- North (0-22.5)
- Northeast (22.5-67.5)
- East (67.5-112.5)
- Southeast (112.5-157.5)
- South (157.5-202.5)
- Southwest (202.5-247.5)
- West (247.5-292.5)
- Northwest (292.5-337.5)
- North (337.5-360)

Aspect Range With Respect to Sun Light

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant Pvt.Ltd , Kathmandu Nepal

Coordinate System

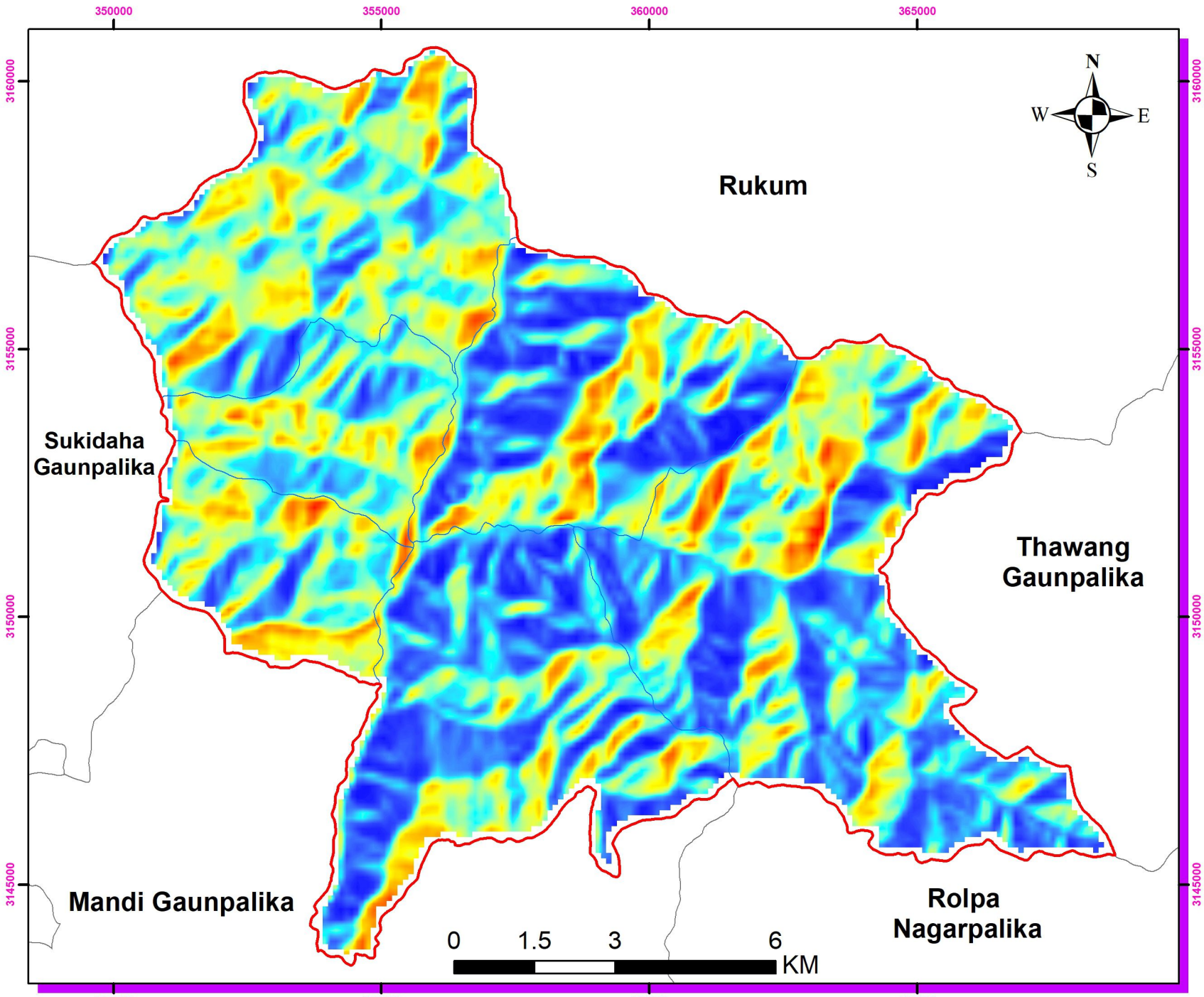
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 4

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Hillshade Map

The hillshade function produces a grayscale 3D representation of the terrain surface with the sun relative position taken into account for shading the image

Legend

- RM_Boundary
- Ward_Boundary
- Local level Boundary

HillShade

Value

High : 254

Low : 0

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

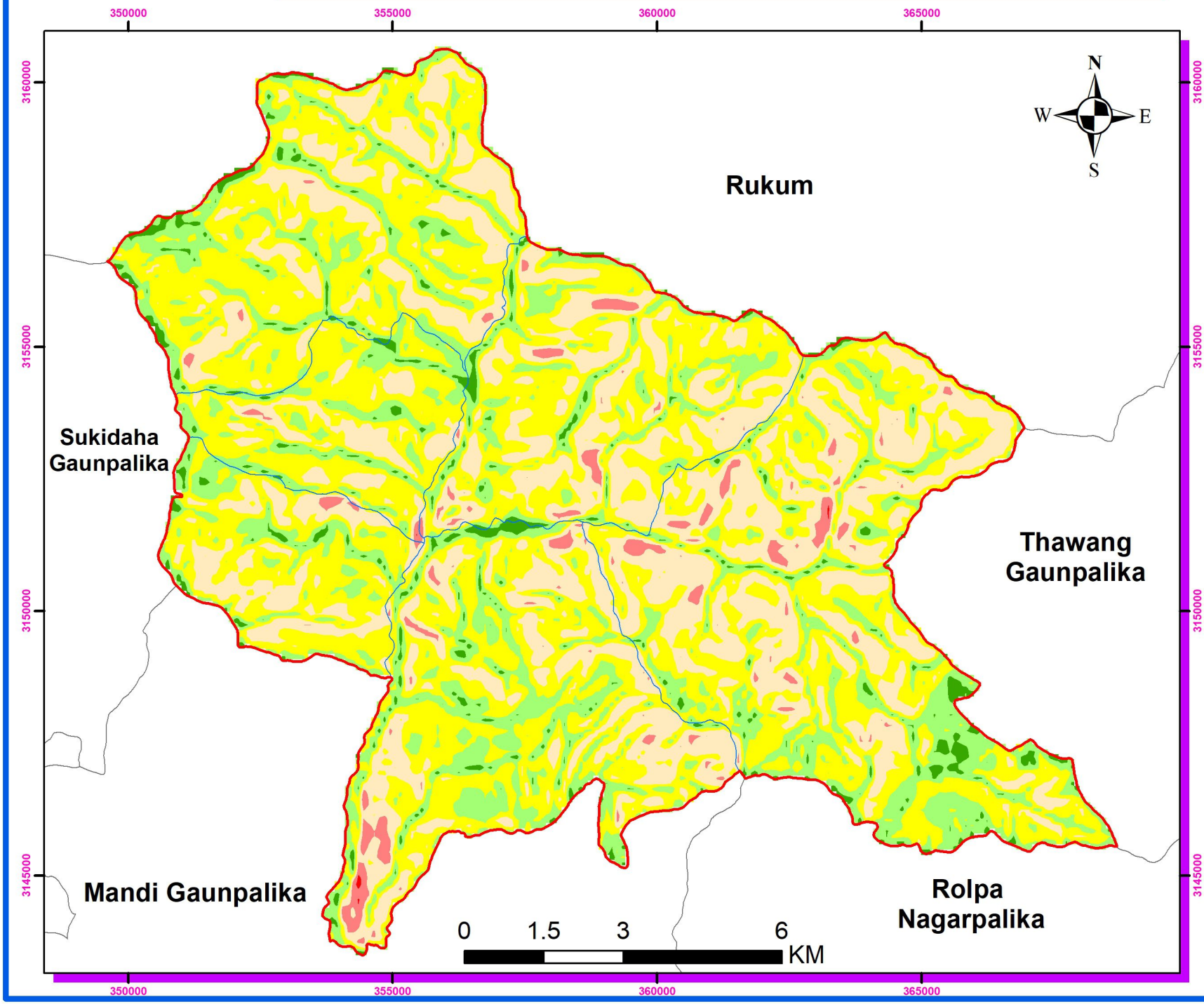
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 5

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Slope Map

This map provides a colorized representation of slope,generated dynamically using server -side slope function on Terrain service .In mathematics,the slope or gradient of a line describes its steepness ,incline or grade. A higher slope value indicates a steeper incline

Legend

- RM_Boundary
- Ward_Boundary
- Local level Boundary

Slope in degree

- 0.31 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 53.7

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

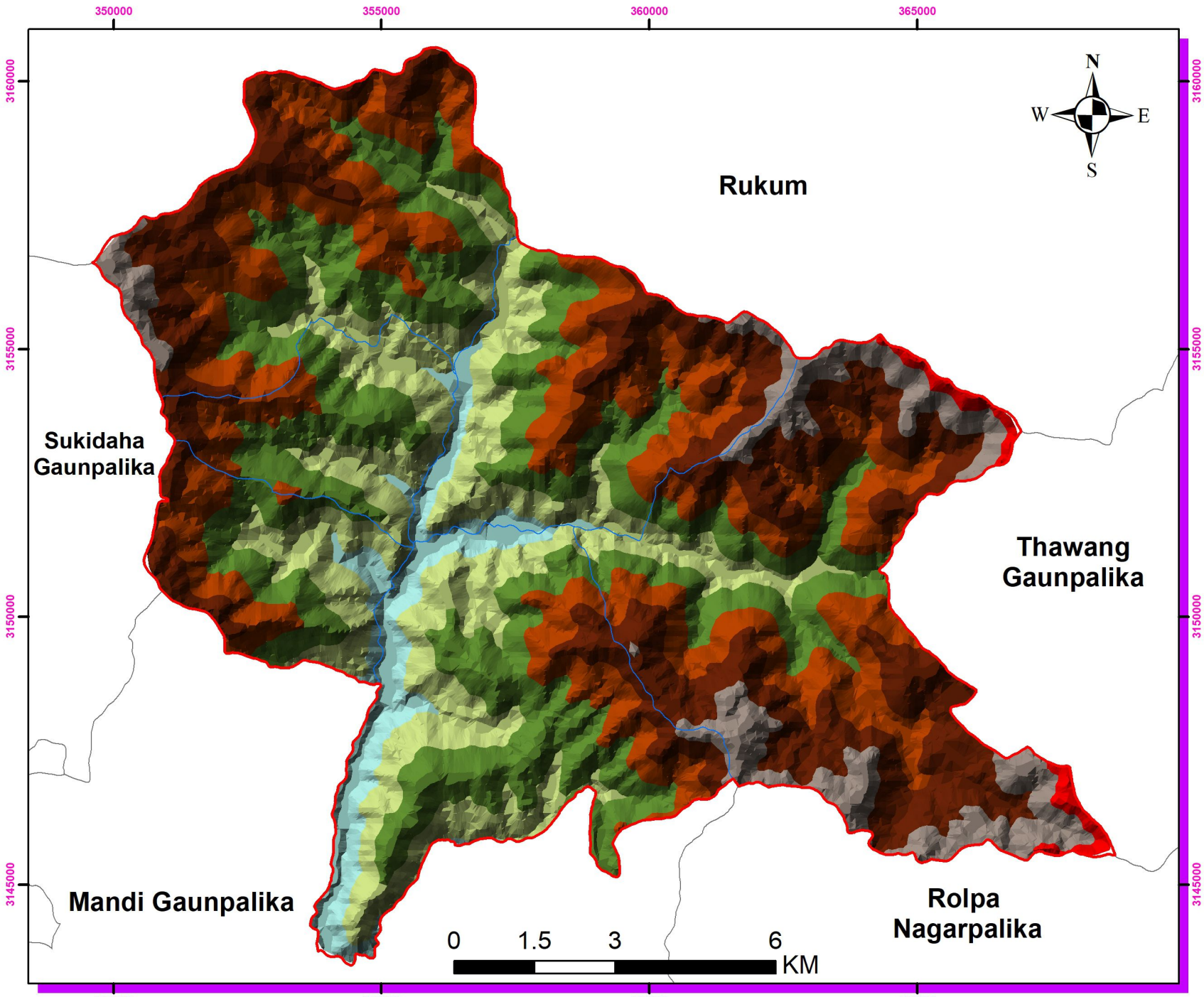
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 6

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



TIN Map

Triangular irregular networks (TIN) area a digital mean to represent surface morphology .TIN area a form of vector base digital geo-graphic data and are constructed by trian -gulating a set of vertices (Points)

