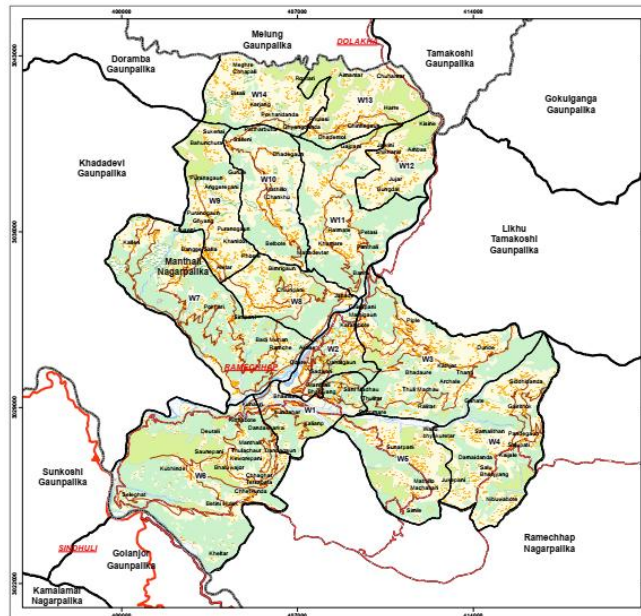




Manthali Municipality
Office of the Municipal Executive
Bagmati Province
Manthali, Ramechhap

**Final Report on Municipal Transport Masterplan
(MTMP)**



Submitted By:

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We would like to sincerely thank Mr. **Lilaraj Paudel**; Chief Administrative Officer and Mayor & Deputy-Mayor of the municipality Mr. **Lawa Shrestha** & Ms Ishwori Basnet respectively. Along with them we would be grateful to the entire ward president: Hom Prasad Paudel, Surendra Bahadur Karki, Rabin Karki, Krishna Gopal Thapa, Rajan Ghimire, Ashok Tamang, Bhuwanhari Prasai, Gopal Shrestha, Gokarna Raj Aaran, Gopilala Tamang, Bhim Bahadur Thapa Magar, Khilendra Khatri, Nabaraj Thapa Magar and Motilal Tamang, for the cardinal coordination in preparing this report, and for their support. We would like to express our deep gratitude to the Infrastructure Section Chief Mr. Dilli Adkhikari and staff members of the municipality, representatives from different political parties and the local people for their support, collaboration and co-ordination during the field works and afterward. They helped to ensure that the working environment was much easy, simple and convenient. The acknowledgement will be incomplete if we ignore the support obtained from each and every individual of the municipality along with their patience and coordination in different surveys. Finally, we would like to thank all the helping hands who were directly and indirectly involved in the preparation of this Final Report.

The study team

DECLARATION LETTER

We hereby declare that we have conducted the study for Municipal Transport Master Plan (MTMP) of ***Manthali Municipality*** professionally using MoFALD guidelines and other acceptable standard methodologies. To the best of our knowledge, study findings are correct. Municipality Transport Master Plan has been prepared as per standard Engineering tools, norms and practices. This visionary city development plan has been finalized on the basis of the discussion with stakeholders. We would like to assure you that the MTMP is reliable, practicable and adequate to the overall development of municipality transport system. We shall be accountable for any misleading information in any part of this report in respective area of study.

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ABBREVIATIONS

DDC	District Development Committee
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DTMP	District Transport Master Plan
GIS	Geographic Information System
GPS	Global Positioning System
Ha	Hectare
HH	Household
IDPM	Indicative Development Potential Map
Km.	Kilometer
MIM	Municipal Road Inventory Map
Min.	Minute
MoFALD	Ministry of Federal Affairs and Local Development
MRCC	Municipal Road Coordination Committee
MTMP	Municipal Transport Master Plan
MTPP	Municipal Transport Perspective Plan
NMT	Non- Motorized Transport
O-D	Origin and Destination
PCU	Passenger Car Unit
PT	Public Transport
ROW	Right of Way
Sq. km	Square Kilometer
SRN	Strategic Road Network
ToR	Terms of Reference
VDCs	Village Development Committees

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CHAPTER 1: INTRODUCTION

This section presents the context and concepts of MTMP. It also briefly states the objectives along with the scopes and study area. The end of this section layout the contents of the later.

1.1 Background

Transport, which is simply defined as movement of people and goods covering some geographical space is one of the major components to improve people's access to services. It not only increases the accessibility to the remote places, but also increases the mobility scenario, and hence results in better linkages with market centers, tourist places, agricultural production pocket areas and other opportunities in the district as well as municipality. 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 other opportunities in the district as well as municipality. 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.

Municipal Transport Master Plan (MTMP) is primarily a reflection of existing transport infrastructure situation and future potential ones in consistent with the resources available in the municipality. It offers long term perspective for the planned development of the roads network in the municipality. The MTMP preparation strongly advocates meaningful participation of all key stakeholders of municipal roads in the planning process, which makes MTMP more acceptable and ensure ownership. A comprehensive Municipal Transport Master Plan is being developed in the municipality to support investments in transport development with appropriate guideline and criteria for rational and transparent decision making process. MTMP becomes an authoritative document of the municipality as well as district to negotiate possible grant and loan assistance from donor agencies. Proper planning and sustainability are the key issues for development of municipal transport network.

1.2 Objectives

The prime objective of this study is the preparation of Municipality Transport Master Plan (MTMP). The planning approach is participatory and bottom-up from the settlement level. It includes a constructive plan to incorporate all present and tomorrow's transportation needs. The specific objectives of the MTMP covered during the study with reference to ToR are mentioned below:

1. Preparation of the municipality Road Inventory Map (MIM) of all road networks
2. Identification of the major road networks linking the municipality with the surrounding areas.
3. Preparation of Indicative Development Potential Map (IDPM)

4. Finalization of 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. Analysis of the present mobility and accessibility situation.
7. Identification and prioritization of the interventions based on mobility and accessibility situation.
8. Development of scoring criteria and its approval from municipality.
9. Preparation of Municipal Transport Perspective Plan for transport services and facilities.
10. Preparation of physical and financial implementation plan of prioritized roads for the MTMP period.
11. Preparation of five years Municipality Transport Master Plan.

1.3 Scope of work

The scope of the works and services of the consultant for the project are given below.

- a) Assist in the Formulation of the Municipality Roads Coordination Committee (MRCC).
- b) Secondary Sources of Information and Review of the existing MTMP.
- c) Accessibility data collection and analysis.
- d) Prepare the Indicative Municipality Development Potential Map (IDPM).
- e) Prepare MIM of urban roads, main trails and bridges within the municipality.
- f) Collection of demands for new/upgrading/rehabilitation transport linkages from wards/settlements.
- g) Developing Scoring Criteria and its Approval from Municipality.
- h) Road classification and nomenclature.
- i) Analyze Fund Availability for Roads.
- j) Preparation of Perspective Plan of interventions of services and facilities.
- k) Preparation of the Municipal Transport Master Plan (MTMP).
- l) Prepare a realistic Physical and Financial Implementation Plan of prioritized roads for the MTMP period.

1.4 Study Area

Manthali is a Municipality, which is located in Ramechhap district, Bagmati Province of Nepal. Manthali has total 14 wards, which are scattered across 212 square kilometers of geographical area. According to 2011 Census conducted by Central Bureau of Statistics (CBS), Manthali Municipality had total population of 45,416.

Manthali Municipality had total 45,416 populations with 20,750 males and 24,666 females. Out of total wards, ward number 1 had the largest population 6,265, while ward number 5 had least number of populations with 6,265.

With respect to number of households, Manthali Municipality had total 10,099 households. The ward number 1 had most households with total 1,720, while ward number 10 had least number of households with total 476 numbers of households.

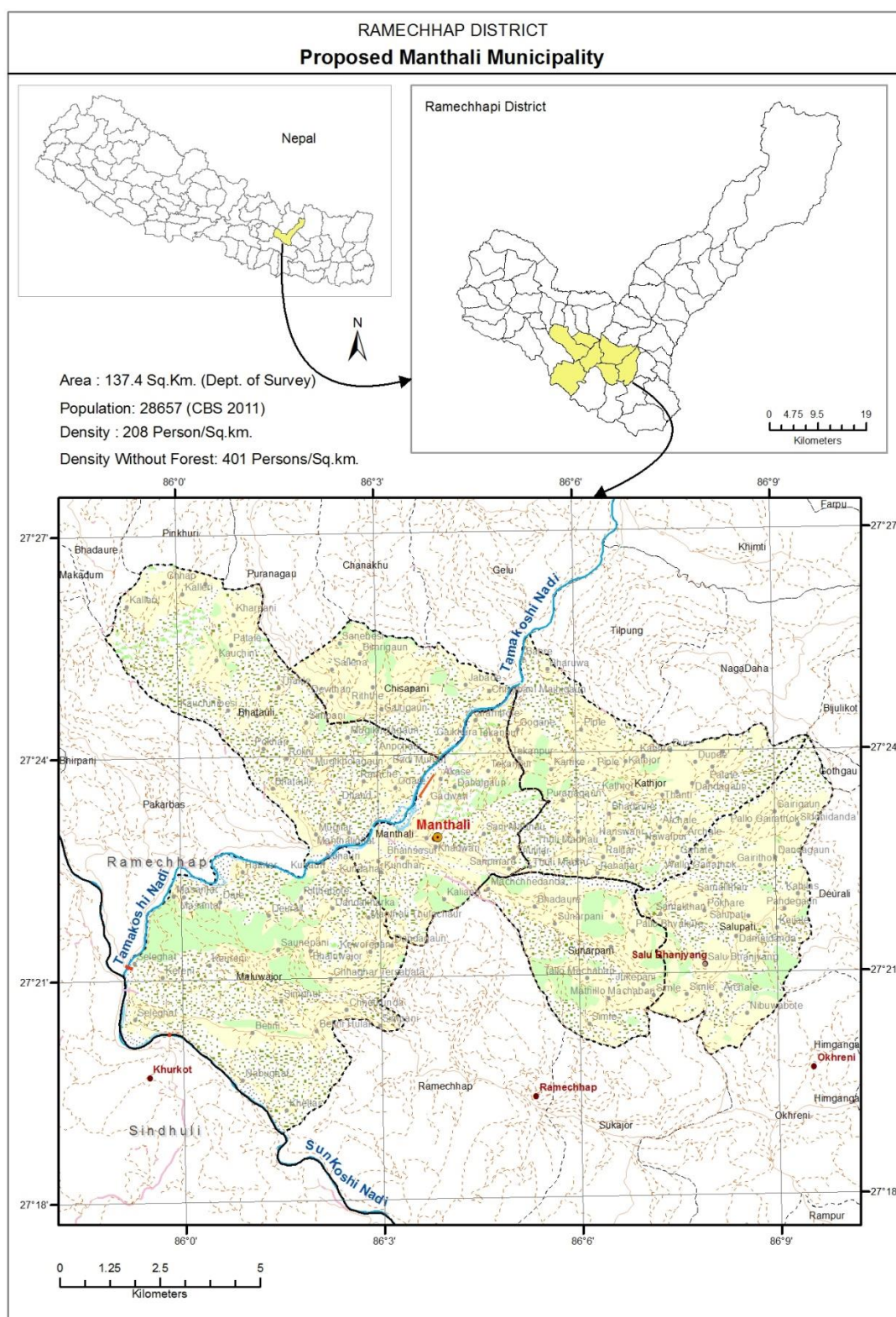


Figure 1.1 Study Area Map

1.4 Limitation

This transport master plan is limited within the territory of the Municipality. Since the data collected for the planning were based on the information provided by the villagers in the ward levels, and information provided by them is a significant part of the report. Although Enumerators have attempted their best to reach all the roads for the necessary data, there are chances of missing the data of some extent. Misnaming of the road may occur due to the pronunciation error or hearing problem by the respondent as well as enumerators. Chances of error may occur during data entry and tabulation. The scale used to work on GIS is also likely to generate some errors. Besides these, Lack of Comprehensive Town Development Plan, Proper Land Use Policy and Drainage Network Master Plan, which could have affected the future overall development pattern and hence future development of these policies, need to be based on the proposed MTMP. Bottom - Up Participatory approach along with lack of proper financial policy for land acquisition leads some difficulty in MTMP planning process.

1.5 Organization of report

Chapter 1 presents the concept and context of MTMP and lists out the objectives, scope and limitations of the same.

Chapter 2 deals with the methodology adopted while data collection and data analysis process **Chapter 3** covers the existing situation ,scenario and basic profile of the municipality, which includes the socioeconomic and household characteristics with road services and facilities within the locality. It also covers how these factors are contributing in the development.

Chapter 4 deals with Indicative Development Potential of the municipality. **Chapter 5** discusses about formulation of road hierarchy along with detail of various classes of roads.

Chapter 6 deals with Prioritization criteria and prioritized road network.

Chapter 7 is dedicated to the five year (short term) Municipal Transport Master Plan (MTMP). It gives the comprehensive strategic framework, perspective plan of the municipal roads, budget expenditure, financial institution, capital investment plan and the staging implementation plan.

Chapter 8 summarizes the report and gives necessary recommendations.

CHAPTER TWO: METHODOLOGY

Municipal roads are supposed to provide both access and mobility to all possible and potential areas. MTMP will prepare the plan of such roads to fulfill the stated objective. Better planning is incomplete without relevant quality data which can only be acquired by use of properly selected survey methods. This section gives the methodological framework adopted for data collection including survey methods conducted, sampling techniques, quality and quantity of data along with data processing, analysis and presentation methodology. Both primary and secondary data are collected based on participatory bottom-up approach.

2.1. General approach

The Consultant has gone through the objective and ToR for Consultancy Services for preparation of the Municipality Transport Master Plan (MTMP). The ToR was itself sufficient for the execution of the work.

Integrated Rural Accessibility Planning (IRAP) is an integrated approach to solving problems by combining transport as well as non-transport interventions. It is participatory and bottom-up approach. Active involvement of community people and local authorities in every step is essential. The consultant facilitated the community people and local authorities in their needs identification, project prioritization and visionary development planning process.

The accessibility is function of distance and traveling time, frequency of travel, transport infrastructure difficulty factor, physical facilities of Socially Oriented and Responsibility (SOR), and management of SOR provision and viability of service provision. The degree of accessibility problem was assessed in terms of accessibility index of the settlements to concerned SOR sector. Accessibility Indicator is measurement of accessibility.

The required interventions shall identified for improving accessibility of every settlements based on easing and reducing travel time, improving physical facilities for SOR and improving management of SOR provision in an integrated fashion.

2.2. Methodology

The methodology comprises with the Integrated Rural Accessibility Planning (IRAP) tools for the accessibility planning and DoLIDAR's Approach manual for the roads for the preparation of the MTMP with some modification as per Municipality situation and based on the ToR provided by the Municipality and as directed by the project in-charge of the client.

The Consultant's efforts were comprehensively streamlined to meet the objectives of the assignment by covering scope of services outlined in the prescribed Terms of Reference. The consultant has followed the following specific process to accomplish the assignment as specified in the objectives and scopes of work in the TOR.

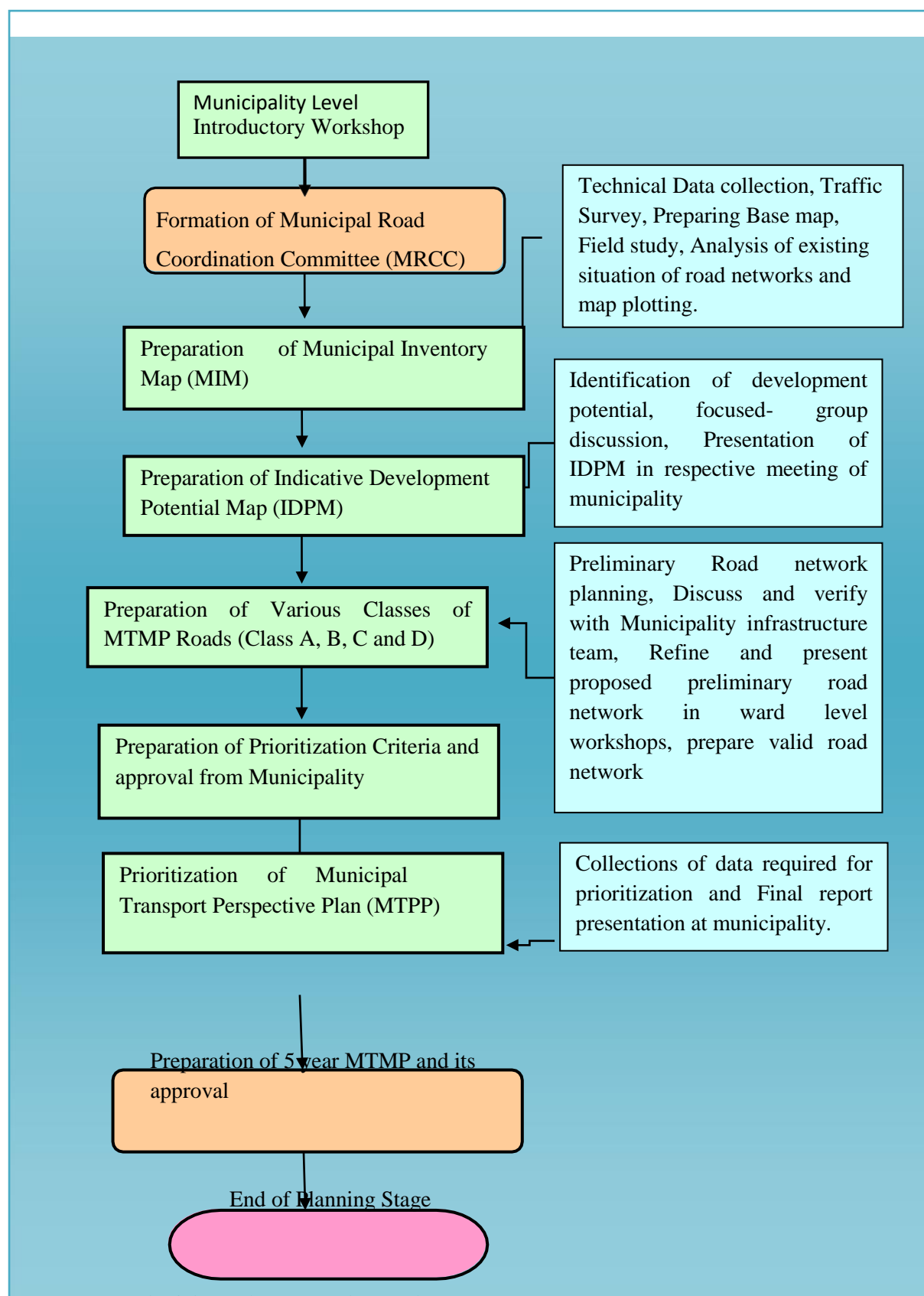


Figure 2.1 Methodological frameworks for planning MTMP

2.3. Desk Study

After signing the contract, the consultant has arranged a meeting of the proposed team and orient towards the objectives and scope of the work along with the working and manning schedules so that all the personnel will work as a team. The consultant has proposed a study team consisting of Transport Planner as a Team Leader, Socio-economist, who is competent and established professionals in their field of work. The study team was mobilized for further study