Legend

- RM_Boundary
- Ward_Boundary
- Local level Boundary

TIN

Elevation in M

- 2750 - 2900
- 2500 - 2750
- 2250 - 2500
- 2000 - 2250
- 1750 - 2000
- 1500 - 1750
- 1250 - 1500

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

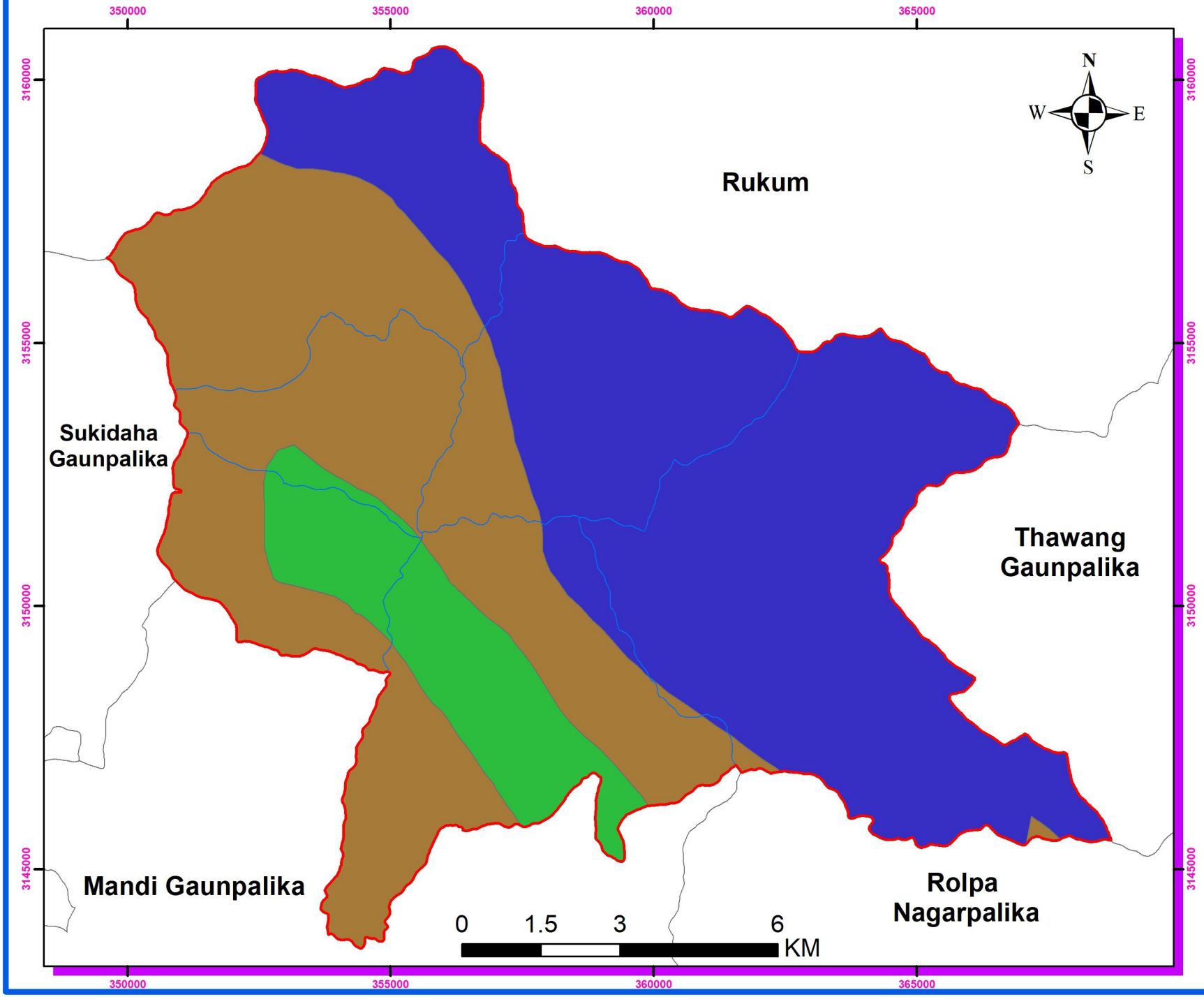
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 7

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Geologic Map

Geologic maps represnet the distribution of different types of rock and surficial deposits as well as locations of geologic structures such as faults and folds .Geologic maps are the primary source of information for various aspects of land-use planning , including the siting of buildings and transportation systems .

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary

Geology Class

- Bb
- Siuri Formation
- Surbang Formation

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

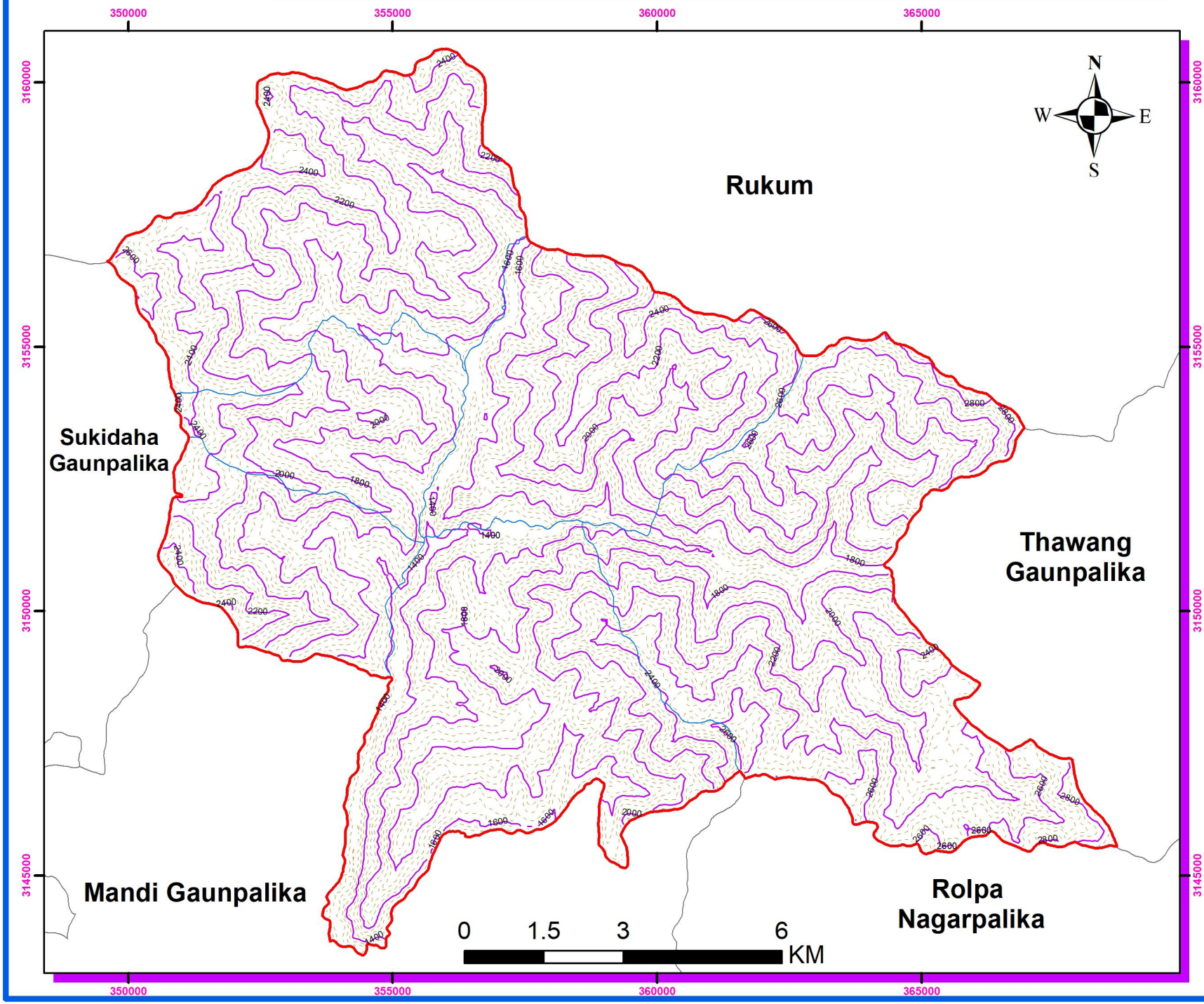
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 8

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Contour Map

A contour map is map illustrated with contour lines, for example a topographic map ,which thus shows valleys and hills and the steepness or gentleness of slopes

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- Contour @ 200 m
- Contour @ 50m

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant Pvt.Ltd , Kathmandu Nepal

Coordinate System

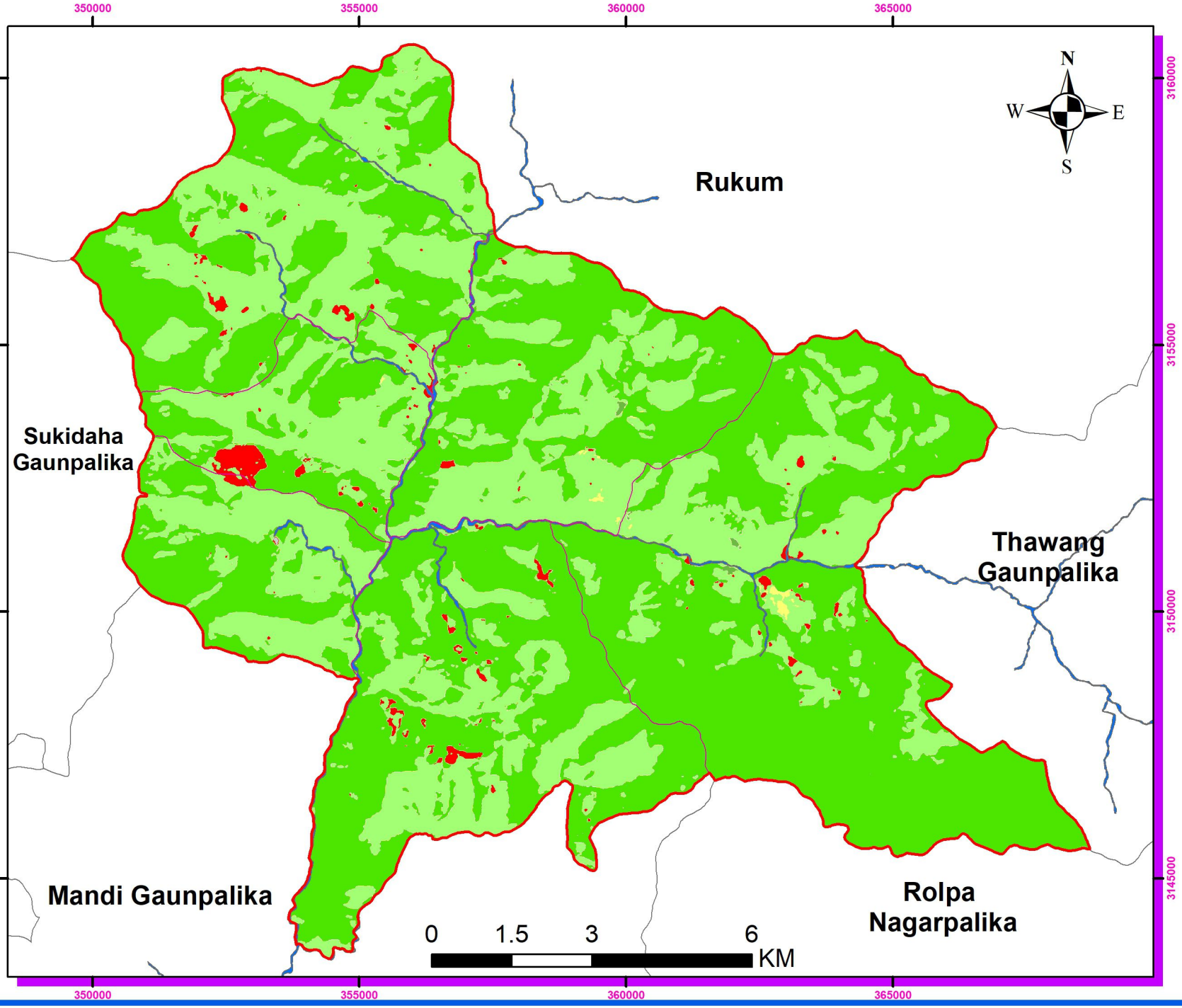
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 9

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Landuse Map

Landuse maps area maps which provide information about landuse

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary

Landuse Class

- Water
- Trees
- Grass
- Agricultural
- Shrub/Scrub
- Built up Areas
- Bare Ground

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

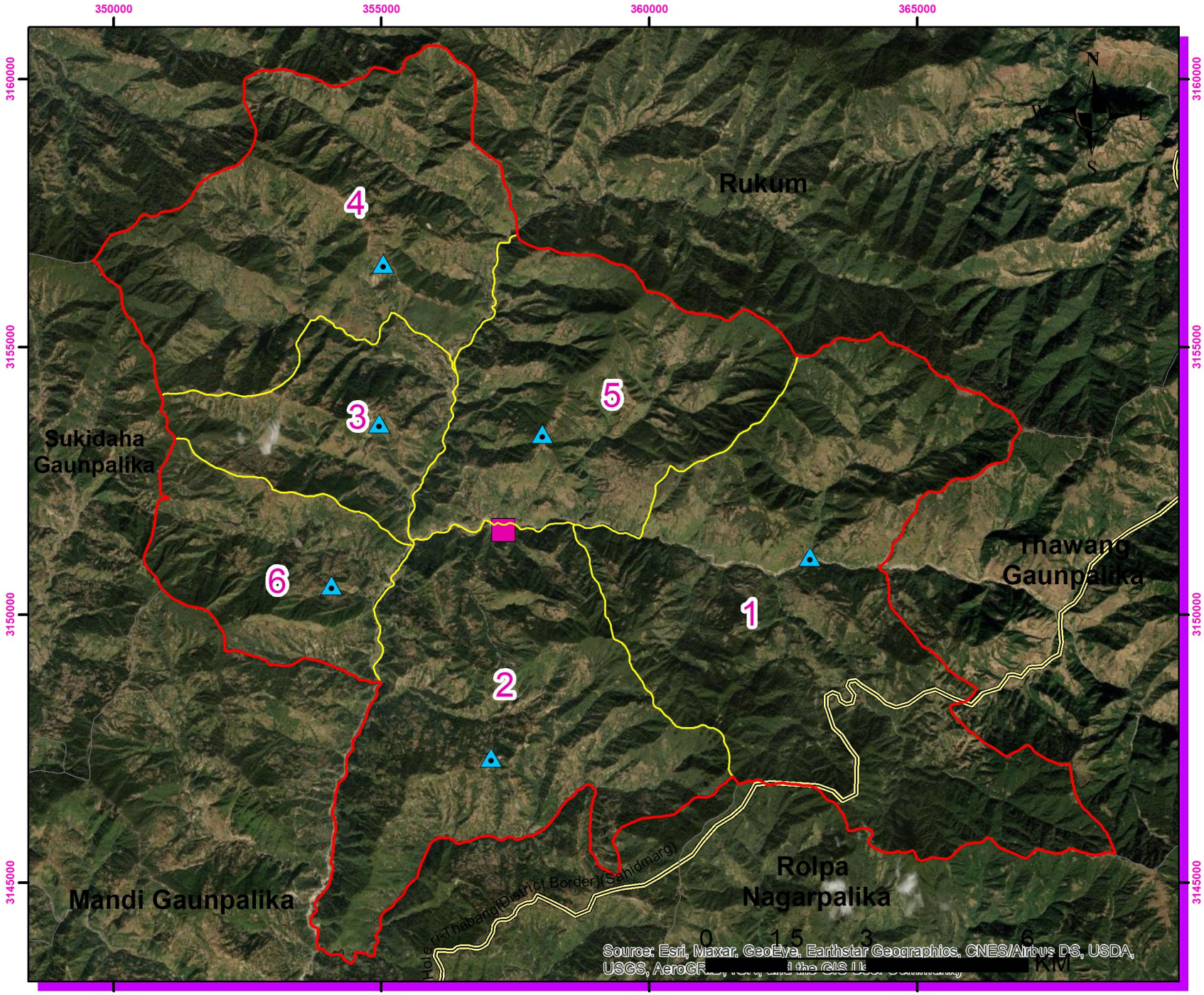
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 10

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Satellite Map

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

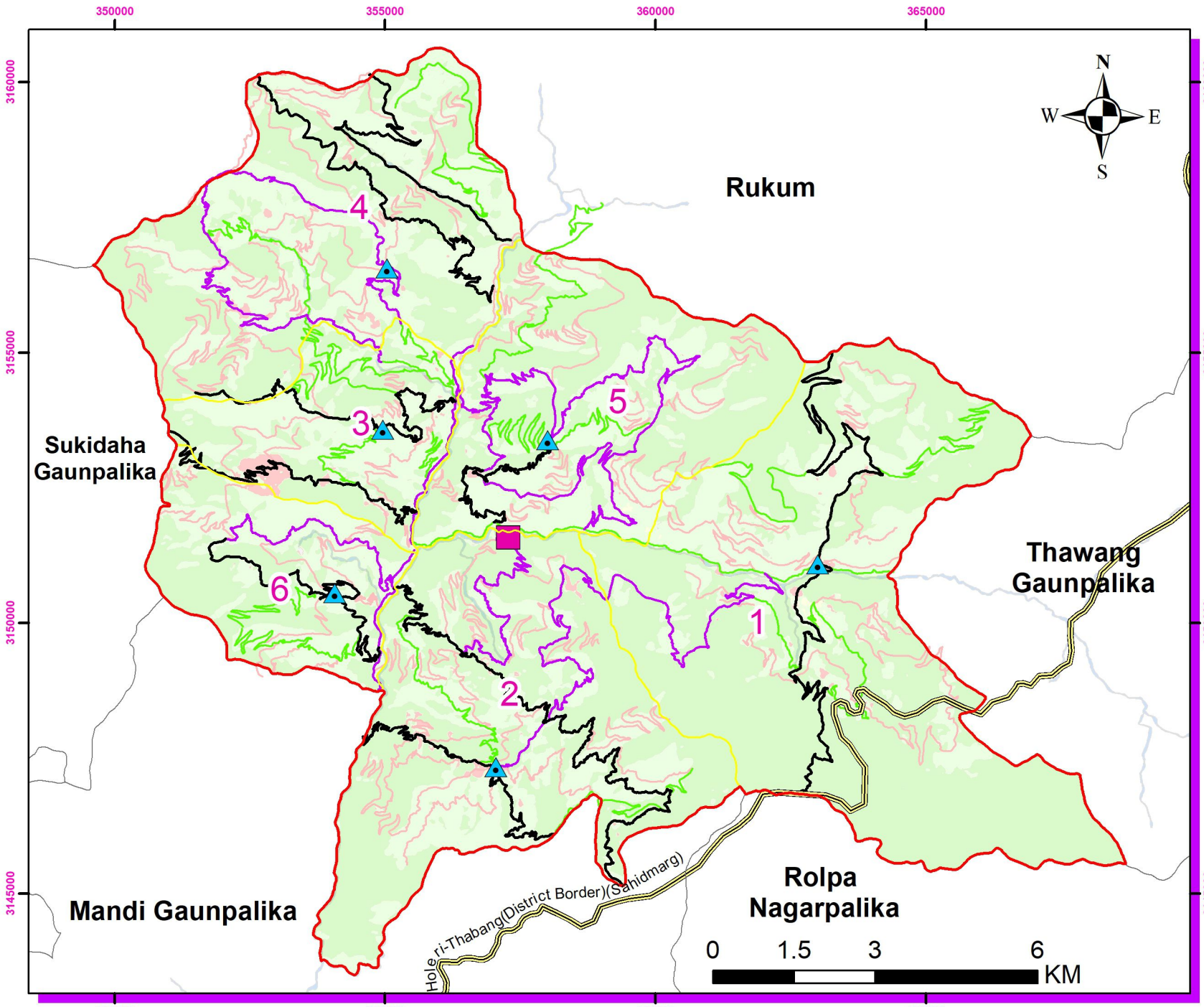
Coordinate System

Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey
Prepare in :2022

Map No. 11

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Road Network Hierarchy
By Purposed Class

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office
- SRN
- A Class Road
- B Class Road
- C Class Road
- D Class Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

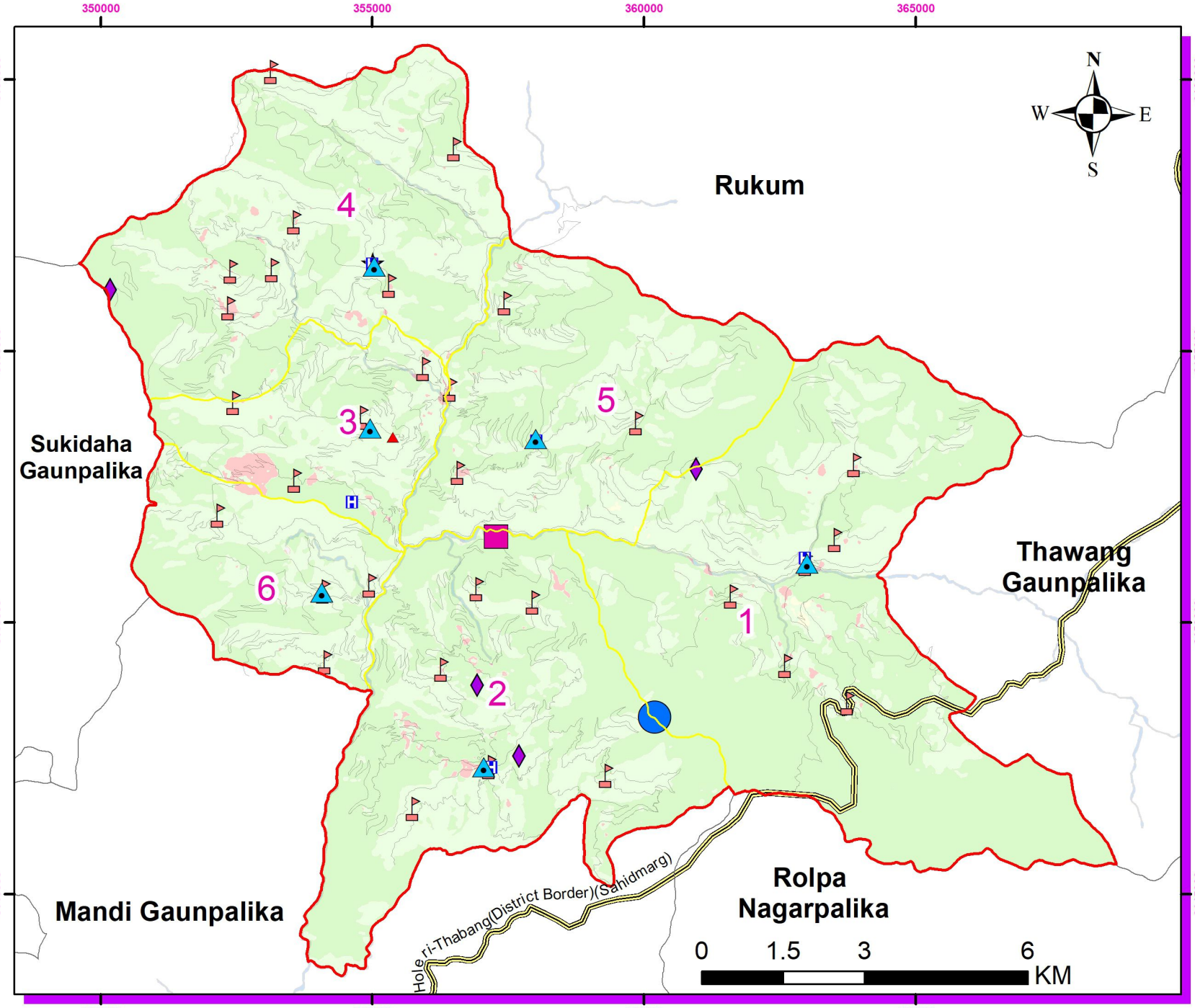
Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 17

Paribartan Rural Municipality
Rural Municipal Transport Master Plan (RMTMP)



Integrated Development Potential Map

Legend

- RM Boundary
- Ward Boundary
- Local level Boundary
- R.M office
- Ward office

Features

- Health Post
- Police
- School
- Daha
- Tample
- Tower
- SRN
- Road

Client:

Paribartan Rural Municipality
Rural Municipal Executive Office
Putalachaur Rolpa , Nepal

Consultant

Jaljala Engineering Consultant
Pvt.Ltd , Kathmandu Nepal

Coordinate System

Nepal MUTM 84
Projection: Transverse_Mercator
False Easting: 500000.0
False Northing: 0.0
Central Meridian: 84.0
Scale Factor: 0.9999
Latitude Of Origin: 0.0
Linear Unit: Meter (1.0)