Task 1: Data Collection

a) Collection and Review of Secondary Information

The information about demographic data of Municipality, maps, service flow pattern, various maps showing service centers or the location of SOR facilities, transport infrastructure inventory, past plans and sectoral study reports, sectoral standards and policy targets were collected from the secondary sources like DoLIDAR, Municipality, line agencies of Municipality, central Bureau of Statistics, Kathmandu, Topographical Survey Branch, Local NGOs. The details are given below:

List of documents/information will be collected and reviewed

- Previous reports of MTMP prepared by the Municipalities (if any)
- MTMP of neighboring Municipality (if available).
- District/Municipality periodic plan prepared by the DDC/Municipality
- Annual reports /publications of line agencies of Municipality
- District/Municipality profile of the DDCY/Municipality
- Traffic data of the Municipality rural roads and strategic roads (if available)
- Annual plan, Programme and Budgetary allocations of last 5 years
- Expenditure in infrastructure development including roads in last 5 years
- Report on settlement pattern and market centers of the Municipality
- Rural road statistics of neighboring Municipalities and strategic road Networks
- Financial and technical data of on-going rural road projects in the Municipalities and schedule including bilateral and multilateral funded projects.
- Demographic Statistics and socio-economic feature of the Municipality
- Other relevant reports

Collection of Maps

- Topo maps the 1:25000 scales, which will be used as base map.
- Municipality administrative map of Municipality
- Arial photographs
- Municipality Trail Map
- Map of strategic road Networks of Nepal
- Other Thematic maps

The main agencies for sources of information are

- District Development Committees (DDC),
- Municipality
- Line agencies/office of the district about road, Municipality Soil Conservation office, Forest, Agriculture Development, Livestock Service, Irrigation, Health, Education, Water Supply and sanitation, cottage industries, Municipality Technical Office, Municipality Chamber of Commerce and Industries office etc.
- National or Municipality Research Organizations,
- Local and national NGO and INGO's working in development fields,
- District /Municipality Chamber of Commerce and Industries office
- National Bureau of Statistics.
- Department of survey
- Other relevant office

The secondary information collected from above mentioned sources has been critically reviewed. The data were verified by and Cross checking of information of various sources and discussion with informants and local community people at unofficial and official meetings, workshops on the process of primary data collection.

The consultant has reviewed the available existing MTMP and assesses the achievements during the last MTMP period.

b) Primary Data collection

The scope of applying IRAP has been defined based on TOR. The relevant SOR sectors have been identified as per purpose of study. Primary information was taken from concerned community people, VDC officials, and schoolteachers about real accessibility situation of settlements in special format developed for this purpose.

c) Municipality IRAP and MTMP Orientation

One-day orientation program has been carried out in the Municipality for the IRAP and MTMP preparation. The participants were Municipality body, ex-Municipality body, line agencies, stakeholders, and representatives of national political parties and representatives from women, Dalit, local NGO. The field visit of enumerators has been arranged to:

- Verify the secondary data in the field.

Collect data of access situation of every settlement in prescribed format

Task 2 Analysis of Data

The input data has been properly stored in the Excel sheets and used as per necessity and requirements. Microsoft Excel and GIS software were used to analyze and manage the data. The analysis rendered the available data into valuable information. Data analysis involved calculation of different attributes for different clusters and for the project area. It includes basis analysis of average values such as average time to nearest bus stop, access to nearest all-weather road, percentage of respondents using specific type of vehicle for daily commute, etc., forecasting the population and demand for transport infrastructures and furniture developing land use and transport models

Task 3 Formulation of Municipal Roads Coordination Committee

The consultants assisted the municipality in the formulation of the Municipality Roads Coordination Committee (MRCC). The committee is to provide support to the municipality in formulating, managing and monitoring municipality road, transport infrastructure policies, rules and regulations.

Task 4 Indicative Development Potential Map (IDPM) preparation

The development potential of the Municipality in agriculture, horticulture, livestock, cottage and small industries, other potentiality of the Municipality has been compiled and prepared on the base map 1:25000 scale.

a) Municipality base map has been prepared showing:

- Administrative/political boundaries of Municipality/Ward.
- Large settlement
- National strategic roads, Municipality roads, rural roads, trails, bridges.
- Important historical, cultural, religious and preserved places
- Important water bodies, forest and other lands.

b) The Consultant has analyzed the potentiality of the Municipality from secondary information collected from Municipality line agencies. The development potential area has been defined as:

- Areas with extensive agriculture,
- Areas with extensive horticulture,
- Areas with extensive Livestock farming,
- Areas with extensive fisheries,
- Areas with extensive high value cash crops,
- Areas with extensive business markets,
- Potential Areas with tourism development,
- Potential Areas with development of large industries like hydropower, mining develop,
- Potential service centre
- And other potential development areas

c) Plotting of the development potential areas on the Municipality base map has been done and the finalized map was prepared on GIS.

Task 5 Preparation of MIM

The consultant has plot the trail, bridge and road network of the Municipality in 1:25000 and GIS maps from Municipality level secondary sources. The consultant then carry out reconnaissance survey in the trails, bridges and roads with the help of checklist and update the map. The consultant has also prepared indicative cost estimates of improvements (Routine maintenance, recurrent maintenance & upgrading) and new construction of representative trails, bridges and road in the Municipality. The consultant has prepared a support document of MIM and validates the MIM and the document in MRCC.MIM has been prepared with reference to Annex (Reference to Annex 3). The economic data was collect by conducting PRA.

The consultant has prepared list of all existing transport linkage under the category of routing maintenance, recurrent maintenance, periodic maintenance and upgrading. These lists have been prepared separately for various classes of roads. The consultant then prepared indicative cost estimate for improvement.

On the basis of linkage inventory and condition of the linkage, easy linkage has been subdivided into maximum four types of section i.e.

- Section requiring routine maintenance
- Section requiring periodic maintenance
- Section requiring rehabilitation
- Unordered section (new construction)

All roads have been plotted under separate legends category by intervention type in MIM. List of roads having graveled road streetcars has been prepared separately. Information regarding inter Municipality road /trails also be included and used drawing planning process.

Task 6 Perspective Plan

The required of interventions of services and facilities has been identified from the accessibility analysis and compilation of ward level workshops. During the final Municipality level workshop, the Municipality standard of time and quality accessibility for every service and facilities has been decided. The required intervention of every services and facilities has been identified and finalized on workshop on the basis of accessibility indicator. The Prioritized sector of services and prioritization of wards for every sector was done at Municipality level based on AI.

In transportation sector, list of roads, bridges and required interventions for respective roads and bridges has been identified to improve accessibility to goods and services within the Municipality. The perspective plan of Municipality road has been prepared for 20-25 years. All the identified interventions screened and graded on the basis of criteria 'B' of the approach manual. The interventions of services and facilities for the improvement of the access situation was discussed first with the Municipality technical team and the MRCC, and only upon their recommendation it was forwarded to Municipality Council meetings, hence the final perspective plan of Municipality roads has been developed. The perspective plan has been shown in GIS maps also.

Task 7 MTMP Preparation

Considering the Perspective Plan, the prioritization of the Perspective Plan has been done according to the DoLIDAR Approach Manual. Subsequently, the updated five year MTMP of the Municipality was prepared by selecting interventions (maintenance, upgrading and new construction of main trails, trail bridges and roads) that have top priority in the Perspective Plan and that could be implemented in the next five years period, based on cost estimates of maintenance, upgrading, rehabilitation and new construction of main trails, trail bridges and roads and available financial resources.

1.4.4 Process and Activities in detail:

The Consultant has listed out all transport linkages given in the Perspective Plan, under the following categories;

- a. New construction
 - b. Upgrading
 - c. Rehabilitation
 - d. Recurrent maintenance
 - e. Periodic maintenance
- These lists have been prepared separately for various classes (Municipality Road, Village Road, Main Trail, and Village Trail).
 - On the basis of Criteria (for prioritization), the consultant has ranked all the above projects
 - The financial resources of Municipality on road sector has been analyzed first
 - The Consultant has prepared next Five Year's Projected Financial Plan by accounting all possible financial resources of Municipality and concerned wards and VDCs.
 - The consultant has prepared Five Year Financial Plan of the Municipality based on likely availability of financial resources in next five year. (All consolidated financial resource has been projected based on the past 3- 5 years data.
 - The Consultant will determine the tentative lengths that could be under taken by each year, in each category and under each class. These lengths shall be documented and presented.
 - The Consultant has prepared all ranked lists of transport linkages to the Municipality development Committee for the selection of year - wise priority lists which should be implemented in the first, second and fifth year.
 - All ranked lists of transport linkages; the Consultant has selected the year-wise priority lists to be included in the "*Five Year Master Plan*".
 - Based on the approved year-wise priority lists, the Consultant has prepared Five Year Municipal Road Master Plan.

- Synchronizing of the Draft Perspective Plans with adjoining Municipality was done
- The Final Report of MTMP was presented on Municipality and MRCC in a workshop. Incorporating the suggestions and recommendations from the Municipality and MRCC, the final report has been prepared. Subsequently, the Municipality will present the final MTMP report to the Municipality council for formal approval

2.4 Organization of Workshop

Following workshop was organized

1) Municipality IRAP and MTMP Orientation

One day orientation program was carried out in the Municipality for the IRAP and MTMP preparation. The participants were Municipality body, ex- Municipality body, line agencies, stakeholders, representatives of national political parties and representatives from women, Dalit, local NGO.

2) IRAP Data collection training

One day orientation training for enumerators was organized for them about efficient data collection using IRAP tools at the consultant's office.

3) Ward/ VDC/cluster level workshop

The consultant has organized ward/ cluster level workshop in each ward in which ward secretaries, representatives of political parties, women, NGO's, disadvantaged peoples representations, davits, traders, industries were presented. The workshop primarily focused on following aspects.

- Access situation within the area
- Validation of accessibility data
- Identification of interventions of every services and facilities.
- Access situation within the area
- Assess the local prioritization

4) Final workshop at Municipality level

The final validation workshop at Municipality level will be organized at Municipality. The workshop will primarily focus on following aspects:

- Verification and update of secondary information and data's
- Finalizing IDPM, MIM, Accessibility profiles.
- Standardize accessibility indicator.
- Finalization of intervention required and prioritized at Municipality level.
- Identifying new viable transportation linkages and standard.
- Problem identification in the rural transport linkage and required intervention on this.
- Identifying required intervention (i.e. routine maintenance, periodic maintenance, rehabilitation and upgrading length) for each transportation linkages and bridges.
- Responsibility of ward and Municipality regarding maintenance, rehabilitation and upgrading works.
- Financial recourse mobilization for the achievement of the set target.

CHAPTER THREE: MUNICIPALITY PROFILE

The chapter deals with the present condition and scenario of the municipality Socioeconomic, trip, land use and road network characteristics within the municipality. The basic data source of the analysis is the collected primary data.

3.1 Background

Manthali is a Municipality, which is located in Ramechhap district, Province No. 3 of Nepal. Manthali has total 14 wards, which are scattered across 212 square kilometers of geographical area. According to 2011 Census conducted by Central Bureau of Statistics (CBS), Manthali Municipality had total population of 45,416.

Manthali Municipality had total 45,416 populations with 20,750 males and 24,666 females. Out of total wards, ward number 1 had the largest population 6,265, while ward number 5 had least number of populations with 6,265.

With respect to number of households, Manthali Municipality had total 10,099 households. The ward number 1 had most households with total 1,720, while ward number 10 had least number of households with total 476 number of households.

3.2 Geographic Location

Latitude	27°16'30" - 27°26'42" N
Longitude	85°59'42" - 86°12'24" E

Relative Location

East	Ramechhap Municipality, Likhu Rural Municipality & Dolakha District
West	Khandadevi, Doramba Rural Municipality & Sindhuli District
North	Dolakha District
South	Ramechhap Municipality & Sindhuli District

3.3 Wardwise Population and Households

As per 2011 population census, Manthali Municipality had total 45,416 population with 20,750 males and 24,666 females. Out of total wards, ward number 1 had the largest population 6,265, while ward number 5 had least number of population with 6,265.

With respect to number of households, Manthali Municipality had total 10,099 households. The ward number 1 had most households with total 1,720, while ward number 10 had least number of households with total 476 number of households.

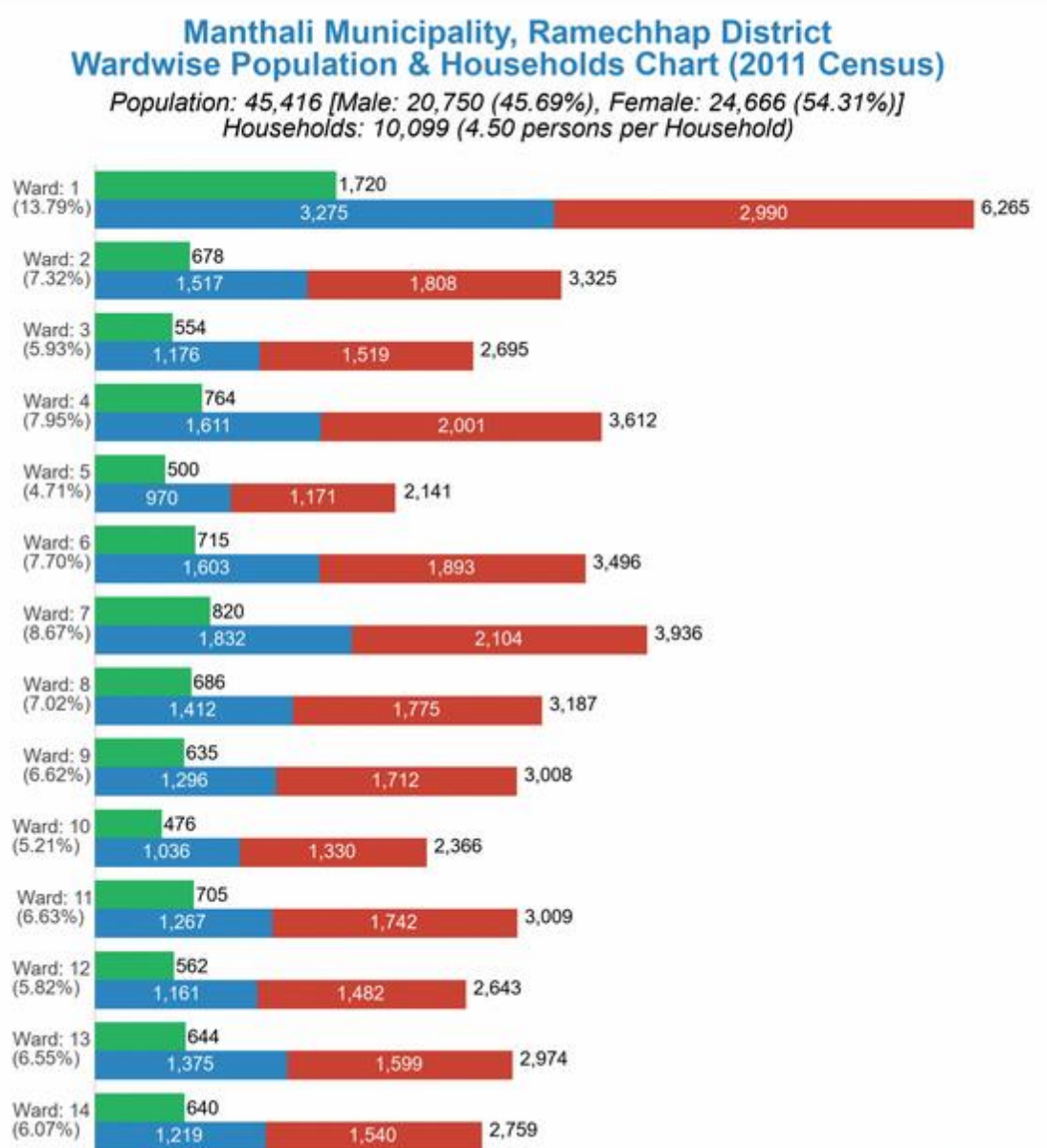


Table 3.1 Ward wise population and households

As illustrated in the chart, the ratio of male to female population was 0.84, which indicates that Manthali Municipality had 16 percent lower males as compared to the females. Same as, the population to household ratio was 4.50, this means that in average 4.50 family members lived in each household.