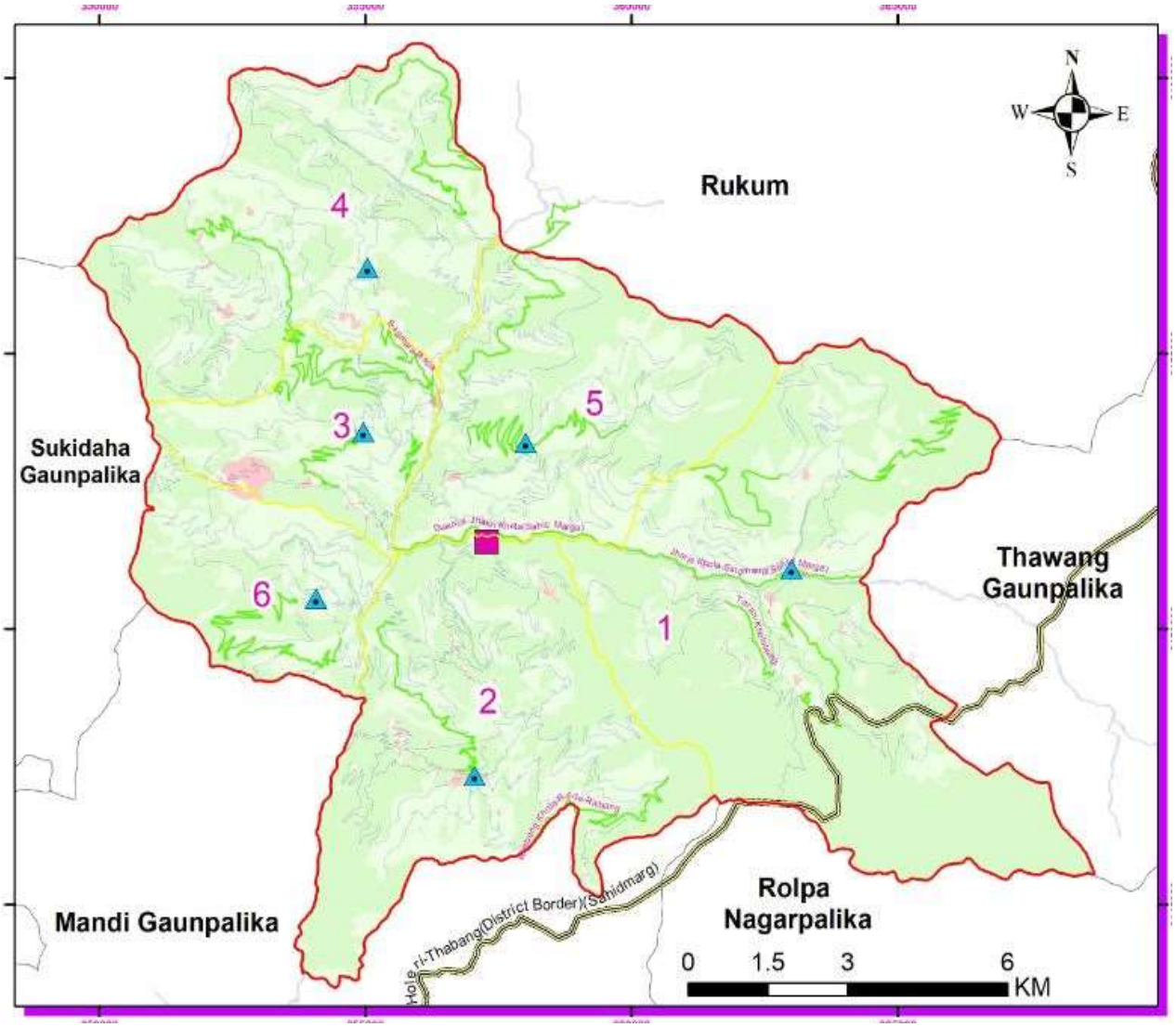
Source:Survey Department , DEM file ,Google eath Field Survey

Prepare in :2022

Map No. 18

Government of Nepal
Ministry of Federal Affairs and Local Development
Office of Paribartan Rural Municipality

Preparation of Rural Municipal Transport Master Plan (RMTMP) of Paribartan Rural Municipality Volume-II



Prepared By:

Jaljala Engineering Consultant Pvt. Ltd.

Kathmandu Nepal

April 2022

FINAL REPORT

Acknowledgement

The Consultant team would like to express our deep sense of gratitude to President Mr. Nimkanta Dangi, Vice-President Mrs. Hit Kumari Budha Magar, Chief Administrative Officer Mr. Dhruba Raj Neupane, Engineer and accountant of Paribartan Rural Municipality Office for providing us the opportunity for the "Preparation of Rural Municipality Transport Master Plan for Paribartan Rural Municipality". We would like to thank all the Ward presidents, Ward members, Section Chiefs and other municipal staffs of Paribartan Rural Municipality for their help and co-operation to the Consultant for the study.

We would like to thank all the citizens for their patience and friendly environment who were directly and indirectly involved in the data collection process. We are greatly thankful to everyone who helped in facilitating us for data collection.

The study team

Acronyms

DCC	District Coordination Committee
DTMP	District Transport Master Plan
GIS	Geographic Information System
GPS	Global Positioning System
IDPM	Indicative Development Potential Map
RMIM	Rural Municipality Road Inventory Map
MRCC	Rural Municipality Road Coordination Committee
NMT	Non- Motorized Transport
RMTMP	Rural MunicipalTransport Master Plan
RMTPP	Rural Municipality Transport Perspective Plan
VDC	Village Development Committee
PCU	Passenger Car Unit
DOLI	Department of Local Infrastructure Development
OD	Origin and Destination
ToR	Terms of Reference
HH	Household
VDCs	Village Development Committees
PT	Public Transport
Min.	Minute
Km.	Kilometre
Sq. km	Square Kilometre
Ha	Hectare

Table of Contents

1. Scoring Criteria for Prioritization

A network consists of several links. It is not possible to construct all roads at a time due to resource and time constraint. Therefore, each link in a network needs to be prioritized. After developing a Rural Municipallevel network, the cost estimate of the road is prepared. Existing population within the zone of influence, present road demand, future potential route, accessibility situation, land use pattern, environmental and social safeguard, proximity to the market/service centres, religious and tourism places were taken as the indicators for prioritization. The scoring criteria will be finalized after rigorous study and approval from Rural Municipality and RMRCC.

Table 1: Scoring criteria for prioritization

S.N	Scoring Criteria	Scoring Unit	Score
1	Link providing service to large settlement areas/population	Population served/km	30
2	Link providing service to existing · market center agriculture · tourist attraction areas · animal husbandry	No of areas	20
3	Link providing service to the existing service centres such as health centres, education centres (schools/campuses), offices (Rural Municipality office/Government office, etc.), linkages with other wards and municipalities.	Number of different service sector	20
4	Priority of ward	Ranking of priority from 1 to 5	20

5	Link providing service to the areas recognised by the Rural Municipality as areas for special consideration, such as areas inhabited by backward and poor ethnic groups/communities, isolated remote areas, historic sites, religious sites etc	Connection to the settlement of such criteria	10
Sub Total			100

Table 2: Scoring of Rural Municipal Roads

Code	Name of Road	pop served per km	Market center	Existing service center	Ward priority	Special area	Total	Rank	Rank in Class
		30	20	20	20	10	100.00		
A01	Jankot-Kureli-Rukum	24.70	10	0	20	10	64.70	3	2
A02	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	30.00	5	5	20	0	60.00	5	4
A03	Sisne-Pokhara-Chaudhara-Vabang	15.78	0	20	19	0	54.78	6	5
A04	Kunpa-Keuri-Iribang-Kalapokhara	19.91	5	10	16	10	60.91	4	3
A05	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	19.70	10	20	20	0	69.70	1	1
A06	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	12.29	5	5	20	10	52.29	10	8
A07	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale	16.43	5	5	17	10	53.43	8	7
A08	Putalachaur-Gorichaur	10.04	5	20	19	0	54.04	7	6
A09	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	17.05	5	10	20	0	52.05	11	9
B01	Botanekhang-Mabang-Jogi Dhada-Dangbasa-Vhootkhola-Ransi	9.80	5	5	19	0	38.80	20	6
B02	Pokhara-Rimul-Kalabang Chaur-Kureli	15.41	5	0	17	0	37.41	23	8
B03	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur	12.21	5	20	16	0	53.21	9	2

B04	Duekholi-Bagmara-Kungri Thok-Chunbang	8.38	5	5	19	0	37.38	24	9
B05	Rapapokhari-Aarkhola-Raksebang-Lumcheri-Kalapokhari	11.94	0	20	18	0	49.94	12	3
B06	Salli Bazar-Agra Khola- Salla Bot- Kalapokhara	13.81	5	5	19	0	42.81	17	4
B07	Gramgim-Koral-Triveni-Ragnam-Bagmara	25.84	0	20	20	0	65.84	2	1
B08	Koral-Ninmyang-Maulabot-Jhakri Khola	10.16	5	5	18	0	38.16	22	7
B09	Chhapka-Gurase	11.08	5	5	19	0	40.08	18	5
B10	Richibi Chahara-Obang-Rakulichour-Duekholi	5.45	5	5	16	0	31.45	29	10
C01	Taran-Kholabang	2.44	0	10	18	0	30.44	30	11
C02	Upabang-Jhakrikhola-Basaibang-Rukum	9.45	5	5	0	0	19.45	32	13
C03	Sarabang-Ipaldhara-Tanglang-Galsuka-Rangkot	6.34	10	5	16	0	37.34	25	7
C04	Jharja Khola-Singmang(Sahid Marga)	6.36	0	20	0	0	26.36	31	12
C05	Haimkhola-Marke-Kureli-Galkot	6.93	5	5	17	0	33.93	28	10
C06	Vanvane-Ongelikhe-Pakhabang-Pokhara	10.55	0	20	18	0	48.55	14	2
C07	Khebang Khola-Rade-Ralbang	9.15	5	0	0	0	14.15	35	16
C08	Bagmara-Sallibazar	3.32	0	5	0	0	8.32	47	20
C09	Keuri-Thunikot 3No Ward Office	8.43	10	10	18	0	46.43	15	3
C10	Bagmara-Rapa	6.29	0	5	0	0	11.29	37	18

C11	Dhadkamd-Khame-Haibang-Charch Hale	12.34	5	0	0	0	17.34	33	14
C12	Purnaghau-Urim Ghau-Haibang-Aagra	8.21	5	5	17	0	35.21	27	9
C13	Likibang-Ratapokhara-Taibang	5.47	5	0	0	0	10.47	39	19
C14	Sunarpani-Kholaghau-Basundhara-Dabare-Jareni-Masingaira-Tila-Rukum	12.80	5	5	16	0	38.80	19	5
C15	Agra Khola -Kafalbot-Panchhe	8.18	0	5	0	0	13.18	36	17
C16	Triveni Khola-Twang-Shyanilekh-Ranibot	13.77	0	20	16	0	49.77	13	1
C17	Duikholi-Jhakri Khola(Sahid Marga)	6.67	5	10	17	0	38.67	21	6
C18	Bajikot-Tyam-Jumaransi-Rukum	12.06	0	5	0	0	17.06	34	15
C19	Oha-Veerkuna-Sukudaha-Pachpunni	12.41	10	5	18	0	45.41	16	4
C20	Kolbot -Sukudaha	8.45	5	5	17	0	35.45	26	8
D01	Sibari-Lampokhara-Jaya	6.69	0	0	0	0	6.69	58	19
D02	Upabang-Chaitelek-Mirul	3.64	0	0	0	0	3.64	86	47
D03	Dalim-Sibari-Mirul	2.95	0	0	0	0	2.95	99	60
D04	Kureli-Ring-Sattale	8.66	0	0	0	0	8.66	45	7
D05	Chaitelek-Fulbari School	0.52	0	0	0	0	0.52	126	87
D06	Konte Dhada-Sirgatne	4.27	0	0	0	0	4.27	80	41
D07	Sarsubari Khola-Mukhya Dera	3.19	0	0	0	0	3.19	97	58

D08	Kharibot-Kunabara-Darpan	3.76	0	0	0	0	3.76	84	45
D09	Goppo-Chipchipe-Thamdhuri	3.28	0	0	0	0	3.28	96	57
D10	Jogidhada-Likyang	0.51	0	0	0	0	0.51	127	88
D11	Semapu-Danabara-Bayeldhada-Mirul	2.37	0	0	0	0	2.37	107	68
D12	Pokharadhada-Jogidhada	0.58	0	0	0	0	0.58	124	85
D13	Konte Dhada-Tule Dhada-Kureli	2.67	0	0	0	0	2.67	103	64
D14	Khasaibang Khola-Jurkhung-	1.81	0	0	0	0	1.81	113	74
D15	Dahagaira-Sapka-Darpan	6.47	0	0	0	0	6.47	62	23
D16	Litung Khola-Darpan-Samarekharka-Lendhara-Rangkot	5.55	0	0	0	0	5.55	70	31
D17	Pokhara-Raubang-Parlesima-Tarkebang	6.37	0	0	0	0	6.37	65	26
D18	Pokhara-Wiebang-Parlesima-Chaibang	7.89	0	0	0	0	7.89	50	11
D19	Jharma-Jakhar	4.60	0	0	0	0	4.60	76	37
D20	Pelendhara-Dangi-Shyalachaur	2.58	0	0	0	0	2.58	105	66
D21	Kuibang-Khebang-Chaibang-Riwangkuna	10.37	0	0	0	0	10.37	40	2
D22	Pokhara-Jhyapkhola-Vanabg	7.03	0	0	0	0	7.03	56	17
D23	Malemar-Kalabang-Goprdhara	5.79	0	0	0	0	5.79	66	27
D24	Sisnebari-Hiriban-Ralbang	3.53	0	0	0	0	3.53	89	50

D25	Bisanabot-Khame	1.47	0	0	0	0	1.47	118	79
D26	Ghameri Khola-Valaka-Jogidaha	10.19	0	0	0	0	10.19	41	3
D27	Obang-Parabang-Jakhar	10.59	0	0	0	0	10.59	38	1
D28	Khatrigade-Vibang-Varbang-Nijbang	5.70	0	0	0	0	5.70	68	29
D29	Pipal Chautara-Vultung School	0.62	0	0	0	0	0.62	123	84
D30	Jungepani-Gopal Khola-Kharkhare	3.65	0	0	0	0	3.65	85	46
D31	Chaur Takne-Dhupigaira	5.60	0	0	0	0	5.60	69	30
D32	Simalgaira-Dhakari-Liwang(Krishi Sadak)	2.84	0	0	0	0	2.84	101	62
D33	Panera-Jaga	2.03	0	0	0	0	2.03	111	72
D34	Dhadagaun-Nijbang-Ghorneti	7.31	0	0	0	0	7.31	54	15
D35	Taibang-Khostipole-Dhadaghau	2.67	0	0	0	0	2.67	102	63
D36	Duikholi-Jhipri	2.00	0	0	0	0	2.00	112	73
D37	Tallo Keuri-Tila Dhada	1.66	0	0	0	0	1.66	116	77
D38	Thanibot-Jurdhunga-Dahaban School	4.46	0	0	0	0	4.46	77	38
D39	Dhadaghau-Ranipipal-Tallo Keuri-Health Post	7.20	0	0	0	0	7.20	55	16
D40	Aadbare-Garkha-Lurimuni-Iribang	6.57	0	0	0	0	6.57	61	22
D41	Aadbare-Charch Hale-Lupa-Muthabang	4.38	0	0	0	0	4.38	79	40

D42	Kaulabot-Sallinaware-Bahuntakura	3.43	0	0	0	0	3.43	91	52
D43	Chukbot Narkhoriya	2.96	0	0	0	0	2.96	98	59
D44	Duikholi-Chunbang	3.96	0	0	0	0	3.96	81	42
D45	Verikharkha-Sijakhola-Dabare Sadak	6.63	0	0	0	0	6.63	59	20
D46	Dhotera - Aarkhola	3.61	0	0	0	0	3.61	87	48
D47	Khani Khola -Doyerkhoye-Chakhar Dhada-Kortha Sirwali	3.55	0	0	0	0	3.55	88	49
D48	Sukidaha-Kalapokhara-Masingaira-Halhale - Jharpokhara-Tila	9.92	0	0	0	0	9.92	43	5
D49	Verikharkha-Bacheokhar-Lumcheri-	6.60	0	0	0	0	6.60	60	21
D50	Bacheokhar- Raksebang 4 Ward Office	1.65	0	0	0	0	1.65	117	78
D51	Lumcheri-Ghuyeldhada-Chipdhada Supegaira	5.09	0	0	0	0	5.09	73	34
D52	Pahabang-Veri Kharkha	2.60	0	0	0	0	2.60	104	65
D53	Dume Khola -Supegaira-Halhale-Tila	6.74	0	0	0	0	6.74	57	18
D54	Kochibang-Gothdhale-Kopre-Kalapokhara	7.91	0	0	0	0	7.91	49	10
D55	Bagtare-Sukidaha -Salyan	7.39	0	0	0	0	7.39	52	13
D56	Khanikhola-Kebang-Arkhola	3.83	0	0	0	0	3.83	82	43
D57	Sallabot-Tharkhola-Ratavir-Kalapokhara	6.38	0	0	0	0	6.38	64	25
D58	Pokhdhada-Sijakhola-Basundhara	0.77	0	0	0	0	0.77	122	83

D59	Dumai Khola-Pataledhada-Kalapokhara	2.06	0	0	0	0	2.06	110	71
D60	Kochibang-Muthabang-Lupa	0.56	0	0	0	0	0.56	125	86
D61	Ghaudera-Maisthan-Dwangdwane	3.36	0	0	0	0	3.36	95	56
D62	Simri-Kakal Dhada-Kalapokhara-Gangadev Rm	6.40	0	0	0	0	6.40	63	24
D63	Agra Khola-Jhalke Dhunga-Ghaulate-Pakhapani-Pokhardhada	8.59	0	0	0	0	8.59	46	8
D64	Maisthan-Markauta-Sirwali-Bajange-Woda Office	5.16	0	0	0	0	5.16	72	33
D66	Jhakrikhola-Rokadera	1.39	0	0	0	0	1.39	119	80
D67	Koral-Galsuka-Kureli	9.54	0	0	0	0	9.54	44	6
D68	Khisabang-Triveni Khola	5.24	0	0	0	0	5.24	71	32
D69	Triveni Khola-Lamjhi-Galebad-Rukum	9.92	0	0	0	0	9.92	42	4
D70	Putalachaur-Ninmyang	2.08	0	0	0	0	2.08	109	70
D71	Ninmyang-Twang-Gorichaur	7.98	0	0	0	0	7.98	48	9
D72	Koral-Lendgara-Kureli	1.10	0	0	0	0	1.10	121	82
D73	Koral School-Daunrvir-Pokhara	1.26	0	0	0	0	1.26	120	81
D74	Lamidhada-Tyam-Ralekhola	3.82	0	0	0	0	3.82	83	44
D75	Tyam-Jumaransi	4.68	0	0	0	0	4.68	75	36
D76	Lamidhada-Aagradhada-Chipal Dhunde	2.93	0	0	0	0	2.93	100	61

D77	Okharni Khola-Bajeni	5.74	0	0	0	0	5.74	67	28
D78	Jumaransi-Bajeni-Raknam	7.33	0	0	0	0	7.33	53	14
D79	Khalneta-Jamasing-Lijbang	3.50	0	0	0	0	3.50	90	51
D81	Pra Bi Oha-Madi Rm	1.73	0	0	0	0	1.73	115	76
D82	Valakharka-Madi Rm	1.75	0	0	0	0	1.75	114	75
D83	Iribang -Jhinja	7.74	0	0	0	0	7.74	51	12
D84	Lupa-Ratamata-Til Dhada	3.38	0	0	0	0	3.38	93	54
D85	Khaldhada Pra Bi-Chabang-Iribang	2.42	0	0	0	0	2.42	106	67
D86	Mahibang-Ratamata	4.90	0	0	0	0	4.90	74	35
D87	Oha-Valakharka-Jasamkot- 3 No Ward Office	4.41	0	0	0	0	4.41	78	39
D88	6 No Ward Office - Chabang	3.38	0	0	0	0	3.38	94	55
D89	Rakulichour-Haklang	3.43	0	0	0	0	3.43	92	53
D90	Oha-Sadudera-Lachare-Madi Rm	2.12	0	0	0	0	2.12	108	69

2. Digital Name Coding

Digital Name is a code given to each road which is unique and generated by an order of alphabetical and numerical digits. Each code is different to the other and forms the basis of differentiating from other road.

The first step taken in naming the streets is to identify the start and end point of a street. This was done with the help of Rural Municipalofficials and local participation. A start point may be defined as a point located in the western end of a street, if the street is aligned in the West-East alignment and vice-versa. Similarly, in case of a street aligned in the North-South alignment, the start point shall be located in the Northern end of the street.

If the alignment of a street is not exactly North-South or West-East then the start point is defined by the angle by which a street is deviated from the North-South or the West-East line. If a street's deviation is within 45 degrees from North-South line then its start point shall be on the Northern end, else on the Western end of the West-East line. Although the above convention was followed, the situation of streets in some places can imply the method to be impractical. Hence, major service centres and markets or thoroughfares are also considered as the reference point for start point of a street.

After the designation of the start and end points, streets are assigned a unique code in the format A010101. The first letter in the Code represents a major road network (SRN, DRCN or Feeder Roads) in the Rural Municipality, which shall be taken as the reference for the Digital Name Coding of the Rural Municipalroads. The 2nd and 3rd number represent the number of primary branches from this major road network. Similarly, 4th and 5th number represent the number of secondary branches from the primary branches linking the major road and so on which maintains a hierarchy in coding. Each code may contain 1 letter only to a combination of 15 numbers and letters or more.

While coding, the streets branching from the main streets to the left are given only odd numbers (A01 or A13) and those branching from the right are given even numbers (A02 or A10). The major issue in Digital Name Coding process arises in the coding of new roads in the future. This issue is

important as the codes are allocated progressively to each street and any new street shall be given a subsequent code after the last assigned code depending upon the left or right side of the street. The new Digital codes will break the continuity of the Digital naming of the streets but whatsoever these codes will be used for computer database as the local people only use street names for the recognition of the roads in the Rural Municipality

Table 3: Digital Coding of Rural Municipal Roadswith its starting and ending co-ordinate

Road Code	Name of Road	Starting Point		Ending Point	
		X	Y	X	Y
A01	Jankot-Kureli-Rukum	362640.16	3146836.12	363261.32	363261.32
A02	Lokman Haripurkhasunar Sahid Marga(Chhapka-Vabang)	355168.17	3150641.30	359376.39	359376.39
A03	Sisne-Pokhara-Chaudhara-Vabang	354593.25	3147902.48	358129.99	358129.99
A04	Kunpa-Keuri-Iribang-Kalapokhara	355601.67	3152102.14	350996.63	350996.63
A05	Bagmara-Purnaghau-Thunikot-Kalapokhara-Ratamata	356301.57	3154091.19	351489.66	351489.66
A06	Kungri-Verikharkha-Damaikhola-Tatapani-Patihalna	357323.65	3157074.28	354706.94	354706.94
A07	Ralekhola-Pabang-Bacheokhar-Pataledhada-Chipal Dhada-Halhale	356997.97	3156234.40	352663.21	352663.21
A08	Putalachaur-Gorichaur	357006.37	3151862.08	358029.73	358029.73
A09	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	354878.66	3149543.02	352053.93	352053.93
B01	Botanekhang-Mabang-Jogi Dhada-Dangbasa-Vhootkhola-Ransi	362017.93	3150915.90	359107.63	359107.63
B02	Pokhara-Rimul-Kalabang Chaur-Kureli	357033.12	3147347.72	359101.10	359101.10
B03	Khatri Gade-Malemare-Vultung-Pelendhara-Putalachaur	356418.55	3149468.12	357407.68	357407.68
B04	Duekholi-Bagmara-Kungri Thok-Chunbang	355499.45	3151469.86	356620.51	356620.51
B05	Rapapokhari-Aarkhola-Raksebang-Lumcheri-Kalapokhari	355289.13	3155541.03	351707.16	351707.16
B06	Salli Bazar-Agra Khola- Salla Bot- Kalapokhara	354931.53	3154829.45	351706.64	351706.64
B07	Gramgim-Koral-Triveni-Ragnam-Bagmara	358681.44	3151739.47	356319.26	356319.26
B08	Koral-Ninmyang-Maulabot-Jhakri Khola	359020.53	3152937.35	357019.87	357019.87
B09	Chhapka-Gurase	355134.70	3150830.93	352059.91	352059.91
B10	Richibi Chahara-Obang-Rakulichour-Duekholi	354881.01	3148778.86	355535.67	355535.67
C01	Taran-Kholabang	362673.66	3149251.57	361812.31	361812.31
C02	Upabang-Jhakrikhola-Basaibang-Rukum	364067.45	3152864.06	366252.63	366252.63
C03	Sarabang-Ipaldhara-Tanglang-Galsuka-Rangkot	362809.83	3152797.49	361027.87	361027.87