Ward no.	Population		Total	Number of HHs	HHs size
	Male	Female			
1	3275	2990	6265	1720	3.64
2	1517	1808	3325	678	4.90
3	1176	1519	2695	554	4.86
4	1611	2001	3612	764	4.73
5	970	1171	2141	500	4.28
6	1603	1893	3496	715	4.89

Ward no.	Population		Total	Number of HHs	HHs size
7	1832	2104	3936	820	4.80
8	1412	1775	3187	686	4.65
9	1296	1712	3008	635	4.74
10	1036	1330	2366	476	4.97
11	1267	1742	3009	705	4.27
12	1161	1482	2643	562	4.70
13	1375	1599	2974	644	4.62
14	1219	1540	2759	640	4.31
Total	20750	24666	45416	10099	

Based on Table 3.1, we can clearly see population density lies in the range of just 30 persons per sq.km. to 750 person per sq.km. Less population density is witnessed in Ward 6 having area of 80.4 sq.km, whereas highest population density is witnessed in the ward 1 covering area of just 12.05 sq.km with population of 6265.

3.3.1. Absentee Population

As of 2011, 1,717 population in Manthali Municipality were absent from their households, which equals to 3.78 percent of the total population. Absence of males was 1,519, which equals to 7.32 percent of total 20,750 males. Same as, 198 females were absent, this equals to 0.80 percent of 24,666 females. At least one member of 1,299 (12.86 percent) households was absent. The number of households and population wise data has been represented in the as shown below.

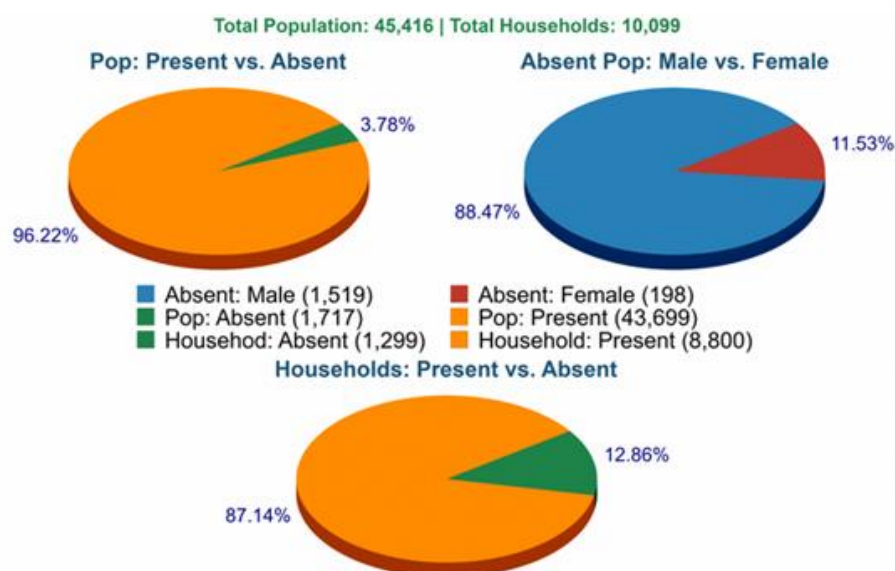


Figure 3. 1 Absentee population

As illustrated in the charts, the ratio of absentee population was 25.45, while male to female absentee population ratio was 7.67. Same as, the household ratio of present vs. absent population was 6.77.

3.3.2. Population by Age Group

In terms of age, the largest population in Manthali Municipality were between 10 and 14 years of age with total 6,804. Gender wise, there were 3,361 males and 3,443 females of the same age group. The least populated age group was between 70 and 74 with total 975 population, which consists of 438 males and 537 females. Top 5 most populated age groups were between 10 and 14 (6,804), between 15 and 19 (5,779), between 5 and 9 (5,048), below 4 (3,536), between 20 and 24 (3,518) with total population of 24,685. In contrast, bottom 5 least populated age groups were between 70 and 74 (975), between 65 and 69 (1,171), above 75 (1,367), between 55 and 59 (1,547), and between 60 and 64 (1,574) with total population of 6,634. The median age-group of total population falls between 35 and 39 and between 30 and 34 with average population of 2,356.

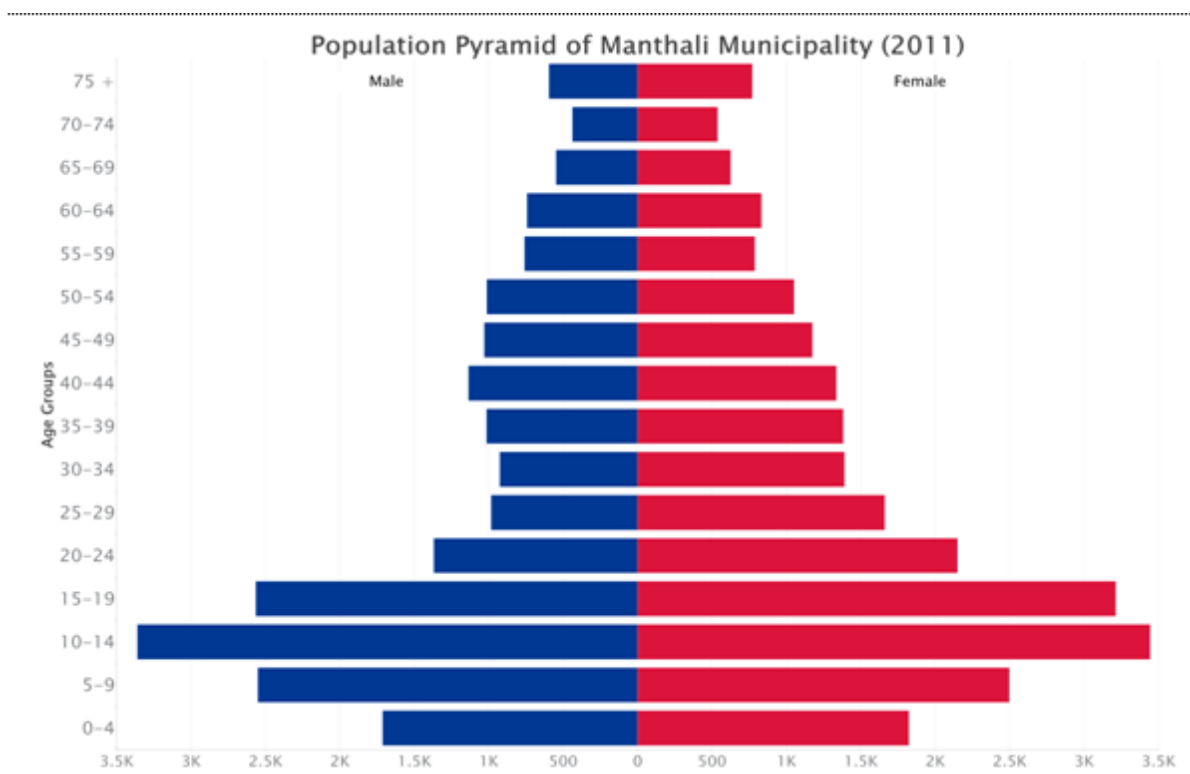


Figure 3.2 Age wise population distribution

Gender wise, top 5 most age groups male population were between 10 and 14 (3,361), between 15 and 19 (2,566), between 5 and 9 (2,551), below 4 (1,714), and between 20 and 24 (1,369), with total population of 11,561. In contrast, bottom 5 least age group male population were between 70 and 74 (438), between 65 and 69 (547), above 75 (596), between 60 and 64 (742), and between 55 and 59 (760), with total population of 3,083. With regards to female population, top 5 age groups females were between 10 and 14 (3,443), between 15 and 19 (3,213), between 5 and 9 (2,497), between 20 and 24 (2,149), and below 4 (1,822), with total population of 13,124. In contrast, bottom 5 least age group male population were between 70 and 74 (537), between 65 and 69 (624), above 75 (771), between 55 and 59 (787), and between 60 and 64 (832), with total population of 3,551.

The population with age-group 5 to 9 had male to female ratio of 1.02, which states that this age group had maximum males as compared to females. Similarly, age-group 25 to 29 had most female population as compared to male population with male to female ratio of 0.59. The age-groups 5 to 9 had majority of male population while age-groups 10 to 14, 50 to 54, 55 to 59, below 4, 60 to 64, 45 to 49, 65 to 69, 40 to 44, 70 to 74, 15 to 19, above 75, 35 to 39, 30 to 34, 20 to 24, 25 to 29 had

majority of female population as per male-female ratios. Moreover, age-groups had equivalent or almost equal numbers of male and female population with male-female ratios of 1.

The population pyramid for Manthali Municipality visually illustrates the male vs. female population based on different age groups.

3.3.3 Population Ratios

As illustrated in the pie-chart, overall ratio of male to female population in Manthali Municipality as per 2011 population census was 0.84 with 45.69% (20,750) of males and 54.31% (24,666) of females.

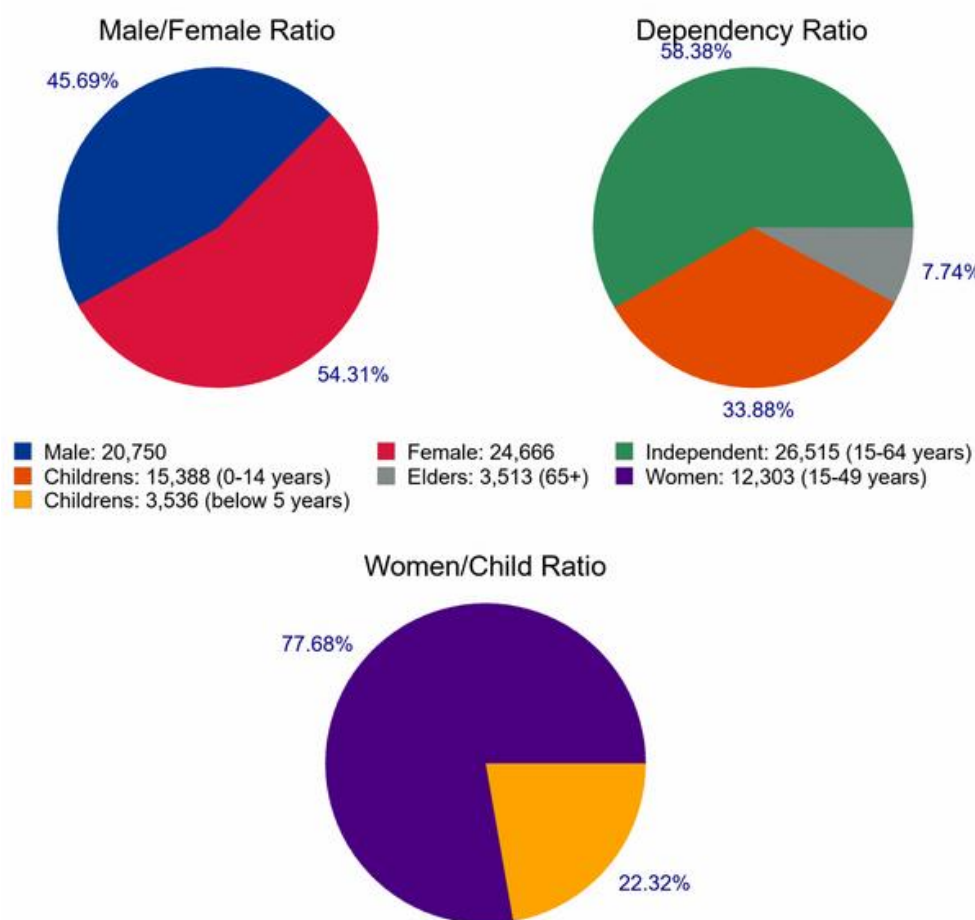


Figure 3.3 Population Ratio

There were 58.38 % (26,515) of independent population, the working age people between ages of 15 and 64 years. The dependent children, ages below 15 years, were 33.88 % with total number of 15,388. The dependent elderly population, aged 65 and above were 7.74 % with total number of 3,513. As such, total dependent population including children and elderly people were 41.62 with total number of 18,901.

There were 12,303 women of child-bearing age-group of 15 to 49 years. Same as, the toddlers or children of 4 years or below were 3,536. The ratio of woman of child-bearing age and the number of toddlers state that, approximately 287 children were born per 1,000 women. This number is also roughly used as fertility levels when direct measures of births are not available.

3.3.4. Literacy, Education Levels & Schooling

There were only 27,008 people fully literate in Manthali Municipality as of 2011 that were able to both read and write, while 1,410 people were able to read but not write. In percentage while compared to gender wise population, there were info percent of male were literate, while the percentage of female literacy was inf only. The literacy ratio between male and female population was nun.

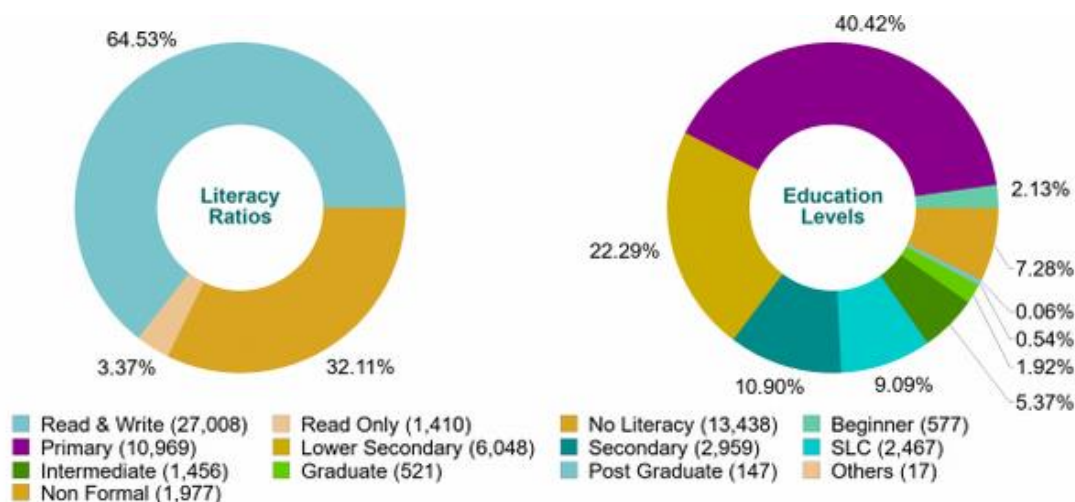


Figure 3.4 Literacy, Education and Schooling

Out of total 14,429 population between the age of 5 and 25 as of 2011 in Manthali Municipality, total 6,986 males and 7,443 females were attending the school. Same as, out of total 4,169 population of the same age group who were not attending the school, total 1,660 male and 2,509 female were not attending the school. The ratio of male and female who were going to school was 0.94 while the ratio for those who were not attending the school was 0.66. The CBS census also states that 234 males and 319 females did not state whether they were attending school or not.

3.3.5. Population by Language Spoken

Mostly spoken language in Manthali is Nepali, which is spoken by 32,621 people. The Manthali has people who speak other languages, such as Tamang, Majhi, Newar, Magar, Hyolmo/Yholmo, Maithili, Sunuwar, Sherpa, Bhojpuri, Hayu/Vayu, Tharu, Gurung, etc.

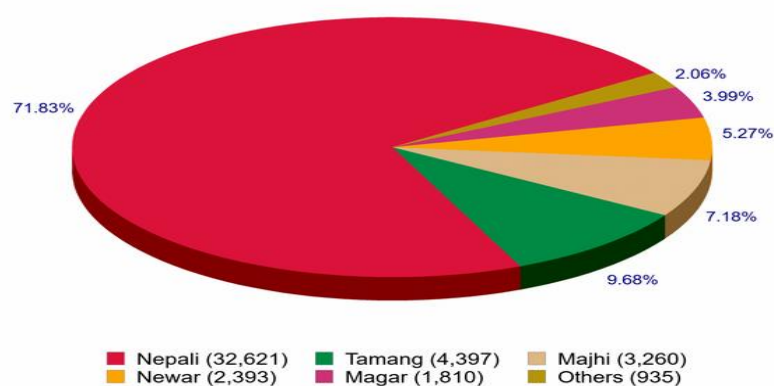


Figure 3.5 population by Language Spoken

Out of total population, 17,718 female speaks Nepali language, while 14,903 male speaks Nepali language.

3.3.6. Population by Castes

According to 2011 census conducted by Central Bureau of Statistics (CBS), Manthali Municipality was inhabited by mostly the people of Chhetri caste with total population of 15,370. There were as little as Rajput caste with population of as little as 11 in total. People of several other castes who live in Manthali are Newar, Tamang, Magar, Majhi, Sarki, Brahmin - Hill, Gharti/Bhujel, Sanyasi/Dashnami, Damai/Dholi, Kami, Hyolmo, Pahari, Dalit Others, Badi, Sunuwar, Yadav, Teli, Tharu, Terai Others, Sherpa, Hayu, Hajam/Thakur, Brahmin - Tarai, Rai, Kathbaniyan, Undefined Others, Muslim, Haluwai, Gurung, Thakuri, Sonar, Kumal, Rajput, etc. Only the population of castes with above 1,000 populations are illustrated.

Note: 'Others' represents the Castes with less than 1% of total population

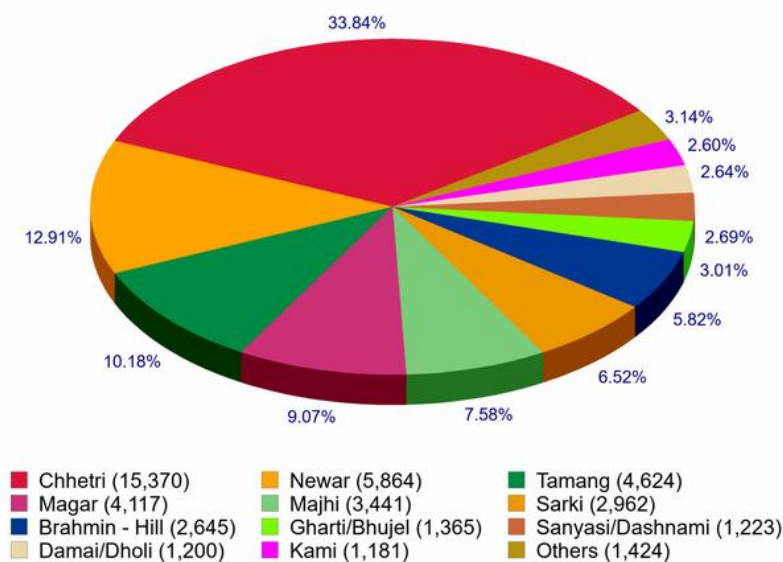


Figure 3.6 Population Based on Disability

Top five castes of people in Manthali Municipality are Chhetri (15,370), Newar (5,864), Tamang (4,624), Magar (4,117) and Majhi (3,441) with total population of 33,416, which forms 73.58 percent out of total population of 45,416 in Manthali Municipality.

3.3.7. Population by Disability

Out of total population of 45,416, there were total 912 (2.01%) disabled persons in Manthali Municipality with 512 (56.14%) males and 400 (43.86%) females. The physically disabled persons were 398, while mentally disabled people were 32 and intellectually disabled were 21.

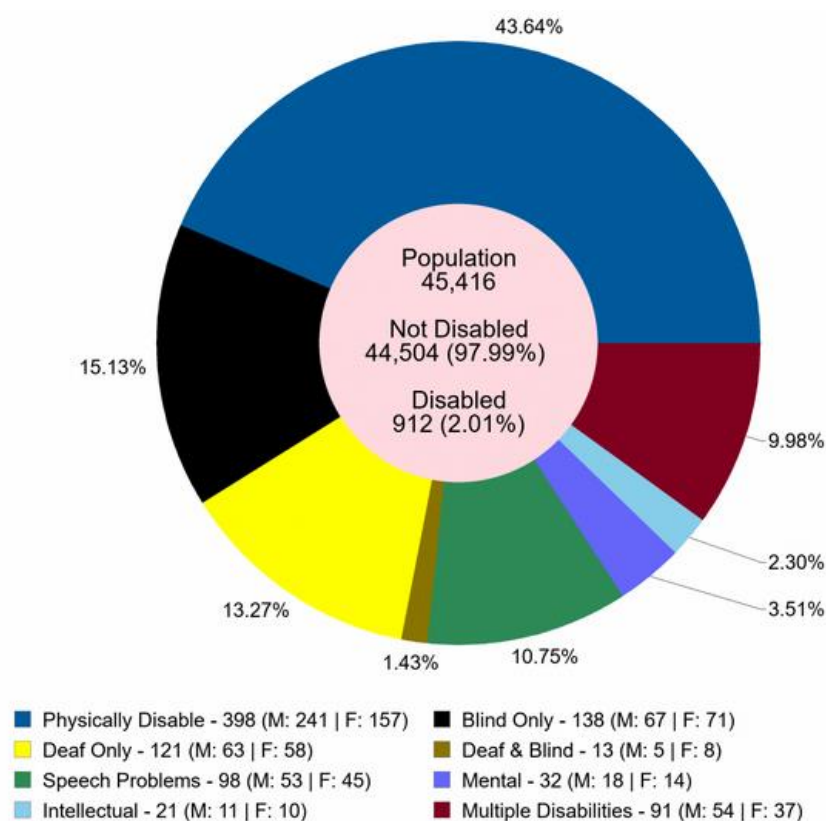


Figure 3.7 Population by disability

Similarly, there were 138 people who were blind and 121 people were deaf, while 13 people were both blind and deaf. Moreover, 98 persons had reported of having speech problems. Total 91 people had multiple disabilities.

The pie-chart above illustrates the better picture of disabled population along with gender wise ratios.

3.3.8 Household Foundation

Out of total 10099 households in Manthali Municipality, there were 9,382 houses that were founded on mud bonded while 306 houses were cement bonded. Same as, 250 households were reported of being founded on RCC pillar, 40houses were founded on wood.

With respect to wall of the houses, 9,039 houses were mud bonded, 819 houses were cement bonded, 30 houses were wood planks bonded, 40 houses were bamboo bonded and 34 houses had unbaked bricks on their outer walls. Rests of the houses were reported of having other types of outer wall,

while some of them reported nothing of having the outer wall bonding.

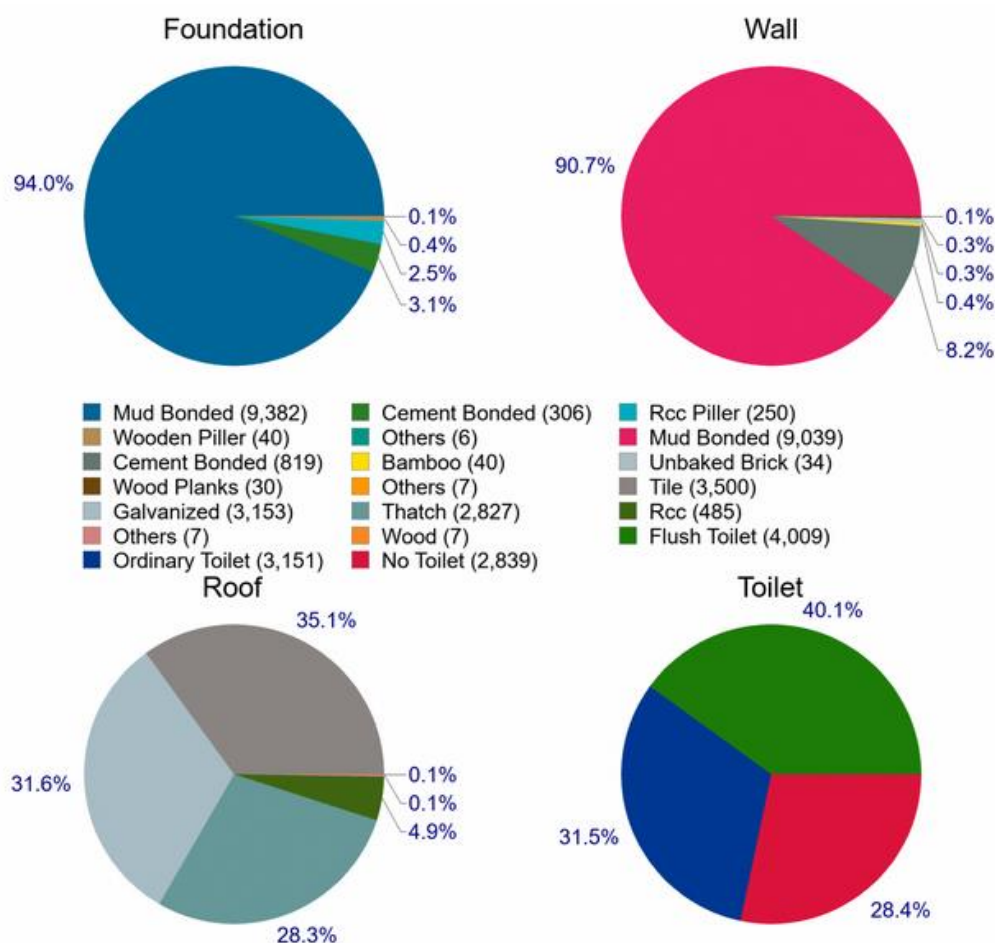


Figure 3.8 Foundation types of House

There were several types of house roofs reported. Total 2,827 houses were reported of having thatch roofs while 3,153 houses had galvanized roofs. Similarly, 3,500 houses had roof of tile, 485 houses had RCC roofs, 7 houses had roof of woods while 0 houses were reported having roof of mud. As per 2011 CBS census, some of the houses had other types of roofs while some didn't report about the roof structure.

With respect to the toilets, 2,839 out of 10,099 houses didn't report of having a private toilet for their households. Nevertheless, 4,009 houses were reported of having flush toilet while 3,151 houses reported having ordinary toilets.

3.3.9 Economic Census

According to 2018 Economic Census, there are total 1,352 establishments in Manthali Municipality that are involved in various economic activities. In those establishments, total 4,772 persons are engaged for the economic activities, as a self-employed or an employee, with total male engagement of 2,832 and female engagement of 1,940 persons. In every business, there were an average of 3.53 people engaged with average males is 2.09 and females are 1.43. The ratios of male to female engagement in the establishments are 1.46, which means as many as 1.46 males are engagements in the economic activities per female.

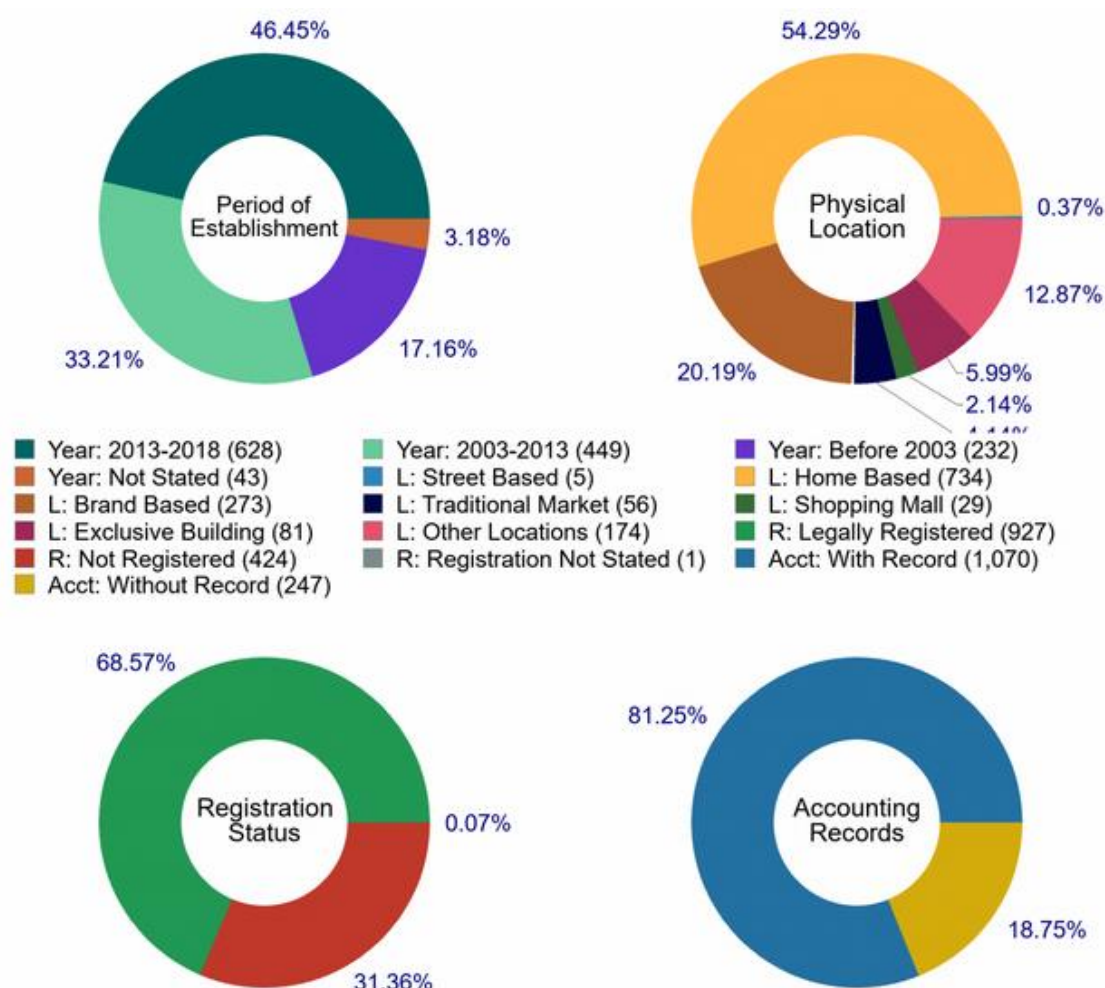


Figure 3.9 Foundation types of House

3.4 Road Inventory

Road network is one the great indicator of development. Various surface types and width of road exists within municipality, which has a great role to play in development of the municipality. Road inventory survey was carried out in the municipality to have proper view of road network. Thus the concept of both Accessibility as well as mobility lies within the same municipality. The road width also varies from 3 meter to even up to 12m roads.

The road inventory carried out has yielded about 360 km including Strategic Road Network under control of DoR, District Core Road Networks which are on intervention or under the control of Provincial Government, and other unclassified road networks which includes Mid-hill Highway as summed on the table below:

Table 3.9 Road Networks within Municipality

S.N .	Road Class	Total Length(Km)	Black Top/Concrete	Gravel/Soling	Earthen	Remarks
1	Strategic Road /Feeder	42.5	26.5	1	15	
2	DRCN (District Road)	141.15	33.518	20.98	86.652	

S.N .	Road Class	Total Length(Km)	Black Top/Concrete	Gravel/Soling	Earthen	Remarks
3	Municipal Road/Urban	360.05	4.96	13.963	341.127	
	Total Length	543.7	64.978	35.943	442.779	

Strategic and DRCN (District) Roads within Municipality

A. Strategic Roads

S. N.	Name of Road	Length (km)	Blacktop/concrete	Gravel/soling	Earthen	Remarks
1	Pushpalal Marg (Devitar- Kathajorkhola- Mnthali-Manthali - Sukajor khola)	11.5	11.5		0	
2	Manthali - Khurkot	15	15		0	
3	Seleghat - Ramechhap - Sanghutar	16	0	1	15	Bhaluwaj or/Salu
	Total Length	42.5	26.5	1	15	

B. DRCN (District) Roads

S. N.	Name of Road	Length (km)	Blacktop/concrete	Gravel/soling	Earthen	Remarks
1	Manthali - Sunarpani Road	9.15	8.85	0.3	0	
2	Manthali - Kathajor Road	18	2.348	1	14.652	
3	Manthali - Bhatauli Road	7	5.5	0.5	1	
4	Devitar - Pokharidanda Road	18	4.32	13.68	0	
5	Manthali - Chisapani - Puranagaon Healthpost - Thanapati Road	18	1	2	15	
6	Sathimure- Kalleri Road	5			5	
7	Manthali - Bhaluwajor Road	12	0.5	1	10.5	
8	Manthali - Raltar - Samalsthan - Salu Road	12	7	0	5	
9	Manthali - Chanakhu - Pokharidanda Road	14		1	13	
10	Salu kukurkate - Bhanjyang Road	5		0.5	4.5	
11	Manthali - Gelu - Sikral Road	18	4	1	13	
12	Bhatauli - Sathimure Road	5			5	
13	Salu- Kathajor Road					
14	Puranagaun- Chanakhu Road					

Ward wise Road

SN	Description	Ward No.
1	Churaute- Fyaure Khola Road	1
2	Madan Chowk- Bhu.Pu. Armi Mathillo Basti- Tamakoshi Kholsa-	1

SN	Description	Ward No.
	Khadabari Road	
3	Machhedadi – Bhaiseshwor- Chandrashekhar Mandir Road	1
4	Chiuripani- Bichatole- Petrol Pump Road	1
5	Aakase – Phuyal Tole Road	1
6	Kumaltar Road	1
7	Katarbot- Nagar Bikas Complex- Tamakoshi Hospital Road	1
8	Bhattatole- Nalami Danda- Dahal Gaun- Karka Road	1
9	Airport- Hatechaur Ring Road	1
10	Bhyakure – Sidhure Khola Road	1
11	Paani Ghat- BP Smriti Bhawan- Bhaiseshwor Road	1
12	Bhotedanda- Pitambar Prasad Ghar Road	2
13	Dandaban- Kola Aanp- Setidevi Danda- Gaira Road	2
14	Balkanya- Damaigaun Road	2
15	Gaiyatar- Bharuwa Road	2
16	Sallaghari Community Forest- Mathillo Bhimsenthan- Kattike Road	2
17	Manthali- Bhadaure- Archale- Dandagau Road	3
18	Bhadaure- Sisnepani – Kolbotedanda Road	3
19	Dwaare Dhunga- RatTar- Kalimati Road	3
20	Gairatole- Sisnepani- Kolbotedanda Road	3
21	Deauralidanda- Kutidanda Road	3
22	Kathajor- Puranagaun Road	3
23	Paunaghar- Dalita Basti- Simbaari Tole Road	3
24	Bhumetar- Bhimsenthan- Saalketole Road	3
25	Bitra- Kuwapani- Dunde Road	3
26	Gairachaur- Chilaunetar- Birta Road	3
27	Thanti- Lampata- Dunde Road	3
28	Lampata Road	3
29	Thado Pakha- Aahaldanda- Pakhatole- Basbote Road	3
30	Deaurali Danda- Basabote- Dhungedanda Road	3
31	Thati- Airambas Road	3
32	Thati- Kaldanda Road	3
33	Salubazzar- Gairathok- Kukurakate Bhanjyang Road	4
34	Ranagaun- Besitole- Gadapani Road	4
35	Talloganu- Chyandanda- Anakaiitole- Golmathan- Parsaldanda- Mahadevsthan- Sukajor Simana Road	5
36	Road	5
37	Okharekhola- Bagaicha – Tallo Sunarpani	5
38	Bhairabi Ma.Bi.- Bhyakure Bagaicha- Ranajor Khola	5
39	Bhairabi Ma.Bi. – Chyandanda- Paharigaun- Machabari- Gufadanda- Mahadevsthan- Tinghari Road	5
40	Petaridanda- Gaikharka- Gadapani- Pari Bhyure- Aaiitabarekhola- Darimbot Road	5
41	Koldanda- Rusepani- Machabari- Jamdardanda- Khaltepani- Sukajor Road	
42	Kirakhor – Bhyure- Kholapari Road	5
43	Selegat- Nabughat Road	6
44	Kunauri- Dandakharka- Kalika Ma.Bi. – Kubhinde- Huklakdanda	6