C04	Jharja Khola-Singmang(Sahid Marga)	364401.15	3150950.13	359847.72	359847.72
C05	Haimkhola-Marke-Kureli-Galkot	363017.42	3149855.88	363170.78	363170.78
C06	Vanvane-Ongelikhe-Pakhabang-Pokhara	355548.25	3150085.33	356733.19	356733.19
C07	Khebang Khola-Rade-Ralbang	358142.34	3146113.40	360683.09	360683.09
C08	Bagmara-Sallibazar	356319.25	3154175.82	354934.20	354934.20
C09	Keuri-Thunikot 3No Ward Office	354488.38	3152595.33	354814.18	354814.18
C10	Bagmara-Rapa	356259.97	3154588.73	355283.17	355283.17
C11	Dhadkamd-Khame-Haibang-Charch Hale	355736.73	3154664.75	353320.24	353320.24
C12	Purnaghau-Urim Ghau-Haibang-Aagra	355229.90	3154251.74	353530.28	353530.28
C13	Likibang-Ratapokhara-Taibang	355831.76	3152803.70	355872.95	355872.95
C14	Sunarpani-Kholaghau-Basundhara-Dabare-Jareni-Masingaira-Tila-Rukum	356672.25	3157570.22	355190.75	355190.75
C15	Agra Khola -Kafalbot-Panchhe	353571.88	3155677.58	351655.22	351655.22
C16	Triveni Khola-Twang-Shyanilekh-Ranibot	359907.56	3153675.78	356966.10	356966.10
C17	Duikholi-Jhakri Khola(Sahid Marga)	355505.58	3151475.71	359844.10	359844.10
C18	Bajikot-Tyam-Jumaransi-Rukum	356879.77	3154425.76	358987.49	358987.49
C19	Oha-Veerkuna-Sukudaha-Pachpunni	354519.32	3149829.67	352357.10	352357.10
C20	Kolbot -Sukudaha	353608.16	3150528.69	352369.77	352369.77
D01	Sibari-Lampokhara-Jaya	363923.61	3150282.29	365264.72	365264.72
D02	Upabang-Chaitelek-Mirul	364032.45	3152782.04	364461.32	364461.32
D03	Dalim-Sibari-Mirul	362930.48	3150344.67	364708.97	364708.97
D04	Kureli-Ring-Sattale	363783.79	3148461.46	365253.53	365253.53
D05	Chaitelek-Fulbari School	363771.05	3151720.86	363528.35	363528.35
D06	Konte Dhada-Sirgatne	362587.77	3148905.23	361613.47	361613.47
D07	Sarsubari Khola-Mukhya Dera	363496.34	3153680.83	363619.21	363619.21
D08	Kharibot-Kunabara-Darpan	363018.89	3151246.35	361352.17	361352.17
D09	Goppo-Chipchipe-Thamdhuri	363427.78	3154460.34	364624.22	364624.22

D10	Jogidhada-Likyang	361441.58	3150358.39	361816.57	361816.57
D11	Semapu-Danabara-Bayeldhada-Mirul	363037.25	3151287.32	364505.59	364505.59
D12	Pokharadhada-Jogidhada	361569.88	3150497.94	361187.07	361187.07
D13	Konte Dhada-Tule Dhada-Kureli	362577.50	3149030.98	363702.84	363702.84
D14	Khasaibang Khola-Jurkhung-	361418.70	3150551.25	360536.17	360536.17
D15	Dahagaira-Sapka-Darpan	361932.08	3152030.55	361353.23	361353.23
D16	Litung Khola-Darpan-Samarekharka-Lendhara-Rangkot	361873.13	3150957.21	360367.08	360367.08
D17	Pokhara-Raubang-Parlesima-Tarkebang	356943.94	3146994.40	355401.67	355401.67
D18	Pokhara-Wiebang-Parlesima-Chaibang	357022.21	3147344.13	355017.43	355017.43
D19	Jharma-Jakhar	356389.70	3149423.35	357002.75	357002.75
D20	Pelendhara-Dangi-Shyalachaur	357443.71	3150980.96	358336.71	358336.71
D21	Kuibang-Khebang-Chaibang-Riwangkuna	356410.38	3147457.09	354731.91	354731.91
D22	Pokhara-Jhyapkhola-Vanabg	357210.20	3147352.51	358833.22	358833.22
D23	Malemar-Kalabang-Goprdhara	357285.62	3149399.66	358023.24	358023.24
D24	Sisnebari-Hiriban-Ralbang	359293.51	3147689.15	360677.27	360677.27
D25	Bisanabot-Khame	355479.08	3147832.59	355164.24	355164.24
D26	Ghameri Khola-Valaka-Jogidaha	358779.01	3147921.25	360258.07	360258.07
D27	Obang-Parabang-Jakhar	354794.67	3149098.33	356287.56	356287.56
D28	Khatrigade-Vibang-Varbang-Nijbang	356436.39	3149466.96	356405.05	356405.05
D29	Pipal Chautara-Vultung School	356754.86	3150854.50	356935.83	356935.83
D30	Jungepani-Gopal Khola-Kharkhare	357970.62	3148518.52	357046.88	357046.88
D31	Chaur Takne-Dhupigaira	358227.92	3149321.09	358949.95	358949.95
D32	Simalgaira-Dhakari-Liwang(Krishi Sadak)	355277.66	3148079.96	355602.30	355602.30
D33	Panera-Jaga	355755.61	3147816.19	356951.33	356951.33
D34	Dhadagaun-Nijbang-Ghorneti	356136.42	3149778.44	357058.18	357058.18
D35	Taibang-Khostipole-Dhadaghau	355859.76	3153922.03	355670.50	355670.50

D36	Duikholi-Jhipri	355490.38	3151457.15	355325.57	355325.57
D37	Tallo Keuri-Tila Dhada	354685.17	3152311.84	354965.03	354965.03
D38	Thanibot-Jurdhunga-Dahaban School	355352.17	3153941.60	354597.98	354597.98
D39	Dhadaghau-Ranipipal-Tallo Keuri-Health Post	355571.19	3153290.16	355181.88	355181.88
D40	Aadbare-Garkha-Lurimuni-Iribang	353898.01	3153810.35	352248.74	352248.74
D41	Aadbare-Charch Hale-Lupa-Muthabang	353970.86	3153800.51	352758.86	352758.86
D42	Kaulabot-Sallinaware-Bahuntakura	355388.10	3154330.20	354936.10	354936.10
D43	Chukbot Narkhoriya	353056.32	3152950.05	353401.59	353401.59
D44	Duikholi-Chunbang	356620.72	3155121.68	357588.61	357588.61
D45	Verikharkha-Sijakhola-Dabare Sadak	355629.05	3158121.57	356406.04	356406.04
D46	Dhotera - Aarkhola	354908.08	3155029.64	354653.31	354653.31
D47	Khani Khola -Doyerkhoye-Chakhar Dhada-Kortha Sirwali	353345.57	3156874.73	353681.68	353681.68
D48	Sukidaha-Kalapokhara-Masingaira-Halhale -Jharpokhara-Tila	350786.14	3157147.34	354718.49	354718.49
D49	Verikharkha-Bacheokhar-Lumcheri-	355543.30	3158169.77	354534.77	354534.77
D50	Bacheokhar- Raksebang 4 Ward Office	355129.73	3157444.57	355084.80	355084.80
D51	Lumcheri-Ghuyeldhada-Chipdhada Supegaira	354526.82	3157577.42	352713.74	352713.74
D52	Pahabang-Veri Kharkha	355640.20	3158057.07	356426.57	356426.57
D53	Dume Khola -Supegaira-Halhale-Tila	354061.51	3159146.07	355142.13	355142.13
D54	Kochibang-Gothdhale-Kopre-Kalapokhara	352319.27	3155496.19	351486.18	351486.18
D55	Bagtare-Sukidaha -Salyan	352023.22	3156599.91	350246.94	350246.94
D56	Khanikhola-Kebang-Arkhola	353356.35	3156869.83	354647.54	354647.54
D57	Sallabot-Tharkhola-Ratavir-Kalapokhara	352305.88	3155776.91	351476.17	351476.17
D58	Pokhdhada-Sijakhola-Basundhara	355928.55	3159026.76	356113.71	356113.71
D59	Dumai Khola-Pataledhada-Kalapokhara	354112.76	3159127.92	354472.79	354472.79
D60	Kochibang-Muthabang-Lupa	352474.73	3155356.82	352759.45	352759.45
D61	Ghaudera-Maisthan-Dwangdwane	352747.52	3155672.86	352505.88	352505.88

D62	Simri-Kakal Dhada-Kalapokhara-Gangadev Rm	352070.30	3155939.53	350844.92	350844.92
D63	Agra Khola-Jhalke Dhunga-Ghaulate-Pakhapani-Pokhardhada	353578.30	3155848.24	352092.72	352092.72
D64	Maisthan-Markauta-Sirwali-Bajange-Woda Office	352618.59	3157208.97	355050.81	355050.81
D66	Jhakrikhola-Rokadera	356730.16	3153906.68	356924.34	356924.34
D67	Koral-Galsuka-Kureli	359194.49	3152617.44	361008.40	361008.40
D68	Khisabang-Triveni Khola	359693.23	3153607.06	359399.33	359399.33
D69	Triveni Khola-Lamjhi-Galebad-Rukum	360117.41	3154020.34	361486.81	361486.81
D70	Putalachaur-Ninmyang	357204.03	3152051.67	357619.76	357619.76
D71	Ninmyang-Twang-Gorichaur	357629.98	3152160.90	358057.09	358057.09
D72	Koral-Lendgara-Kureli	359684.85	3152234.18	360348.14	360348.14
D73	Koral School-Daunrvir-Pokhara	359316.70	3152538.91	359555.80	359555.80
D74	Lamidhada-Tyam-Ralekhola	357547.40	3155485.34	357043.16	357043.16
D75	Tyam-Jumaransi	357515.69	3155911.20	357856.32	357856.32
D76	Lamidhada-Aagradhada-Chipal Dhunde	357562.97	3155559.15	356748.02	356748.02
D77	Okharni Khola-Bajeni	357967.29	3155589.61	358647.20	358647.20
D78	Jumaransi-Bajeni-Raknam	358070.32	3156898.25	358124.89	358124.89
D79	Khalneta-Jamasing-Lijbang	355780.63	3152661.44	356368.37	356368.37
D80	Obang-Kolbot-Thanekot-Khaldhada-Gurase-Salyan	352054.76	3151556.46	350792.32	350792.32
D81	Pra Bi Oha-Madi Rm	354181.23	3149298.79	353572.92	353572.92
D82	Valakharka-Madi Rm	353019.57	3149621.61	352733.76	352733.76
D83	Iribang -Jhinja	352583.87	3152578.33	350869.51	350869.51
D84	Lupa-Ratamata-Til Dhada	354277.70	3151504.33	354769.25	354769.25
D85	Khaldhada Pra Bi-Chabang-Iribang	352010.23	3151883.90	352589.12	352589.12
D86	Mahibang-Ratamata	354464.25	3150626.84	354682.04	354682.04
D87	Oha-Valakharka-Jasamkot- 3 No Ward Office	352770.61	3149651.50	353775.63	353775.63
D88	6 No Ward Office - Chabang	353873.19	3150641.46	352933.41	352933.41

D89	Rakulichour-Haklang	354888.58	3150289.37	354401.02	354401.02
D90	Oha-Sadudera-Lachare-Madi Rm	353411.48	3149561.90	352931.64	352931.64

3. Projected Budget for Twenty Years period (In hundred Thousands)

Year	Projected Budget in Hundred Thousand						
	Class A	Class B	Class C	Class D	Construction	Maintenance	Total
1	475.00	356.00	237.00	119.00	1,187.00	509.00	1,696.00
2	546.00	410.00	273.00	137.00	1,366.00	585.00	1,951.00
3	628.00	471.00	314.00	157.00	1,570.00	673.00	2,243.00
4	722.00	542.00	361.00	181.00	1,806.00	774.00	2,580.00
5	831.00	623.00	415.00	208.00	2,077.00	890.00	2,967.00
6	955.00	716.00	478.00	239.00	2,388.00	1,023.00	3,411.00
7	1,099.00	824.00	549.00	275.00	2,747.00	1,177.00	3,924.00
8	1,263.00	948.00	632.00	316.00	3,159.00	1,354.00	4,513.00
9	1,453.00	1,090.00	726.00	363.00	3,632.00	1,557.00	5,189.00
10	1,671.00	1,253.00	835.00	418.00	4,177.00	1,790.00	5,967.00
11	1,921.00	1,441.00	961.00	480.00	4,803.00	2,058.00	6,861.00
12	2,210.00	1,657.00	1,105.00	552.00	5,524.00	2,367.00	7,891.00
13	2,541.00	1,906.00	1,271.00	635.00	6,353.00	2,723.00	9,076.00
14	2,922.00	2,192.00	1,461.00	731.00	7,306.00	3,131.00	10,437.00
15	3,361.00	2,520.00	1,680.00	840.00	8,401.00	3,600.00	12,001.00
16	3,865.00	2,899.00	1,932.00	966.00	9,662.00	4,141.00	13,803.00
17	4,444.00	3,333.00	2,222.00	1,111.00	11,110.00	4,761.00	15,871.00
18	5,111.00	3,833.00	2,556.00	1,278.00	12,778.00	5,476.00	18,254.00
19	5,878.00	4,408.00	2,939.00	1,469.00	14,694.00	6,297.00	20,991.00
20	6,759.00	5,070.00	3,380.00	1,690.00	16,899.00	7,242.00	24,141.00
Total	48,655.00	36,492.00	24,327.00	12,165.00	121,639.00	52,128.00	173,767.00