SN	Description	Ward No.
	Road	
45	Health Post- Nursari Road	6
46	Hattitar Agriculture Road	6
47	Thulachaur- Gairakhola Road	6
48	Deaurali- Masanghat Road	6
49	Kunauri- Dhwaandre Khola Road	6
50	Aakase Pakki Pul- Mugitar- Titribot-Kalleri-Pinkhuli Road	7
51	- Chisapani Road	7
52	Thedikhola-Mugikhola- Simpani- Chisapani- ManthaliGhat Road	7
53	Aasikheta Pokhari- Paharepani- Rameshwor Thakle – Thapadanda Road	7
54	Thaklekhola- Samibot- Patle- Bangesaala Road	7
55	Lampate- Ghatedanda- Manegaira- Pingkhuri Road	7
56	Swaaghanra- Jiro Point- Dadiram tole Road	7
57	Ekle Pipal- Titribot Road	7
58	Salbote- Jyamirebot- Kaaliaanpa – Aanpachaur Road	7
59	Rolini – Salbote- Simpani Road	7
60	Mathillo Aambot- Danda Pokhari- Badimuhan Road	7
61	Dhadekhola- Gopitar- Gaaebote –Rameshowor Road	7
62	Barbote- Waiibatole- Manedanda Road	7
63	Barpipal- Chhatune Road	7
64	Ratamata- Jugepani- Salleni- Indrawati – Kalidevi Road	7
65	Tunibot Khola-Puchharbari- Mahadevsthan Road	7
66	Tunibot- Dumre Road	7
67	Gairaghar- Chautara- Kabase Road	7
68	Dhadakhariya – Kaaliaanpa Road	7
69	Sallepani- Chisapani- Healthpost- Salena Road	8
70	Pipaldanda- chiuripani Road	8
71	Jawade- Chuhantar- Sanibesi Road	8
72	Ruiidase- Bahunchura- Sailung Road	9
73	Sanankhel- Ward office 9- Bahunchura Pokhari Road	9
74	Maanedanda- Ruiidas Road	9
75	Mathillo Chhapkhani- Barbot- Tallo Chhapkhani- Sikral road	9
76	Salleni- Khanigaun- Thanapati-School Danda Road	9
77	Basnedhunga- Jyangkhar- Birauta Road	9
78	Dhapgaira- Sarankhel- Kalikadevi Pra.Bi. Road	9
79	Budilose- Bangesalla- Eklemane- Bahunchura Pokhari Road	9
80	Simle- Jyakhar- Sikaral Road	9
81	Dhansar- Pakhar- Gurje RoadTallo	9
82	Jakhanitar- Dhalepipal- Ward office 10- Pokhari road	10
83	Jakhanitar- Saraswoti Ma.Bi. – Pipaldanda- Ginatol- Salleni Road	10
84	Thumki- ward office 10 Road	10
85	Botechaur- Saunepani- Basabote Road	10
86	Ward office 10- Mukhiyatole- Puchhartole- Kaulekhola Road	10
87	Thulogaira- Padhero- Kerabari Road	10
88	Dhalepipal- Thapagaun Road	10
89	Schoolwari- Khatrigaun- Khaharekhola Road	10
90	- - Achhagaun Road	10
91	Pipaldanda- Rataaahal- Achhagaun – Hattidhunga - Deaurali Road	10

SN	Description	Ward No.
92	Kaphalgaira- Samatole Road	10
93	Kaphle Bhanjyangdhad- Simle Dandagaun- Bhyangle Road	10
94	Pokharidanda- Aaryaghat Road	10
95	Deaurali- Basapani- Gitedanda- Lokangahero- Jackade- Bapharkhola Road	10 (New Track)
96	Pachharpuda- Okharen khola- Bhaunchura Road	10 (New Track)
97	Bhattar- Maakhlo Road	11
98	Pipalbot –Khamare- Barbote- Dhuseni Ban- Panthali Road	11
99	Laharebar- Kaaule Bhanjyang- Jalkini Road	11
100	Mukhiyatole- Pasupati – Petasi- Khulaltole- Pitle Road	11
101	Paatlekhola- Nagpokhari- Bhimsenthan- Bhimar Road	11
102	Petasi- Dalita Basti Road	11
103	Dhankhoriya- Khairani Road	11
104	Singarebote- Tarbari Road	11
105	School Danda- Aambas- Ghurpangkhola Road	12
106	Sikral- Belbote Road	12
107	Simalbote- Deaurali- Ratedanda Road	12
108	Similbote- Tinpokhare- Oallo Deaurali Road	12
109	Bhulbhule - School Road	12
110	Bungdal- Sikarkateri Road	12
111	Paleban- Community Building Road	12
112	Aambasbesi- Bhandare Road	12
113	Simalbote- Khandadevi Road	12
114	Pasubali- Bhandare Road	12
115	School Danda – Batase- Bhorle Road	12
117	Bungdal- Dumre- Dhusune Road	12
118	Chyanegaira- Narbari- Dhodeni- Aaimantar- Bagarbesi - Jiro kilo - Sikril – Sawadanda Road	13
119	Lakuri Danda- Harre Road	13
120	Sadi- Dhamichaur- Bhusaltale Road	13
121	Devitar- Barre- Kisinde Road	13
122	Aale Gaira- Aayaldanda Road	13
123	Khamare- Aanpa- Gairi- Bagarbesi Road	13
124	Dharapani- Sisneri Road	13
125	Bagarbesi- Aambote- Nayatar Road	13
126	Sadigaira- Bhujel Tole Road	13
127	Phulasi- Jhagadedanda- Karjan- Niure- Milti Road	14
128	Chauki School- Roktaali- Biruwa- Aophara Road	14
129	Pokhari – Manedanda- Chhapali Road	14
130	Pokhari- Biruli – MiltiKhola Road	14
131	Chinne – Rotali- Biruwa- Mandalu- Odare – Saje Road	14
112	Phulasi- Karanjang- Samundra- Biruli Road	14
113	Okharbot- Ramitedhunga- Paiyakhola- Okhal Road	14
114	Ekmane – Painya Leka Road	14
115	Khokarkhola- Labsi- Bhitnagi Road	14
116	Karkale- Khokarkhola- Birali- Khadkagaun Road	14
117	Biruli- Ward office 14 Road	14
118	Phulasi- Pakhrin Tole Road	14

(*as per the DTMP report prepared by DoLIDAR and approved by Ramechhap DDC, there are sixteen DRCN with total length of 141 km passing through Manthali Municipality with RoW 14m. After the discussion with Municipal Road Coordination Committee and other stake holders, road networks which are under the intervention of Provincial Government only will be considered as DRCN)

Different wards have different road network; some has high road network within small area whereas some has low network in large area. Road density is the major parameter that used to reflect the development of road within the considered area. Higher value of which, represent higher level of settlement or high development. Thus Road density is usually defined in two perspectives, first length of road per square kilometer area and second as length of road per 1000 population.

Based on the data, it is found that the road density per area was within the range of 2.71 km to 7.36km per square km of the area. Similarly in terms of population, its value lies between 1.70 km/1000 population to 15.10 km/1000 population

3.5 Ward Demand

Demand form was asked to be filled up by each ward for the priority of road demanded. They were asked to rank top five roads in their wards or vicinity so as to ensure betterment of the ward. Most of the roads were demanded for periodic maintenance and upgrading as summarized in table below and form of maps in ANNEX A.

Table 3. 10: Ward specific prioritized roads

Wardwise Municipal Road Inventory

S. N.	Ward No.	Road length In Km.	Black top/concrete	Gravel	Earthen	Remarks
1	1	14.5	4.76	0.8	8.94	
2	2	25		1.5	23.5	
3	3	24.5		1	23.5	
4	4	29.5		0.5	29	
5	5	21.5		0.15	21.35	
6	6	28	0.05	0.3	27.65	
7	7	37.3		0.2	37.1	
8	8	22.2		0.935	21.265	
9	9	17		0.805	16.195	
10	10	12.8	0.05	0.6	12.15	
11	11	32.2	0.1	1.772	30.328	
12	12	35.6		2.114	33.486	
13	13	31.65		2.022	29.628	
14	14	28.3		1.265	27.035	
Total Length		360.05	4.96	13.963	341.127	

3.6 Land Use Pattern

Land use pattern affect transportation planning to large extent. Future development of the locality is largely dependent on the present land use pattern and possibility of development. The land use distribution of Manthali Municipality shows that it is mostly covered forest area with about 60.21% of the total area of municipality and followed by cultivation land covering about 19.69% of the total area of the Municipality. Though, small stream seems to passing across the different wards, due to less significant area, the proportion of water bodies is quite negligible within the municipality. This is shown as below in the form of table as well as shown in the form of Map as in ANNEX A.

Table 3. 14: Land use status within the municipality by ward (Sq.Km.)

Ward No.	Cultivated land	Forest	Shrub	Grass land	Barren land	Sand	Water bodies	Air-port	Total area	Percent
1	3.4	0.9	2.9	0.0	0.0	0.6	0.1		7.9	3.74
2	3.0	0.5	1.0	1.5	0.1	0.4	0.2	0.04	6.7	3.14
3	12.0	1.1	9.8	0.0		0.2	0.1		23.1	10.91
4	11.3	1.6	6.4	0.1		0.5			19.9	9.39
5	6.5	2.6	3.1	0.0		0.8			12.9	6.09
6	9.9	5.2	14.6	0.1	0.0	1.1	0.6		31.6	14.89
7	9.3	0.5	13.0	1.6	0.0	0.9	0.2		25.5	12.00
8	6.3	0.9	2.6			0.2	0.1		10.1	4.74
9	8.4	1.8	1.2	0.4		0.0			11.7	5.52
10	8.6	0.0	4.3	0.2		0.1			13.2	6.23
11	9.9	0.4	7.7	0.1		0.2	0.1		18.4	8.68
12	5.1	1.5	1.1	0.2		0.1	0.0		7.9	3.71
13	6.9	4.3	0.4	0.0		0.1	0.0		11.8	5.54
14	8.5	1.5	0.7	0.7		0.1			11.5	5.43
Area	108.9	22.7	68.7	4.9	0.2	5.4	1.5	0.04	212.3	100.00
Area %	51.31	10.71	32.35	2.30	0.08	2.52	0.00	0.02	0.71	

Source: Periodic Development Plan, Manthali

3.7 Road Safety Status

Road accident is one of the critical issue in Nepal and especially on Urban areas/ Cities, they are the scene most critical issue. They are not addressed properly. Significant traffic and pedestrian volume, improper and inadequately maintained road condition, lack of traffic control measures are further accelerating the road safety status within the municipality. There is not any provision of separate footpath for pedestrian within the municipality and hence, pedestrian is forced to share the same road space with other vehicle. Sharp curves and gradient exists within the roads and they need to be maintained.

CHAPTER 4 : VISIONARY CITY DEVELOPMENT PLAN

The development of the municipality is basically depended on the features of the individual wards and the vision of the municipality. This chapter basically covers the indicative development potential and visionary city development plan of the municipality.

4.1 Indicative Development Potential

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 yield agricultural area and tourism. Thus, IDP shows high value cash crops, tourism area, and area of service centers such as hospital, post office, telecommunication, school, campus, bus parks, security offices and large settlements, important historic and religious places.

Manthali, located in Ramechhap district has got the historical, cultural, religious, economic as well as political significance. Manthali was developed pre-historically from the ancient times for the human settlements, trade and other more. Previously, the number of people was less; so does the task to manage the services for them too, but as the span of time and number of population this place trends to be in increasing pattern which could ultimately lead to the verse of facing unmanaged urbanization. So a distinct vision of long term development vision is the present necessity of this municipality.

Vision Setting

Planning of any city is based on the analysis of present situational trend, past historic event and future prospective goal to reach. As part of planning process, vision setting executes the participatory approach of setting out inspirational destination of city. This becomes true for any cities, towns or country. But to the newly formed municipalities like Manthali Municipality, setting out the vision of the municipality at its initial phase of formation of municipality is itself an important opportunity to direct municipal goals, plans, and programmes which will direct whole municipal activities towards the focused direction of setting vision. All development activities that would be carried out in the future would be and should be in line with the set municipal vision. As an aspiring city, the newly formed municipality like Manthali Municipality has diverse prospects and sectors of development that would drive its future growth but identifying some lead sectors and potential development opportunity of the municipality based on its own strength and individuality would make municipality grow better and prosper.

As the Planner, we've taken this task as the preparation of long term strategic vision planning, which will basically form the structural guide for the development of the town. It is expected that long term vision set during the project will be considered as the basic development strategy for next 20-30 years' development plan. Major strategic roads, width of road, size of development blocks and land use plan for major lots; are some of the basics that will define as projects future. Some of the leads sectors are identified with the local participation and with the planning workshop carried out in different stages of time.

Lead Sector Identification

From the analysis of different opportunities and possible threats, we have concluded the lead sectors for Manthali Municipality as:

1. Agriculture
2. Commercialization of Herbs

Vision Setting Workshop

One of the major objectives of the Induction workshop held on Manthali, was also to carry out vision setting exercise along with objective to brief the civil representatives and the key persons of the Manthali Municipality about the initiation of the integrated urban development plan in their respective municipalities.

The major participants were:

1. Mayor of Municipality
2. Deputy mayor
3. Chief administrative officer of the Municipality
4. Section chiefs of the municipality office
5. Political representatives
6. Ward chief of the municipal ward
7. Representatives from various social, community and economic organizations

The participants were shortly briefed about the importance of vision setting and why it is needed for any municipality in terms of its holistic development exercise of vision setting was done after completion of SWOT analysis section, hence participants were well informed about the potential strength, weakness of their municipality and has analyzed the opportunity and threat of their municipality. So with those identified sectors in their backdrops participants were asked to write the aspiring vision of their municipality as part of where and how they wish to see their municipality in next 10/15 or 20 years' time.

Furthermore, the ward level FGDs and discussion with key informants additionally clarifies the potential development prospects of the municipality along with the different GIS mapping studies and trend developments of the municipalities for last 10/20 years. With the further discussions and analysis on different perspectives at ward levels, the final statement for long term visions is selected.

Long Term Vision

”शिक्षित, स्वस्थ, व्यावसायिक शहर: उत्थानशिल र समृद्ध मन्थली नगर”

With the above selected vision, it truly clarifies the people of Manthali are confident that their municipality will only prosper through proper and strategic development plans oriented towards Agriculture, Commerce, Alternative Energy and Infrastructures.

Manthali Municipality for-sees its municipality to flourish under major sectors i.e. agriculture, health and education, alternative energy, infrastructures, etc. People of Manthali

wishes to visualize their city as beautiful and picturesque, which clearly suggest their intentions of clean and healthy city environment. Though, the word beautiful itself is an abstract terminology and could mean different to different people but to citizen of Manthali, beauty of their city is guided with its cleaner and healthier natural environment.

A city can never prosper with proper and strategic investment on education and health of its citizens. In fact, education and well-being of its citizens are key indicators of development index (HDI) of the city to mark its prosperity. Hence, in order to foresee the prosperous Manthali, the plans and programmes must safeguard wellbeing and education of its citizens.

4.2. List of potential development area

4.2.1. Existing/Potential Area for Cottage and Agro based Industries

There are few small scale agro based industries like Poultry Farming. Agriculture is the major occupation of the local people over here and is in the phase of commercial development. This municipality has potential of development in the area of herbs production. Municipality produces about 123186 quintal of agricultural products out of which 40.65% is rice, 35.87% corn, 13.04% millet and 10.44% wheat. Municipality also produces about 2810 quintal of potato, cauliflower, onion, garlic, etc.

4.3. Service centers and facilities

4.3.1. Health

In Manthali Municipality, health facilities are accessible to almost all local peoples. The health institutions available in this municipality are enlisted follow:

Table 4. 1: List of health services

S.N.	Type	Numbers
1	Health post	
	Primary Health Center	2
	Health Post	9
	Primary Health Post	3
	Urban Health Center	8
	Aaurbed Health Center	1
2	Private Hospital	2
3	Policlinic	3

4.3.2 Educational centers

In this municipality people have easy access to educational centers. This municipality includes 1 campus which are affiliated to Tribhuwan University. These colleges have bachelor's degree in Humanity, Education and Management. There are 22 secondary Schools.

Table 4. 2: List of educational centers

S.N.	Type of educational centers	Numbers
1	Secondary School	22
2	Primary School	50
3	Campus	1

S.N.	Type of educational centers	Numbers
4	Child Development Center	80
5	Community Learning Center	9
6	Technical School	1

4.3.4 Telecommunication

Telephone facilities are available in all part of the municipality. Nepal telecom and Ncell are the major service providers. CDMA and GSM mobile services are available in every wards of the municipality. Internet/ email services are easily available. In addition, internet service is available from CDMA mobiles.

CHAPTER 5: ROAD HIERARCHY DEVELOPMENT

5.1 Road Hierarchy:

Road network serve for direct access to the particular land-use by the provision of pedestrian footpaths, bicycle tracks, bus and vehicle routes and cater through traffic that is not related to immediate land uses. Functional provisions of passenger and goods movement mainly define the hierarchy of roads and their classification. On the basis of this concept, roads are classified as per their function. Road class is related to the technical standard and functional requirements. Therefore, road classification should be based on its functional hierarchy. It is important to distinguish roads 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 instrument of road network and land use planning.

There are restrictions of direct linkage between various kinds of road-hierarchy. In other words, direct connections between certain types of road links should be reduced, for example residential streets and arterial roads. Connections between similar order streets should be made (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.). This conceptual framework can be seen from Figure 10 and 110, These hierarchical distinctions of road types becomes more clear when considering the recommended design specifications for the number of through lanes, design speed, intersection spacing and driveway access. A well-formed road hierarchy increases the performance and efficiency of the particular



Figure 5.1 Road Network Hierarchy

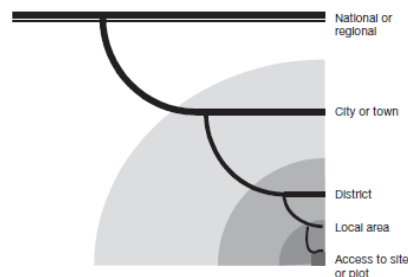


Figure 5.2 Urban Road Hierarchy

type of road as well as of the entire road network. Furthermore, it reduces 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.

5.1.1 Formulation of Road Hierarchy

Roads under jurisdiction of Municipal authority are referred as urban roads. The concept of road hierarchy assists in planning of overall road network and its transport services. Different hierarchy of road has different effect in surrounding areas and other roadways. Hierarchy of roads enable 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. Thus, a proper plan

should accommodate all users of the urban streets in planning, designing and construction of the road infrastructure and furniture. Municipality road network can be conceptualized by considering the functional hierarchy as arterial, sub-arterial and urban roads of various categories such as Class A, Class B, Class C and Class D.

The DTMP/MTMP guideline has expected roads under category of National Highway (NH), Feeder Roads (FR) and District Roads (DRCN) within the municipality area. The RoW of these roads are considered as per respective Guidelines. i.e. the RoW of National Highways, Feeder Roads and District Roads are 50.0 m, 30.0 m and 20.0 m respectively. The guideline has clearly stated about the setback distance for these roads (having RoW ≥ 20.0) as 6.0 m on either side. All of these standards shall be applied to the Municipality accordingly.

Based on DTMP guideline, the building line or setback shall be maintained 6.0 m for roads having RoW equal to or more than 20.0 m and 2.0 m for other roads. However, Nepal Road Standards-2070 has considered the setback distance at curved section only and that should be sufficient to provide the adequate sight distance. It is silent about the building line. However, according to Fundamental Guidelines for Settlement Development, Urban Planning and Building Construction-2072 (2015 AD), the minimum setback distance for urban roads as 1.5 m on either side. Again, the minimum of Row of roads has set as 6.0 m. i.e. 3.0 m on either side from the center line.

Table 5. 1: Classification of Municipal Roads

Road Type	Road Class	Right of way (RoW)
Main Collector Road	Class A	14 m
Other Collector Road	Class B	10 m
Sub-Collector Road	Class C	8 m
Tole Road	Class D	6 m
Trail Road	Class E	1.5 (Walk way)

5.2 High Hierarchical Road Network

Road are classified based on its importance and its area served. Basically, higher hierarchical road network within the municipality comprises of Strategic Road Network (National Highway and Feeder Roads) and then the local road network, consisting of District Road Core Network (DRCN).

5.2.1 Strategic Road Network (SRN)

The SRN through the municipality are Mid-Hill Highway which has already been blacktopped by DOR. These roads are summarized as below.

Table 5. 2: List of Strategic Roads within the municipality

S.N.	Road Name	Ward Pass	Length (km)	Right of Way (RoW) (m)
1				

5.2.2 District Road Core Network (DRCN)

This DRCN is the minimum network that allows all former VDC headquarters to be connected with the strategic road network and the district headquarters, either directly or through other VDCs. In selecting the DRCN roads, account was taken of road conditions and existing traffic levels. The identified DRCN roads were subsequently provided with road codes conforming to national standards. Based on District Transport Master Plan (DTMP) report prepared by Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) there are sixteen DRCN roads within the municipality which passes through various wards and are of total right of way of 20m as approved by District Development Committee and District Road Coordination Committee.

5.3 Municipal Roads

Different road within the municipality serves different function, some basically serves the function of access and some serves function of high quality mobility. As described earlier, this MTMP had formulate four level road hierarchy namely Class A, B, C and D, and are described in subsequent heading. There is fundamental difference between various class of roads and have been summed up in the form of table as:

Table 5. 3: Comparison of various hierarchies of roads

Criteria	Class A	Class B	Class C	Class D
Purpose	Mobility	Mobility and control access	Access and mobility	Access
Function	Through and long distance movement	Connect Class A and C; provide alternative connection routes between Class A	Connects higher order roads & 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 laybys	Segregated NMT facilities and Bus laybys	Segregated NMT facilities	Local NMT movement
Maintenance Responsibility	Municipality	Municipality	Municipality & Community	Community
Design Speed (Kmph)	40	30	20	20
Radius (m)	30	20	15	15
Minimum RoW (m)	14	10	8	6*
Setback distance (m)	2	2	1.5	1.5
Access Control	Applicable based on locality	Not Applicable	Not Applicable	Not Applicable

Criteria	Class A	Class B	Class C	Class D
Public transport services	Public Transportation	Local Public transport	Small form of public transport	No public transportation

5.3.1 Class A Roads

Class A roads serve as the major collector roads. These roads start either from the Arterial or Sub-Arterial road. These roads are of relatively long distance which connect big market or settlement areas or two or more wards centers within the Municipality. They provide linkage to SRN & DRCN roads as well as to the nearby municipality.

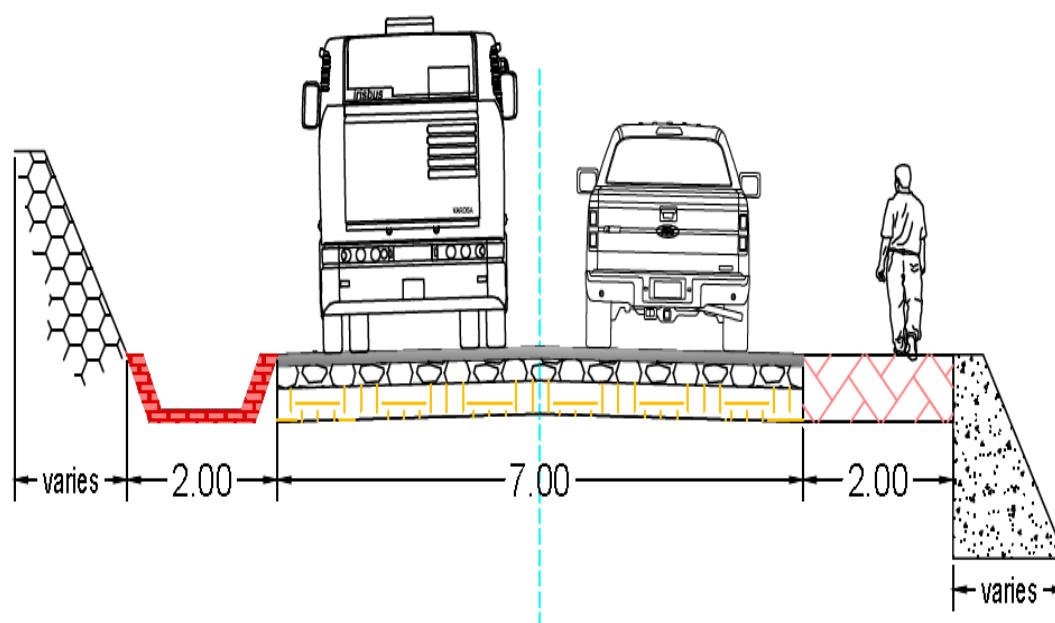


Figure 3.3: Recommended cross section for Class A roads

Nine Class A roads have been proposed so as to support the Indicative development potential as well as interconnectivity. Based on technical study and bottom up participatory approach, following five Class A roads with length 193.7 km roads and right of way of 14m has been proposed.

Table 5. 4 List of Class A roads

S. N.	Road Code	Class	Road Name	Proposed (m)	RoW	Length (km)	Black Top (km)	Gravel/Soling (km)	Earth (km)
1	A001	A	Manthali - Sunarpani Road	14		9.15	8.85	0.3	0
2	A002	A	Manthali - Kathajor Road	14		18	2.348	1	14.652
3	A003	A	Manthali- Bhutiyakhola- Kathjor- Dhobi Road	14		21.3	5	0	16.3
4	A004	A	Devitar - Pokharidanda Road	14		18	4.32	13.68	0
5	A005	A	Manthali - Chisapani - Puranagaon Healthpost - Thanapati Road	14		18	1	2	15
6	A006	A	Manthali - Bhaluwajor Road	14		12	0.5	1	10.5
7	A007	A	Manthali - Raltar - Samalsthan - Salu Road	14		12	7	0	5
8	A008	A	Manthali - Chanakhu - Pokharidanda Road	14		14		1	13
9	A009	A	Manthali - Gelu - Sikral Road	14		18	4	1	13

5.3.2 Class B Roads

These roads serve as a second level of road with total right of way more than 10m and can be considered as Feeder roads of municipality. These roads connect major road network and other roads of similar hierarchy with either major growth centre or provide access between Class A and class C road. Mobility is the main concern for these roads and it needs to be equipped with at least facilities for non-motorized travel. The typical cross section for Class B roads is as:

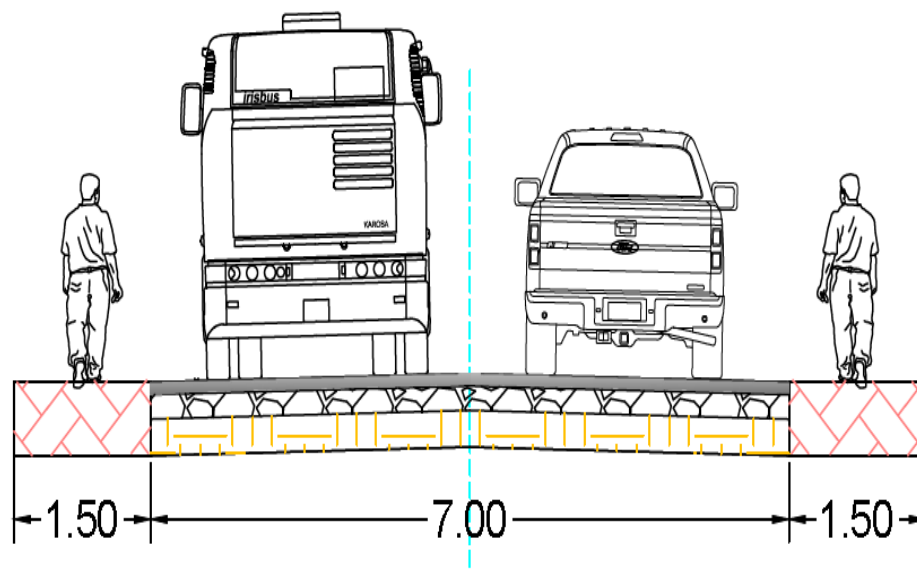


Figure 5.4: Recommended cross section for Class B roads

Thirteen Class B roads have been proposed so as to support the Indicative development potential as well as interconnectivity to Class A roads and DRCN roads. Based on technical study and bottom up participatory approach, 225 Km of roads have been proposed as Class B roads as follows:

Table 5. 5 List of Class B roads

S. N.	Road Code	Class	Road Name	Proposed RoW (m)	Length (km)	Black Top (km)	Gravel/Soling (km)	Earth en (km)
1	B001	B	Manthali - Bhatauli Road	10	7	5.5	0.5	1
2	B002	B	Sathimure- Kalleri Road	10	5			5
3	B003	B	Salu kukurkate - Bhanjyang Road	10	5		0.5	4.5
4	B004	B	Bhatauli - Sathimure Road	10	5			5
5	B005	B	Airport- Hatechaur Ring Road	10	2			
6	B006	B	Tamakoshi Kholsa- Khadabari Road	10	3			
7	B007	B	Gaiyatar- Bharuwa Road	10	3			
8	B008	B	Manthali- Bhadaure- Archale- Dandagau Road	10	4			
9	B009	B	Salubazzar- Gairathok- Kukurakate Bhanjyang Road	10	4			
10	B010	B	Talloganu- Chyandanda- Anakaiitole- Golmathan- Parsaldanda- Mahadevsthan- Sukajor Simana Road	10	5			
11	B011	B	Kunauri- Dandakharka- Kalika Ma.Bi. – Kubhinde- Huklakdanda Road	10	6			
12	B012	B	Thedikhola-Mugikhola- Simpani- Chisapani- ManthaliGhat Road	10	7			
13	B013	B	Sallepani- Chisapani- Healthpost- Salena Road	10	5			
14	B014	B	Jakhanitar- Dhalepipal- Ward office 10- Pokhari road	10	6			
15	B015	B	Chyanegaira- Narbari- Dhodeni- Aaimantar- Bagarbesi - Jiro kilo - Sikril – Samsadanda Road	10	5.5			
16	B016	B	Pipaldanda- Rataaahal- Achhagaun – Hattidhunga - Deaurali Road	10	7			

5.3.3 Class C Roads

Class C roads basically serve the function of access to greater extent and mobility to some extent. These are third hierarchy of roads and these provide access to Class D roads. The rights of way for these are recommended to be more than 8m wider roads. Class C roads are residential street and they provide access to the private property and small industrial or public place. These roads provide connection to higher order roads or with agricultural roads which connect a farm with a mini-market centre or an agro-based production centre. These roads serve mainly for small/light vehicular movement for low volume intensity.

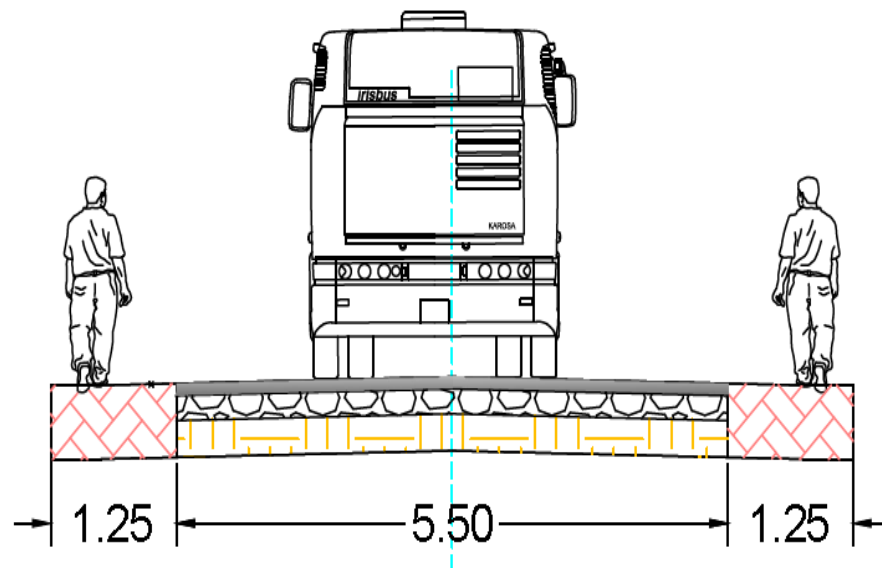


Figure 5.5: Recommended cross section for Class C roads

Thirty four Class C roads of 185.5 km length is approved based on both technical study, on site feasibility as well as Bottom Up approach and been listed as follows:

Table 5. 6 List of Class C roads

S.N.	Road Code	Road Name	Average Width	Length of road based on surface type					Proposed RoW (m)	Intervention
				Existing			New Constructio	Total		
				Black Top	Gravel	Earthen				
1	C001	Churaute- Fyaure Khola Road	4.5			3		3	8	Upgrading
2	C002	Machhedadi – Bhaiseshwor- Chandrashekhar Mandir Road	4.5			3.5		3.5	8	Upgrading
3	C003	Bhotedanda- Pitambar Prasad Ghar Road	4.5			4		4	8	Upgrading
4	C004	Dandaban- Kola Aanp- Setidevi Danda- Gaira Road	4.5			3		3	8	Upgrading
5	C005	Bhadaure- Sisnepani – Kolbotedanda Road	4.5			3.5		3.5	8	Upgrading
6	C006	Dwaare Dhunga- RatTar- Kalimati Road	6			2		2	8	Upgrading
7	C007	Ranagaun- Besitole- Gadapani Road	4.5			3.6		3.6	8	Upgrading
8	C008	Okharekhola- Bagaicha – Tallo Sunarpani	4.5			3		3	8	Upgrading
9	C009	Bhairabi Ma.Bi.- Bhyakure Bagaicha- Ranajor Khola	4.5			2		2	8	Upgrading
10	C010	Seleghat- Nabughat Road	6			3		3	8	Upgrading
11	C011	Health Post- Nursari Road	6			2.5	-	2.5	8	Upgrading
12	C012	Aakase Pakki Pul- Mugitar- Titribot-Kalleri-Pinkhuli Road	6			3	-	3	8	Upgrading
13	C013	Aasikheta Pokhari- Paharepani- Rameshwor Thakle – Thapadanda Road	6			4	-	4	8	Upgrading
14	C014	Pipaldanda- chiuripani Road	6			4	-	4	8	Upgrading
15	C015	Jawade- Chuhantar- Sanibesi Road	6			4	-	4	8	Periodic Maintenance
16	C016	Mathillo Chhapkhani- Barbot- Tallo Chhapkhani- Sikral road	6			4.05	-	4.05	8	Upgrading
17	C017	Salleni- Khanigaun- Thanapati-School Danda Road	4.5			3	-	3	8	Upgrading

S.N.	Road Code	Road Name	Average Width	Length of road based on surface type					Proposed RoW (m)	Intervention
				Existing			New Constructio	Total		
				Black Top	Gravel	Earthen				
18	C018	Jakhanitar- Saraswoti Ma.Bi. – Pipaldanda- Ginatol-Salleni Road	4.5			4.15	-	4.15	8	Upgrading
19	C019	Thumki- ward office 10 Road	4.5			4.2	-	4.2	8	Upgrading
20	C020	Pipalbot –Khamare- Barbote- Dhuseni Ban- Panthali Road	4.5			3	-	3	8	Upgrading
21	C021	Laharebar- Kaaule Bhanjyang- Jalkini Road	4.5			2.5	-	2.5	8	Upgrading
22	C022	School Danda- Aambas- Ghurpangkhola Road	4.5			2	-	2	8	Periodic Maintenance
23	C023	Sikral- Belbote Road	6			4.4	-	4.4	8	Periodic Maintenance
24	C024	Sadi- Dhamichaur- Bhusaltole Road	6			3	-	3	8	Periodic Maintenance
25	C025	Devitar- Barre- Kisinde Road	6			2	-	2	8	Periodic Maintenance

5.3.4 Class D Roads

Class 'D' roads are all other minor roads which give access to public property. All other roads that fulfill the minimum requirement set by the municipality and that doesn't fall under above classes, automatically falls under Class D roads. The cross section can be decided from local level with approval from MRCC, but ensuring all road users are given sufficient rights of sharing the roadway. The community level participation is must for completion of these roads. The municipality-community share can go from 40% - 60% to 60% - 40% for effectiveness of construction and maintaining the roads. These criterions of investment from local sector depend on municipality policy.