4. Transformation of projection system from WGS 1982 to MUTM 1984

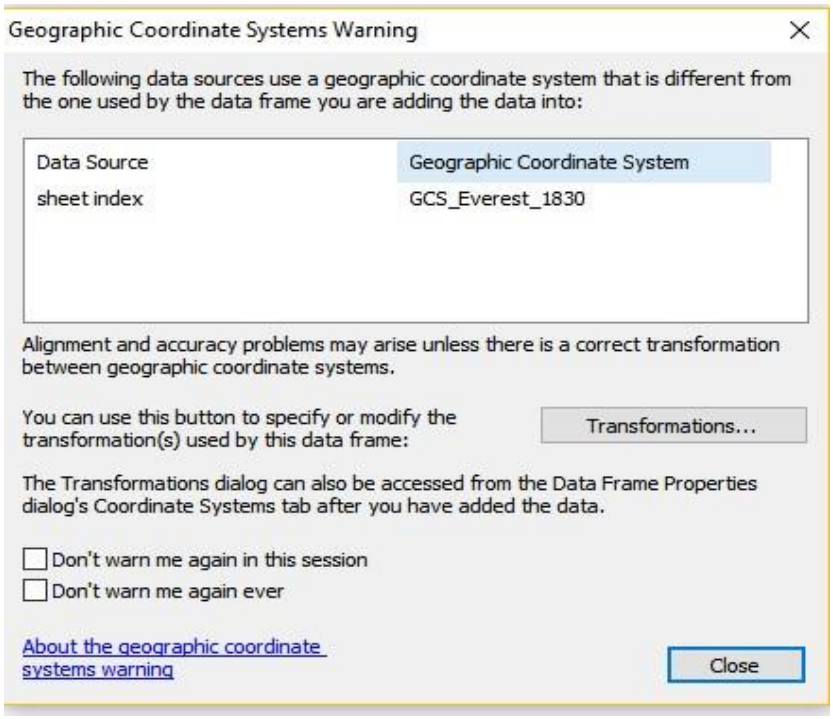
Maps use coordinate systems to display data. A coordinate system is a reference framework that defines the position of features in either two- or three-dimensional space. Coordinate systems can be of different types, such as geographic and projected. A geographic coordinate system is based on a three-dimensional spherical surface and locations defined using degrees of longitude and latitude. A projected coordinate system is a planar system that uses two-dimensional coordinates and more often uses distance measurements as units.

When a new map or scene is created, the default coordinate system is WGS 1984 Web Mercator. For a global scene, the coordinate system can't be changed. You can choose a different coordinate system for maps and local scenes. As you add layers, they are automatically displayed using the same coordinate system as the map or scene. The map or scene's coordinate system need not be the same as the data you are using, because it will project data on the fly.

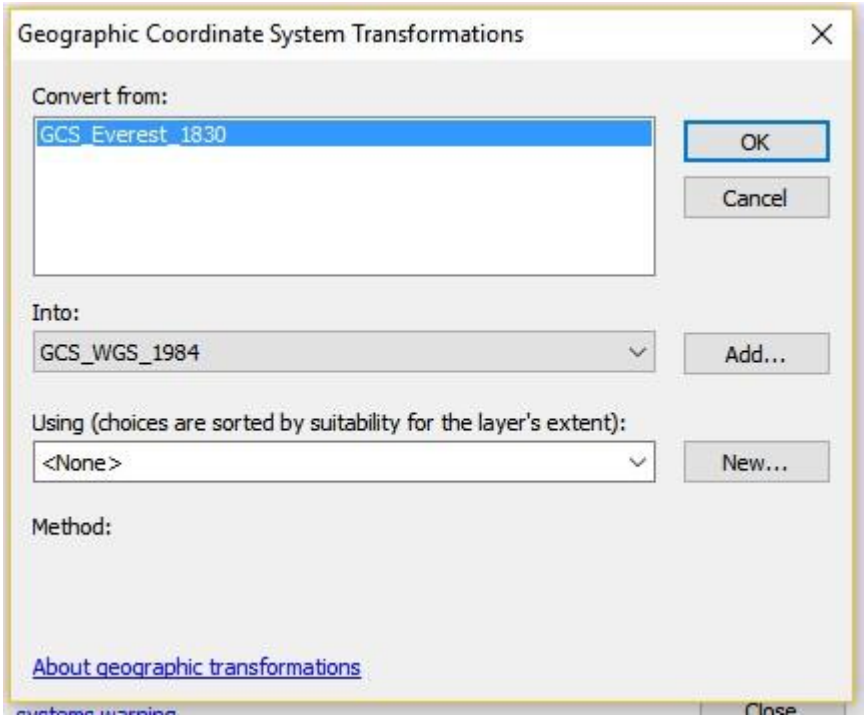
After defining the projection and coordinate system that matches your data, you may still find you want to use data in a different coordinate system and projection. This is where transformations are useful. Transformations are required to convert data that is specified in one projection into another. They allow you to take data that might be stored in a projection and convert it to align with data you hold in a different projection. Unless your data lines up, you'll face difficulties and inaccuracies in any analysis and mapping you perform on the mismatched data.

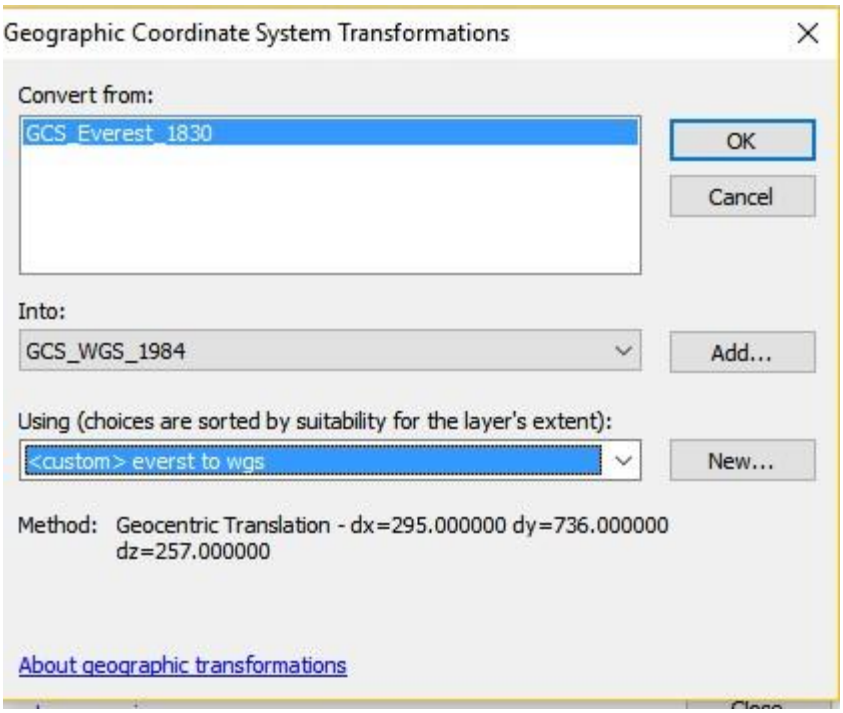
Geographic transformations can be performed to translate coordinates from one geographic coordinate system to another. When a layer with a different geographic coordinate system is added to the map, a transformation will be applied automatically, but it is necessary to specify a different transformation as a property of the map.

How to perform geographic transformation



Click on transformation





Click on ok

Similarly if we had the data frame in GCS Everest 1830 system, and we need to transform the data layers (properties having WGS 1984) to Everest 1830, then we use the geodetic translation system with d_x=-295, dy=-736, dz=-257

5. Description of Rural MunicipalRoads

SN	Road code	Description
1	A01	The road passes throughWard 1,The road has total length of 20.27 km. Out of which 14.27 is earthen, none of the section is gravel & none of the section is black topped. While 6 km of new track needs to be opened.
2	A02	The road passes throughWard 2,The road has total length of 19.09 km. Out of which 19.09 is earthen, none of the section is gravel & none of the section is black topped.
3	A03	The road passes throughWard 2,The road has total length of 10.04 km. Out of which 10.04 is earthen, none of the section is gravel & none of the section is black topped.
4	A04	The road passes throughWard 3,The road has total length of 10.6 km. Out of which 10.6 is earthen, none of the section is gravel & none of the section is black topped.
5	A05	The road passes throughWard 3,The road has total length of 10.49 km. Out of which 10.49 is earthen, none of the section is gravel & none of the section is black topped.
6	A06	The road passes throughWard 4,The road has total length of 8.72 km. Out of which 5.42 is earthen, none of the section is gravel & none of the section is black topped. While 3.3 km of new track needs to be opened.
7	A07	The road passes throughWard 4,The road has total length of 11.66 km. Out of which 9.16 is earthen, none of the section is gravel & none of the section is black topped. While 2.5 km of new track needs to be opened.
8	A08	The road passes throughWard 5,The road has total length of 7.53 km. Out of which 7.53 is earthen, none of the section is gravel & none of the section is black topped.
9	A09	The road passes throughWard 6,The road has total length of 13.59 km. Out of which 13.59 is earthen, none of the section is gravel & none of the section is black topped.
10	B01	The road passes throughWard 1,The road has total length of 8.04 km. Out of which 6.37 is earthen, none of the section is gravel & none of the section is black topped. While 1.67 km of new track needs to be opened.
11	B02	The road passes throughWard 2,The road has total length of 9.81 km. Out of which 8.81 is earthen, none of the section is gravel & none of the section is black topped. While 1 km of new track needs to be opened.
12	B03	The road passes throughWard 2,The road has total length of 7.77 km. Out of which 7.77 is earthen, none of the section is gravel & none of the section is black topped.

13	B04	The road passes throughWard 3,The road has total length of 4.46 km. Out of which 4.46 is earthen, none of the section is gravel & none of the section is black topped.
14	B05	The road passes throughWard 4,The road has total length of 8.48 km. Out of which 7.5 is earthen, none of the section is gravel & none of the section is black topped. While 0.98 km of new track needs to be opened.
15	B06	The road passes throughWard 4,The road has total length of 9.8 km. Out of which 9.8 is earthen, none of the section is gravel & none of the section is black topped.
16	B07	The road passes throughWard 5,The road has total length of 19.38 km. Out of which 1.68 is earthen, none of the section is gravel & none of the section is black topped. While 17.7 km of new track needs to be opened.
17	B08	The road passes throughWard 5,The road has total length of 7.61 km. Out of which 5.01 is earthen, none of the section is gravel & none of the section is black topped. While 2.6 km of new track needs to be opened.
18	B09	The road passes throughWard 6,The road has total length of 6.32 km. Out of which 6.32 is earthen, none of the section is gravel & none of the section is black topped.
19	B10	The road passes throughWard 6,The road has total length of 3.11 km. Out of which 3.11 is earthen, none of the section is gravel & none of the section is black topped.
20	C01	The road passes throughWard 1,The road has total length of 2 km. Out of which 0.5 is earthen, none of the section is gravel & none of the section is black topped. While 1.5 km of new track needs to be opened.
21	C02	The road passes throughWard 1,The road has total length of 7.75 km. Out of which 7.75 is earthen, none of the section is gravel & none of the section is black topped.
22	C03	The road passes throughWard 1,The road has total length of 5.2 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.2 km of new track needs to be opened.
23	C04	The road passes throughWard 1,The road has total length of 5.22 km. Out of which 5.22 is earthen, none of the section is gravel & none of the section is black topped.
24	C05	The road passes throughWard 1,The road has total length of 5.69 km. Out of which 3.69 is earthen, none of the section is gravel & none of the section is black topped. While 2 km of new track needs to be opened.
25	C06	The road passes throughWard 2,The road has total length of 6.71 km. Out of which 6.71 is earthen, none of the section is gravel & none of the section is black topped.
26	C07	The road passes throughWard 2,The road has total length of 5.83 km. Out of which 2.13 is earthen, none of the section is gravel & none of the section is black topped. While 3.7 km of new track needs to be opened.