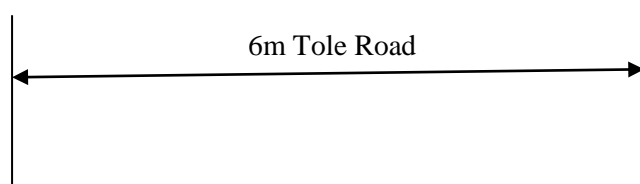


Figure 5.6: Recommended cross section for Class D roads

Twenty Nine Class D roads with length of 12.3 km have been proposed within the municipality as follows:

Table 5. 7 List of Class D roads

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
			Unit	Nos.			
1	D001	Chiuripani- Bichatole- Petrol Pump Road	km	4	Upgrading + Maintenance	1	
2	D002	Aakase – Phuyal Tole Road	km	3.8	Upgrading + Maintenance	1	
3	D003	Kumaltar Road	km	3.5	Upgrading + Maintenance	1	
4	D004	Katarbot- Nagar Bikas Complex- Tamakoshi Hospital Road	km	5	Upgrading + Maintenance	1	
5	D005	Bhattatole- Nalami Danda- Dahal Gaun- Karka Road	km	8	Upgrading + Maintenance	1	
6	D006	Bhyakure – Sidhure Khola Road	km	5	Upgrading + Maintenance	1	
7	D007	Paani Ghat- BP Smriti Bhawan- Bhaisheshwor Road	km	4	Upgrading + Maintenance	1	
8	D008	Balkanya- Damaigaun Road	km	4	Upgrading + Maintenance	2	
9	D009	Sallaghari Community Forest- Mathillo Bhimsenthan- Kattike Road	km	4	Upgrading + Maintenance	2	
10	D010	Gairatole- Sisnepani- Kolbotedanda Road	km	6	Upgrading + Maintenance	3	
11	D011	Deauralidanda- Kutidanda Road	km	4	Upgrading + Maintenance	3	
12	D012	Kathajor- Puranagaun Road	km	3	Upgrading + Maintenance	3	
13	D013	Paunaghar- Dalita Basti- Simbaari Tole Road	km	4.7	Upgrading + Maintenance	3	
14	D014	Bhumetar- Bhimsenthan- Saalketole Road	km	6	Upgrading + Maintenance	3	
15	D015	Bitra- Kuwapani- Dunde Road	km	5	Upgrading + Maintenance	3	
16	D016	Gairachaur- Chilaunetar- Birta Road	km	5	Upgrading + Maintenance	3	
17	D017	Thanti- Lampata- Dunde Road	km	3	Upgrading + Maintenance	3	
18	D018	Lampata Road	km	2	Upgrading + Maintenance	3	
19	D019	Thado Pakha- Aahaldanda- Pakhatole- Basbote Road	km	4	Upgrading + Maintenance	3	
20	D020	Deaurali Danda- Basabote- Dhungedanda Road	km	5	Upgrading + Maintenance	3	
21	D021	Thati- Airambas Road	km	5	Upgrading + Maintenance	3	
22	D022	Thati- Kaldanda Road	km	3	Upgrading + Maintenance	3	

S.N.	Road	Description	Length		Intervention	Ward	Remarks
23	D023	Bhairabi Ma.Bi. – Chyandanda- Paharigaun- Machabari- Gufadanda- Mahadevsthan- Tinghari Road	km	3	Upgrading + Maintenance	5	
24	D024	Petaridanda- Gaikharka- Gadapani- Pari Bhyaure- Aaiitabarekhola- Darimbot Road	km	4	Upgrading + Maintenance	5	
25	D025	Koldanda- Rusepani- Machabari- Jamdardanda- Khaltepani- Sukajor Road	km	6	Upgrading + Maintenance		
26	D026	Kirakhor – Bhyaure- Kholapari Road	km	5	Upgrading + Maintenance	5	
27	D027	Hattitar Agriculture Road	km	4	Upgrading + Maintenance	6	
28	D028	Thulachaur- Gairakhola Road	km	4	Upgrading + Maintenance	6	
29	D029	Deaurali- Masanghat Road	km	2	Upgrading + Maintenance	6	
30	D030	Kunauri- Dhwaandre Khola Road	km	3	Upgrading + Maintenance	6	
31	D031	Thaklekhola- Samibot- Patle- Bangesaala Road	km	5	Upgrading + Maintenance	7	
32	D032	Lampate- Ghatedanda- Manegaira- Pingkhuri Road	km	5	Upgrading + Maintenance	7	
33	D033	Swaaghanra- Jiro Point- Dadiram tole Road	km	3	Upgrading + Maintenance	7	
34	D034	Ekle Pipal- Titribot Road	km	3	Upgrading + Maintenance	7	
35	D035	Salbote- Jyamirebot- Kaaliaanpa – Aanpachaur Road	km	4	Upgrading + Maintenance	7	
36	D036	Rolini – Salbote- Simpani Road	km	6	Upgrading + Maintenance	7	
37	D037	Mathillo Aambot- Danda Pokhari- Badimuhan Road	km	5	Upgrading + Maintenance	7	
38	D038	Dhadekhola- Gopitar- Gaeabote –Rameshowor Road	km	4	Upgrading + Maintenance	7	
39	D039	Barbote- Waiibatole- Manedanda Road	km	4	Upgrading + Maintenance	7	
40	D040	Barpipal- Chhatune Road	km	2	Upgrading + Maintenance	7	
41	D041	Ratamata- Jugepani- Salleni- Indrawati – Kalidevi Road	km	3	Upgrading + Maintenance	7	
42	D042	Tunibot Khola-Puchharbari- Mahadevsthan Road	km	5	Upgrading + Maintenance	7	
43	D043	Tunibot- Dumre Road	km	3	Upgrading + Maintenance	7	
44	D044	Gairaghar- Chautara- Kabase Road	km	3	Upgrading + Maintenance	7	
45	D045	Dhadakhariya – Kaaliaanpa Road	km	4	Upgrading + Maintenance	7	
46	D046	Ruiidase- Bahunchura- Sailung Road	km	6	Upgrading + Maintenance	9	

S.N.	Road	Description	Length		Intervention	Ward	Remarks
47	D047	Maanedanda- Ruiidas Road	km	5	Upgrading + Maintenance	9	
48	D048	Basnedhunga- Jyangkhar- Biraute Road	km	4	Upgrading + Maintenance	9	
49	D049	Dhapgaira- Sarankhel- Kalikadevi Pra.Bi. Road	km	4	Upgrading + Maintenance	9	
50	D050	Budilose- Bangesalla- Eklemene- Bahunchura Pokhari Road	km	2	Upgrading + Maintenance	9	
51	D051	Simle- Jyakhar- Sikaral Road	km	3	Upgrading + Maintenance	9	
52	D052	Dhansar- Pakhar- Gurje Road	km	5	Upgrading + Maintenance	9	
53	D053	Botechaur- Saunepani- Basabote Road	km	3	Upgrading + Maintenance	10	
54	D054	Ward office 10- Mukhiyatole- Puchhartole- Kaulekhola Road	km	3	Upgrading + Maintenance	10	
55	D055	Thulogaira- Padhero- Kerabari Road	km	4	Upgrading + Maintenance	10	
56	D056	Dhalepipal- Thapagaun Road	km	6	Upgrading + Maintenance	10	
57	D057	Schoolwari- Khatrigaun- Khaharekhola Road	km	5	Upgrading + Maintenance	10	
58	D058	Kaphalgaira- Samatole Road	km	4	Upgrading + Maintenance	10	
59	D059	Kaphle Bhanjyangdhad- Simle Dandagaun- Bhyangle Road	km	4	Upgrading + Maintenance	10	
60	D060	Pokharidanda- Aaryaghat Road	km	2	Upgrading + Maintenance	10	
61	D061	Deaurali- Basapani- Gitedanda- Lokangahero- Jadkade- Bapharkhola Road	km	3	Upgrading + Maintenance	10 (New Track)	
62	D062	Pachharpuda- Okharen khola- Bhaunchura Road	km	5	Upgrading + Maintenance	10 (New Track)	
63	D063	Bhattar- Maakhlo Road	km	3	Upgrading + Maintenance	11	
64	D064	Mukhiyatole- Pasupati – Petasi- Khulaltole- Pitle Road	km	3	Upgrading + Maintenance	11	
65	D065	Paatlekhola- Nagpokhari- Bhimsenthan- Bhimar Road	km	4	Upgrading + Maintenance	11	
66	D066	Petasi- Dalita Basti Road	km	6	Upgrading + Maintenance	11	
67	D067	Dhankhoriya- Khaireni Road	km	5	Upgrading + Maintenance	11	
68	D068	Singarebote- Tarbari Road	km	4	Upgrading + Maintenance	11	
69	D069	Simalbote- Deaurali- Ratedanda Road	km	4	Upgrading + Maintenance	12	

S.N.	Road	Description	Length		Intervention	Ward	Remarks
70	D070	Similbote- Tinpokhare- Oallo Deaurali Road	km	2	Upgrading + Maintenance	12	
71	D071	Bhulbhule - School Road	km	3	Upgrading + Maintenance	12	
72	D072	Bungdal- Sikarkateri Road	km	5	Upgrading + Maintenance	12	
73	D073	Paleban- Community Building Road	km	3	Upgrading + Maintenance	12	
74	D074	Aambasbesi- Bhandare Road	km	3	Upgrading + Maintenance	12	
75	D075	Simalbote- Khandadevi Road	km	4	Upgrading + Maintenance	12	
76	D076	Pasubali- Bhandare Road	km	6	Upgrading + Maintenance	12	
77	D077	School Danda – Batase- Bhorle Road	km	5	Upgrading + Maintenance	12	
78	D078	Bungdal- Dumre- Dhusune Road	km	4	Upgrading + Maintenance	12	
79	D079	Lakuri Danda- Harre Road	km	4	Upgrading + Maintenance	13	
80	D080	Aale Gaira- Aayaldanda Road	km	2	Upgrading + Maintenance	13	
81	D081	Khamare- Aanpa- Gairi- Bagarbesi Road	km	3	Upgrading + Maintenance	13	
82	D082	Dharapani- Sisneri Road	km	5	Upgrading + Maintenance	13	
83	D083	Bagarbesi- Aambote- Nayatar Road	km	3	Upgrading + Maintenance	13	
84	D084	Sadigaira- Bhujel Tole Road	km	3	Upgrading + Maintenance	13	
85	D085	Phulasi- Jhagadedanda- Karjan- Niure- Milti Road	km	4	Upgrading + Maintenance	14	
86	D086	Chauki School- Roktaali- Biruwa- Aophara Road	km	6	Upgrading + Maintenance	14	
87	D087	Pokhari – Manedanda- Chhapali Road	km	5	Upgrading + Maintenance	14	
88	D088	Pokhari- Biruli – MiltiKhola Road	km	4	Upgrading + Maintenance	14	
89	D089	Chinne – Rotali- Biruwa- Mandalu- Odare – Saje Road	km	4	Upgrading + Maintenance	14	
90	D090	Phulasi- Karanjang- Samundra- Biruli Road	km	2	Upgrading + Maintenance	14	
91	D091	Okharbot- Ramitedhunga- Paiyakhola- Okhal Road	km	3	Upgrading + Maintenance	14	
92	D092	Ekmane – Painya Leka Road	km	8	Upgrading + Maintenance	14	
93	D093	Khokarkhola- Labsi- Bhitnagi Road	km	4	Upgrading + Maintenance	14	
94	D094	Karkale- Khokarkhola- Birali- Khadkagaun Road	km	3	Upgrading + Maintenance	14	
95	D095	Biruli- Ward office 14 Road	km	3.5	Upgrading + Maintenance	14	
96	D096	Bhumethan – Khor Road	km	5	Upgrading + Maintenance	14	
		Total	km	390.5			

CHAPTER 6: PRIORITIZATION CRITERIA

6.1 Concept of Prioritization

Each road are of importance in some aspect, some serve large population, whereas some serve the purpose of access, while some link the ward with market or service facilities and some link acts as connectors between two wards or municipality. It is not possible to construct/maintain or upgrade all roads at a time due to various constraints as: time, resources and cost constraint. Looking at the importance of road, some road need intervention immediately and some can be done later on. Thus, each link in a network needs to be prioritized and various interventions need to be taken based on the prioritization. In simple words, rank of each road network need to be assessed based on its importance and the intervention is taken based on the rank. The scoring criteria and their weightage/score remains the same for all road links as well as for all type of intervention.

6.2 Weightage Scoring Criteria

After rigorous study (literature around the world and past experience) and ToR , following prioritization criteria is published. Eight ranking/prioritization indicator is proposed as prioritization indicator, which includes following:

Table 6. 1 Proposed Scoring Criteria with score for prioritization

S.N	Scoring Criteria	Scoring Unit	Score
1	Demand Priority of wards		20
2	Total existing width	Meter	10
3	Population served		20
4	Road network benefit (access to service centers , recreational centre, agricultural centre and market)		20
5	Link to future development potential sites		10
6	Link to other road network (SRN, District roads, Airport)		10
7	Road Surface		10

A. Demand priority of wards:

It is the one of the major criteria for prioritization. Each ward has provided intervention in prioritized order during filling demand form from priority order one to five. These priorities is based on actual present ward resident need, i.e. the intervention which is at number 1 priority need to be done first. Higher the priority of intervention, it should get highest score. If certain intervention got highest priority i.e. number 1 priority in certain ward level, then it need to get full

marks. Road with first priority will get full marks and the score will be reduced by 20 % for each lower level priority; i.e. second priority road will get 80% score. Lowest priority (5th priority) link intervention will get twenty percent of total score. And all other roads will get 10% of the total score. The road link with different priority from different wards will get the average score

B. Existing Width of Road:

Existing width is also the next governing factor for prioritization. The present width of the road is the indicator of the importance. The road which is wider among many roads within the municipality carries slight more importance than other roads. Thus, wide roads having width more than 6m are given highest priority and thus full score, roads having width between 4.5 meter to 6 meter are provided with 80% of the total score and roads with width less than 4.5 m get 60% of the score. As the new proposed road doesn't have width at present day giving them zero score will not be realistic and thus new proposed road is given 25% of the total score. Road width within zero and maximum width is given score based on relative scoring. The score for road with variable width will be based on weightage width.

C. Population Served

Population coverage by the road linkage is one of the important indicators of prioritization. Higher the population served by the road, higher will be its necessity or importance and it needs to be constructed/upgraded/maintained first. Thus, high score is assigned for the road link serving high population and all other score is based on the relative marking. Now the question arises which population can be considered as high population and thus relative score is provided. Among all roads within the municipality, road serving maximum population is given full marks and the other roads are provided score accordingly. Thus, the score for road based on population served lies within zero to full score.

D. Road Network Benefit (SAMT)

It is one of the main governing prioritization indicators. The road link may provide access to service centre (schools, health post, governmental offices, etc.), agricultural land, market centre and tourism or recreational (picnic spot, historical place, park, cinema hall, playground), and. A single road link can serve just a single function to all above four functions. Simply more the services road link offers more will be the importance of the road link/network. The proposed road intervention which serves all four facilities is regarded as the major intervention which needs immediate attention and thus it is provided with highest full marks. If the road link only serves any three function/purpose, the score is reduced to 80% of the total final marks. Similarly, link serving any of the two functions is provided with 60% and the road which serves only a single function is provided with 40%.

E. Future Potential Development

It is one of the main governing prioritization indicators. Higher the future potential development, higher will be its necessity or importance and it needs to be constructed/upgraded/maintained first. Thus, high score is assigned for the higher potential road and all other score is based on the relative marking wt. Among all roads within the municipality, road serving maximum potential development is given full marks and the other roads are provided score accordingly. Thus, the score for road based future potential lies within zero to full score.

F. Link to other road network

It is one of the main governing prioritization indicators. The proposed road intervention which join SRN and Feeder road are is regarded as the major intervention which need immediate attention and thus it is provided with highest full marks and are put in the first prioritization hierarchy followed by the roads joining District road which are given 80% of the total total score and the road which serve from class A road is provided with 60%.

G. Existing Road Surface

Road surface type also governs the scoring and prioritization of the road. There are two principle behind which type of road to prioritize first, one principle says the objective need to be access first, i.e. first make the road motor-able so that it can be operated in all for all weather road. Another approach says the road importance is dependent on surface type; the road which is bituminous at presents has great importance and need to be maintained first compared to upgrading earthen road. Both aspects have significant impact on overall prioritization. Here, this study gives highest priority to earthen surface as we are mainly concern with accessibility first. Earthen surface road acquire full marks, gravel road surface acquire 80% of total and bituminous/metallic road gets 60% of total score. If a single road have different surface at different section, then the weightage average based on length is taken and score is provided accordingly.