27	C08	The road passes throughWard 3,The road has total length of 1.77 km. Out of which 1.77 is earthen, none of the section is gravel & none of the section is black topped.
28	C09	The road passes throughWard 3,The road has total length of 4.49 km. Out of which 2.19 is earthen, none of the section is gravel & none of the section is black topped. While 2.3 km of new track needs to be opened.
29	C10	The road passes throughWard 3,The road has total length of 3.35 km. Out of which 3.35 is earthen, none of the section is gravel & none of the section is black topped.
30	C11	The road passes throughWard 3,The road has total length of 6.57 km. Out of which 4.07 is earthen, none of the section is gravel & none of the section is black topped. While 2.5 km of new track needs to be opened.
31	C12	The road passes throughWard 3,The road has total length of 4.37 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.37 km of new track needs to be opened.
32	C13	The road passes throughWard 3,The road has total length of 2.91 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.91 km of new track needs to be opened.
33	C14	The road passes throughWard 4,The road has total length of 9.09 km. Out of which 6.39 is earthen, none of the section is gravel & none of the section is black topped. While 2.7 km of new track needs to be opened.
34	C15	The road passes throughWard 4,The road has total length of 5.81 km. Out of which 5.81 is earthen, none of the section is gravel & none of the section is black topped.
35	C16	The road passes throughWard 5,The road has total length of 10.32 km. Out of which 4.12 is earthen, none of the section is gravel & none of the section is black topped. While 6.2 km of new track needs to be opened.
36	C17	The road passes throughWard 5,The road has total length of 5 km. Out of which 5 is earthen, none of the section is gravel & none of the section is black topped.
37	C18	The road passes throughWard 5,The road has total length of 9.04 km. Out of which 9.04 is earthen, none of the section is gravel & none of the section is black topped.
38	C19	The road passes throughWard 6,The road has total length of 7.07 km. Out of which 3.97 is earthen, none of the section is gravel & none of the section is black topped. While 3.1 km of new track needs to be opened.
39	C20	The road passes throughWard 6,The road has total length of 4.82 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.82 km of new track needs to be opened.

40	D01	The road passes throughWard 1,The road has total length of 5.49 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.49 km of new track needs to be opened.
41	D02	The road passes throughWard 1,The road has total length of 2.99 km. Out of which 2.6 is earthen, none of the section is gravel & none of the section is black topped. While 0.39 km of new track needs to be opened.
42	D03	The road passes throughWard 1,The road has total length of 2.42 km. Out of which 1.32 is earthen, none of the section is gravel & none of the section is black topped. While 1.1 km of new track needs to be opened.
43	D04	The road passes throughWard 1,The road has total length of 7.11 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 7.11 km of new track needs to be opened.
44	D05	The road passes throughWard 1,The road has total length of 0.43 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.43 km of new track needs to be opened.
45	D06	The road passes throughWard 1,The road has total length of 3.5 km. Out of which 1.1 is earthen, none of the section is gravel & none of the section is black topped. While 2.4 km of new track needs to be opened.
46	D07	The road passes throughWard 1,The road has total length of 2.61 km. Out of which 0.26 is earthen, none of the section is gravel & none of the section is black topped. While 2.35 km of new track needs to be opened.
47	D08	The road passes throughWard 1,The road has total length of 3.08 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.08 km of new track needs to be opened.
48	D09	The road passes throughWard 1,The road has total length of 2.7 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.7 km of new track needs to be opened.
49	D10	The road passes throughWard 1,The road has total length of 0.42 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.42 km of new track needs to be opened.
50	D11	The road passes throughWard 1,The road has total length of 1.94 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.94 km of new track needs to be opened.
51	D12	The road passes throughWard 1,The road has total length of 0.47 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.47 km of new track needs to be opened.
52	D13	The road passes throughWard 1,The road has total length of 2.19 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.19 km of new track needs to be opened.

53	D14	The road passes throughWard 1,The road has total length of 1.49 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.49 km of new track needs to be opened.
54	D15	The road passes throughWard 1,The road has total length of 5.31 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.31 km of new track needs to be opened.
55	D16	The road passes throughWard 1,The road has total length of 4.55 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.55 km of new track needs to be opened.
56	D17	The road passes throughWard 2,The road has total length of 4.05 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.05 km of new track needs to be opened.
57	D18	The road passes throughWard 2,The road has total length of 5.02 km. Out of which 2.52 is earthen, none of the section is gravel & none of the section is black topped. While 2.5 km of new track needs to be opened.
58	D19	The road passes throughWard 2,The road has total length of 2.93 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.93 km of new track needs to be opened.
59	D20	The road passes throughWard 2,The road has total length of 1.64 km. Out of which 0.94 is earthen, none of the section is gravel & none of the section is black topped. While 0.7 km of new track needs to be opened.
60	D21	The road passes throughWard 2,The road has total length of 6.6 km. Out of which 3.3 is earthen, none of the section is gravel & none of the section is black topped. While 3.3 km of new track needs to be opened.
61	D22	The road passes throughWard 2,The road has total length of 4.48 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.48 km of new track needs to be opened.
62	D23	The road passes throughWard 2,The road has total length of 3.68 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.68 km of new track needs to be opened.
63	D24	The road passes throughWard 2,The road has total length of 2.25 km. Out of which 0.75 is earthen, none of the section is gravel & none of the section is black topped. While 1.5 km of new track needs to be opened.
64	D25	The road passes throughWard 2,The road has total length of 0.94 km. Out of which 0.79 is earthen, none of the section is gravel & none of the section is black topped. While 0.15 km of new track needs to be opened.
65	D26	The road passes throughWard 2,The road has total length of 6.49 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 6.49 km of new track needs to be opened.
66	D27	The road passes throughWard 2,The road has total length of 6.74 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 6.74 km of new track needs to be opened.

67	D28	The road passes throughWard 2,The road has total length of 3.63 km. Out of which 0.53 is earthen, none of the section is gravel & none of the section is black topped. While 3.1 km of new track needs to be opened.
68	D29	The road passes throughWard 2,The road has total length of 0.39 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.39 km of new track needs to be opened.
69	D30	The road passes throughWard 2,The road has total length of 2.32 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.32 km of new track needs to be opened.
70	D31	The road passes throughWard 2,The road has total length of 3.57 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.57 km of new track needs to be opened.
71	D32	The road passes throughWard 2,The road has total length of 1.81 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.81 km of new track needs to be opened.
72	D33	The road passes throughWard 2,The road has total length of 1.29 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.29 km of new track needs to be opened.
73	D34	The road passes throughWard 2,The road has total length of 4.65 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.65 km of new track needs to be opened.
74	D35	The road passes throughWard 3,The road has total length of 1.42 km. Out of which 1.42 is earthen, none of the section is gravel & none of the section is black topped.
75	D36	The road passes throughWard 3,The road has total length of 1.07 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.07 km of new track needs to be opened.
76	D37	The road passes throughWard 3,The road has total length of 0.89 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.89 km of new track needs to be opened.
77	D38	The road passes throughWard 3,The road has total length of 2.38 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.38 km of new track needs to be opened.
78	D39	The road passes throughWard 3,The road has total length of 3.83 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.83 km of new track needs to be opened.
79	D40	The road passes throughWard 3,The road has total length of 3.5 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.5 km of new track needs to be opened.
80	D41	The road passes throughWard 3,The road has total length of 2.33 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.33 km of new track needs to be opened.

81	D42	The road passes throughWard 3,The road has total length of 1.83 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.83 km of new track needs to be opened.
82	D43	The road passes throughWard 3,The road has total length of 1.57 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.57 km of new track needs to be opened.
83	D44	The road passes throughWard 4,The road has total length of 2.81 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.81 km of new track needs to be opened.
84	D45	The road passes throughWard 4,The road has total length of 4.71 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.71 km of new track needs to be opened.
85	D46	The road passes throughWard 4,The road has total length of 2.56 km. Out of which 1.76 is earthen, none of the section is gravel & none of the section is black topped. While 0.8 km of new track needs to be opened.
86	D47	The road passes throughWard 4,The road has total length of 2.52 km. Out of which 1.62 is earthen, none of the section is gravel & none of the section is black topped. While 0.9 km of new track needs to be opened.
87	D48	The road passes throughWard 4,The road has total length of 7.04 km. Out of which 0.64 is earthen, none of the section is gravel & none of the section is black topped. While 6.4 km of new track needs to be opened.
88	D49	The road passes throughWard 4,The road has total length of 4.68 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.68 km of new track needs to be opened.
89	D50	The road passes throughWard 4,The road has total length of 1.17 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.17 km of new track needs to be opened.
90	D51	The road passes throughWard 4,The road has total length of 3.61 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.61 km of new track needs to be opened.
91	D52	The road passes throughWard 4,The road has total length of 1.85 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.85 km of new track needs to be opened.
92	D53	The road passes throughWard 4,The road has total length of 4.78 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.78 km of new track needs to be opened.
93	D54	The road passes throughWard 4,The road has total length of 5.62 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.62 km of new track needs to be opened.
94	D55	The road passes throughWard 4,The road has total length of 5.25 km. Out of which 1.15 is earthen, none of the section is gravel & none of the section is black topped. While 4.1 km of new track needs to be opened.

95	D56	The road passes throughWard 4,The road has total length of 2.72 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.72 km of new track needs to be opened.
96	D57	The road passes throughWard 4,The road has total length of 4.53 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.53 km of new track needs to be opened.
97	D58	The road passes throughWard 4,The road has total length of 0.55 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.55 km of new track needs to be opened.
98	D59	The road passes throughWard 4,The road has total length of 1.47 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.47 km of new track needs to be opened.
99	D60	The road passes throughWard 4,The road has total length of 0.4 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.4 km of new track needs to be opened.
100	D61	The road passes throughWard 4,The road has total length of 2.38 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.38 km of new track needs to be opened.
101	D62	The road passes throughWard 4,The road has total length of 4.54 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 4.54 km of new track needs to be opened.
102	D63	The road passes throughWard 4,The road has total length of 6.1 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 6.1 km of new track needs to be opened.
103	D64	The road passes throughWard 4,The road has total length of 3.66 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.66 km of new track needs to be opened.
104	D66	The road passes throughWard 5,The road has total length of 1.04 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.04 km of new track needs to be opened.
105	D67	The road passes throughWard 5,The road has total length of 7.16 km. Out of which 1.96 is earthen, none of the section is gravel & none of the section is black topped. While 5.2 km of new track needs to be opened.
106	D68	The road passes throughWard 5,The road has total length of 3.93 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.93 km of new track needs to be opened.
107	D69	The road passes throughWard 5,The road has total length of 7.44 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 7.44 km of new track needs to be opened.
108	D70	The road passes throughWard 5,The road has total length of 1.56 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.56 km of new track needs to be opened.

109	D71	The road passes throughWard 5,The road has total length of 5.99 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.99 km of new track needs to be opened.
110	D72	The road passes throughWard 5,The road has total length of 0.82 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.82 km of new track needs to be opened.
111	D73	The road passes throughWard 5,The road has total length of 0.94 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 0.94 km of new track needs to be opened.
112	D74	The road passes throughWard 5,The road has total length of 2.87 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.87 km of new track needs to be opened.
113	D75	The road passes throughWard 5,The road has total length of 3.51 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 3.51 km of new track needs to be opened.
114	D76	The road passes throughWard 5,The road has total length of 2.2 km. Out of which 0.3 is earthen, none of the section is gravel & none of the section is black topped. While 1.9 km of new track needs to be opened.
115	D77	The road passes throughWard 5,The road has total length of 4.3 km. Out of which 2.4 is earthen, none of the section is gravel & none of the section is black topped. While 1.9 km of new track needs to be opened.
116	D78	The road passes throughWard 5,The road has total length of 5.49 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 5.49 km of new track needs to be opened.
117	D79	The road passes throughWard 5,The road has total length of 2.63 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.63 km of new track needs to be opened.
118	D81	The road passes throughWard 6,The road has total length of 0.99 km. Out of which 0.99 is earthen, none of the section is gravel & none of the section is black topped.
119	D82	The road passes throughWard 6,The road has total length of 1 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1 km of new track needs to be opened.
120	D83	The road passes throughWard 6,The road has total length of 4.41 km. Out of which 2.11 is earthen, none of the section is gravel & none of the section is black topped. While 2.3 km of new track needs to be opened.
121	D84	The road passes throughWard 6,The road has total length of 1.93 km. Out of which 0.43 is earthen, none of the section is gravel & none of the section is black topped. While 1.5 km of new track needs to be opened.
122	D85	The road passes throughWard 6,The road has total length of 1.38 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.38 km of new track needs to be opened.

123	D86	The road passes throughWard 6,The road has total length of 2.79 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.79 km of new track needs to be opened.
124	D87	The road passes throughWard 6,The road has total length of 2.51 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 2.51 km of new track needs to be opened.
125	D88	The road passes throughWard 6,The road has total length of 1.93 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.93 km of new track needs to be opened.
126	D89	The road passes throughWard 6,The road has total length of 1.95 km. Out of which 1.95 is earthen, none of the section is gravel & none of the section is black topped.
127	D90	The road passes throughWard 6,The road has total length of 1.21 km. Out of which none of the section is earthen, none of the section is gravel & none of the section is black topped. While 1.21 km of new track needs to be opened.