6.3 Prioritized Road Network

The road intervention is based on the budget available as well as the importance of the road and based on above prioritization criteria all roads have been prioritized and then the MTMP plan had been proposed based on the prioritized road network. The prioritized score for various roads have been summed up in the form of table as:

- Table 6. 2 Prioritization

Class	Ward demand (20)	Width (10)	Surface Type (10)	Hierarchy & Linkage to SRN (10)	SAMT (20)	IDP (10)	Population (20)	Total	Rank
CLASS A ROADS									
A001	20	10	9	8	20	10	18	95	1
A003	8	10	8	10	20	10	20	86	3
A006	12	8	6	8	18	8	16	76	6
A004	20	8	10	6	18	10	14	86	4
A007	16	2	10	6	16	6	14	70	7
A002	12	10	10	8	18	10	20	88	2
A005	20	8	8	10	16	7	13	82	5
A008	12	10	6	10	16	8	16	78	8
A009	2	10	6	10	16	8	16	68	9
CLASS B ROADS									
Class	Score (20)	Score (10)	Surface Type (10)	Linkage(10)	SAMT (20)	IDP (10)	Population (20)	Total	Rank
B012	8	8	10	6	16	8	14	70	12
B005	18	10	10	6	16	8	18	86	5
B008	16	8	10	6	15	8	14	77	8
B003	16	10	10	8	18	9	18	89	3
B010	8	8	9	8	16	8	18	75	10
B004	20	8	10	4	20	8	18	88	4
B001	16	10	10	10	18	9	18	91	1
B007	12	10	6	10	16	8	18	80	7
B009	2	10	8	8	20	10	18	76	9
B006	16	8	6	10	16	7	18	81	6
B013	4	8	10	6	10	5	10	53	13
B011	12	8	6	10	14	6	14	70	11

Class	Ward demand (20)	Width (10)	Surface Type (10)	Hierarchy & Linkage to SRN (10)	SAMT (20)	IDP (10)	Population (20)	Total	Rank
B002	20	6	10	10	18	7	18	89	2
CLASS C ROADS									
Class	Score (20)	Score (10)	Surface Type (10)	Linkage(10)	SAMT (20)	IDP (10)	Population (20)	Total	Rank
C029	4	6	10	4	10	5	12	51	29
C013	12	10	10	6	12	6	13	69	13
C022	8	10	8	6	8	5	12	57	22
C015	8	6	10	6	14	6	13	63	15
C009	16	10	8	4	10	7	16	71	9
C028	2	10	10	4	8	5	13	52	28
C016	16	6	10	6	6	5	12	61	16
C017	12	6	10	6	8	7	11	60	17
C018	8	8	10	6	10	6	12	60	18
C024	4	6	10	6	10	7	14	57	24
C010	16	8	8	4	14	6	14	70	10
C020	8	8	6	4	15	5	12	58	20
C031	2	6	10	6	6	5	14	49	31
C025	2	8	8	4	15	6	14	57	25
C033	2	8	6	4	10	5	10	45	33
C030	4	6	10	4	6	5	14	49	30
C008	20	8	6	10	10	5	12	71	8
C023	8	6	6	10	10	5	12	57	23
C007	20	6	6	10	8	6	16	72	7
C006	12	8	10	10	14	8	12	74	6
C011	8	10	6	4	16	8	18	70	11
C032	2	6	6	4	10	5	12	45	32
C019	2	6	6	10	14	6	16	60	19
C001	16	10	6	10	18	10	20	90	1

Class	Ward demand (20)	Width (10)	Surface Type (10)	Hierarchy & Linkage to SRN (10)	SAMT (20)	IDP (10)	Population (20)	Total	Rank
C034	2	6	10	4	8	5	10	45	34
C002	12	10	6	10	20	10	20	88	2
C021	2	10	6	4	14	8	14	58	21
C014	2	8	8	10	16	8	12	64	14
C003	20	6	10	6	14	6	14	76	3
C012	12	6	10	6	12	6	16	68	12
C004	16	6	10	10	14	6	14	76	4
C027	2	6	10	6	10	6	12	52	27
C005	16	10	9	6	14	6	14	75	5
C026	4	8	10	6	10	6	12	56	26

CHAPTER 7: MUNICIPAL TRANSPORT MASTER PLAN

This chapter deals with the strategic framework associated with Municipal Transport Master Plan. Alongside, it also covers perspective plan and implementing strategies necessary to achieve the plan followed by budget expenditure plan.

7.1 Perspective Plan of Municipal Road Network

Perspective plan of municipal road network includes the maintenance of the access and collector roads and development of higher hierarchy road corridors supporting mobility of the roads. First five years should focus on development of existing access roads and their maintenance. It also incorporates construction of new road linkages to provide basic access to the settlements. During this period formulated road hierarchy will be implemented in terms of policy and enforcement of bylaws. Within 2 years other complementary plans of land use and city development will be developed. In the third year, the MTMP and its perspective plan should be revised in coordination with the other plans formulated and changes captured during this period.

Medium term planning will implement the higher hierarchy roads in stages of clearing of the required ROW and infrastructure facilitation. Proper development stages of roads should be planned (construction of Class “A” roads to the standards of Class “C”, then gradually upgrading to Class “B” and to Class “A”). Other implementation strategies should be developed and finalized at the end of this period. The road network developed during this period shall complete construction of Class “C” roads. Gradual upgrading of the higher hierarchy road networks during year ten to twenty will be justified by the traffic generated and level of mobility demanded to support the emerging economy. Land development and management should go parallel with clearance of RoW of higher classes of road. Road corridor development project should be introduced for acquisition of land required to clear RoW for various classes of road.

7.2 Financial Institutions and Capital Investment Plan

The construction work in each year depends on the probable budget. Firstly, the total budget for the current or last financial year needs to be determined. Firstly, the municipal Annual Budget Book is studied for revenues sources as well as expenditure plan on road. Planning of the investment is essential to support local government in developing good and best practice in construction, upgrading, overall asset management and especially operation and maintenance the road project. The grass root level involvement in the development of the road sector helps to create an informed and responsible citizen in the society. Thus, it is important to have local people’s participation in the construction works of the local access roads. A majority (if not all) the local access roads should be constructed by the local people in coordination with the municipality. People’s participation can be achieved in plantation alongside of the roads, cleaning of the road area and other activities.

Municipality has the responsibility of preparing the necessary framework and implementing policies and strategies for the planned development of the municipal roads and thus the municipality as a whole. Major share of the municipal budget should be used to maintain the roads and construction of wider roads to meet the planned class and ROW. The annual program should address the local need and the need of emergency and specific maintenance.

Municipality has a major role in developing the roads. It has the responsibility of preparing the necessary framework and implementing policies and strategies for the planned development of the municipal roads and thus the municipality as a whole. Major share of the municipal budget should be used to maintain the roads and construction of wider roads to meet the planned class and ROW. The annual program should address the local need and the need of emergency and specific maintenance. Specific roads should be constructed as a whole and not in parts for longer period of time. Other institutions are district and division line agencies such as DoR, DoLIDAR. These institutions are responsible for the development of road corridors that are important to the district or a larger area as a whole. Their contribution may or may not invest in the roads within the municipality, but wider roads of the municipality that extends to the boundary to other municipality/districts may draw investment beyond the municipal boundary. This will ultimately help in the development of the local municipal market centre.

7.3 Intervention Categories

After the finalization of perspective plan through the categorization of municipal road, required interventions of municipal road, required interventions should be decided according to the priority and necessity of the roads. Only 0.24 Km is black topped and 17.8 Km graveled in this Municipality, therefore, almost all roads need improvement or upgrading in the first phase parallel with conservation intervention. A considerable length of new linkage to remote areas requires new construction as well. For the reference of the Municipality the categories of the interventions are defined below 97

7.3.1 Conservation

Conservation refers to the actions required to repair a road and keep it in good and passable condition. Conservation activities include:

- 1. Emergency maintenance** - Basic repairs aimed at removing landslides and repairing damage to the road that inhibit the proper use of the road and make it impassable. This mainly takes place during and after the rainy season. A provisional lump sum is reserved for the entire district road core network based on the network length. Allocation to specific road sections is based on the actual need for clearing landslides or repairing washouts and cuts in the road.
- 2. Routine maintenance** - General maintenance of the road aimed at preventing damage by ensuring the proper working of the different road elements (retaining walls, drainage system, carriageway, etc.) and cutting vegetation. This is carried out each year on a more or less continuous basis. Routine maintenance is required for the entire district road core network. The specific requirements for routine maintenance are determined on an annual basis through the road condition survey and defined in the Annual Road Maintenance Plan (ARMP).
- 3. Recurrent maintenance** - Repairs of minor damage to the road surface and road structures to bring them back to good condition. This is generally carried out once or twice a year. Recurrent maintenance is required for the entire district road core network, whereby distinction is made according to the surface type. The specific requirements for recurrent maintenance are determined on an annual basis through the road condition survey and defined in the ARMP.
- 4. Periodic maintenance** - Larger repairs to the road largely aimed at renewing the road surface through re-gravelling, resealing or overlays. It is generally carried out with several years interval. Although periodic maintenance is only required for specific sections of the district road core network, a lump sum allocation is made for the entire district road core network based on average annual requirements, distinguishing between different surface types. The specific periodic maintenance requirements are determined on an annual basis through the annual road condition survey and defined in the ARMP. 98

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

7.3.2 Improvement

Improvement refers to actions required to improve a road to bring it to a maintainable all-weather standard. It includes the following actions, which are described briefly as following:

1. **Rehabilitation** - Significant repairs required to bring a very poor road back to a maintainable standard. This does not include any changes to the original surface type.
2. **Gravelling** - Placement of a gravel layer to make it all-weather and ensure that the road remains passable during the rainy season.
3. **Cross drainage structures**- 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 has 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.

7.3.3 New Construction

New construction refers to construction of new road linkage according to the necessity of the Municipality especially in those places where roads have not linked. This includes opening of new track and establishment connectivity to the new area.

7.4 Five Year Budget Expenditure

Provision of annual budget expenditure for proposed intervention (new construction, upgrading, maintenance and rehabilitation) is one of the final outcomes of the study. The budget plan is based on realistic approach and takes consideration of annual allocated budget of municipality. Intervention that can't be completed in preceding year should be the next priority in coming year. If a certain road, which was targeted to complete in first year could not be finished in first year, need to be given first priority in next year expenditure plan. If there is deficit in annual expenditure, municipality needs to incorporate that particular heading in next year at any cost. They can look for grant, assistance from district or even central level or they can incorporate them by shifting budget from less importance item/heading. Budgeting of roads has been divided according to interventions:

7.4.1 Construction and upgrading (70%)

7.4.2 Maintenance (30%)

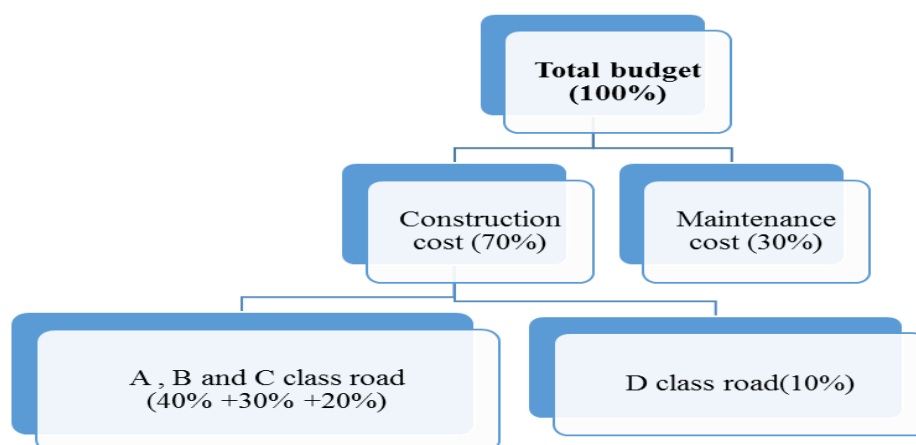


Figure 7.1: Expenditure Breakdown based on to MTMP Guidelines “A” Annex 5.

Budgeting of municipal road has been calculated based on present budget and certain growth rate. The capacity enhancement of the municipality is assumed by 20% increment each year. Maintenance cost has been allocated 30% of fund available for municipal road. Yearly maintenance plans according to need based assessment of required maintenance has to be prepared and cost allocation needs to be done through this plan. In absence of specific fund granted for special project, all other fund available to municipality for construction of road should come through one window system collected in under single basket and allocated to the roads based on ranking of roads.

The total budget for 5 years period is estimated to be at Rs.3,217,695,970. The budget for roads is expected to be increased at 20% per year. The total budget allocated for 1st year is Rs. 635,980,000 which will increase by 20% each year and at the 20th year; the budget is expected to be Rs. 11,033,504,000. The total budget required for 20 years MTPP period is susceptible to change depending on the revised MTMP every 5 years.

Table 7.1: Budget Allocation for Upgrading and Maintenance

Fiscal Year	Budgeting (‘000)		
	Probable Road Budget	Construction and Upgrading (70%)	Maintenance (30%)
2079/80	439,796.73	424,316.73	15,480.00
2080/81	563,101.06	544,525.06	18,576.00
2081/82	789,982.94	767,691.74	22,291.20
2082/83	726,107.84	699,358.40	26,749.44
2083/84	619,124.39	587,025.06	32,099.33
Cumulative budget	3,138,112.97	3,022,916.99	115,195.97

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The cost of construction and upgrading of road of class “D” is subjected to 10% of total cost of construction and upgrading. Class A road owes 40%, Class B 30% and Class C 20% according to MTMP Guidelines “A” annex 5.

Table 7.2: Budget Allocation for various Classes of Roads

FY	Total Budget for Roads	Budget for various Class of Roads (In '000)				Maintenance
		Class A	Class B	Class C	Class D	
2079/80	439,796.73	27,233.40	79083.33	32000	286000	15,480.00
2080/81	563,101.06	35,108.40	99083.33	46000	364333.3	18,576.00
2081/82	789,982.94	35,108.40	150666.7	89750	492166.7	22,291.20
2082/83	726,107.84	35,108.40	146583.3	73500	444166.7	26,749.44
2083/84	619,124.39	35,108.40	126583.3	59500	365833.3	32,099.33
Cumulative budget	3,138,112.97	167,667.00	602000	300750	1952500	115,195.97

This budget need to be increased to provide intervention to all road network, if it is to be designed to desired level of full Right of way and hence they are constructed to acceptable level in next five years and is dealt in next subheading.

7.5 Five Year Implementation Plan

Provision of annual budget expenditure for proposed intervention (new construction, upgrading, maintenance and rehabilitation) is one of the final outcome of the study. The budget plan is based on realistic approach and takes consideration of annual allocated budget of municipality. Intervention that can't be completed in preceding year should be the next priority in coming year. If a certain road, which was targeted to complete in first year could not be finished in first year, need to be given first priority in next year expenditure plan.

For the preparation of implementation plan one intervention for each road was considered to be intervening. However, if budget remains, then it shall be used for the preparation of second level of interventions considering the same priority. For example, if a road is earthen at present, it will first be upgraded to gravel road and then the next ranked road is provided with intervention and if the budget remains only then it will be upgraded to bituminous/metallic road. At short run all the

Class A and B roads will be upgraded to two lane roads, whereas Class C and D roads to single lane roads

For track opening and gravelling full length (RoW) was used for intervening. In case of blacktopping within MTMP period (i.e. 5 years) double lane for Class A and B, single lane for Class C and Class D roads has been taken under considerations. The difference of RoW and existing width was taken for determining the cost for widening. In each of these calculations, the rate given in guideline was for single lane and the necessary multiplication was made for respective number of lanes. Drainage calculation was made for both side drains as well as cross drains. Cross drain was considered at every 500 meter intervals. Most often double side drain was considered within the city area.

Based on the budget projection of the municipality for next five year and budget allocation for various classes of roads and surface type, the implementation strategy for the major hierarchical road network has been proposed.

Table 7.3 Five Year Implementation Plan for Class A Roads

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Responsible office	Amount Require ('000)	
1	Manthali - Sunarpani Road	km	9.15	4725	945	945	945	945	945	Municipality office, PG, GoN	2362.5	2362.5
2	Manthali - Kathajor Road	km	18	24152	4830	4830	4830	4830	4830	Municipality office, PG, GoN	12076	12076
3	Manthali- Bhutiyakhola- Kathjor- Dhobi Road	km	21.3	26950	5390	5390	5390	5390	5390	Municipality office, PG, GoN	13475	13475
4	Devitar - Pokharidanda Road	km	18	15840	3168	3168	3168	3168	3168	Municipality office, PG, GoN	7920	7920
5	Manthali - Chisapani - Puranagaon Healthpost - Thanapati Road	km	18	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Responsible office	Amount Require ('000)	
6	Manthali - Bhaluwajor Road	km	12	17000	3400	3400	3400	3400	3400	Municipality office, PG, GoN	8500	8500
7	Manthali - Raltar - Samalsthan - Salu Road	km	12	11000		2750	2750	2750	2750	Municipality office, PG, GoN	5500	5500
8	Manthali - Chanakhu - Pokharidanda Road	km	14	20500		5125	5125	5125	5125	Municipality office, PG, GoN	10250	10250
9	Manthali - Gelu - Sikral Road	km	18	22500	4500	4500	4500	4500	4500	Municipality office, PG, GoN	11250	11250
	Total			167,667.00	27,233.40	35,108.40	35,108.40	35,108.40	35,108.40		83,833.50	83,833.50

Table 7.4 Five Year Implementation Plan for Class B Roads

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080/ 081	2081/ 082	2082/ 083	2083 /084	Response office	Amount Require ('000)	
1	Manthali - Bhatauli Road	km	7	4750	1583	1583	1583			Municipality office, PG, GoN	2375	2375
2	Sathimure- Kalleri Road	km	5	7500	2500	2500	2500			Municipality office, PG, GoN	3750	3750
3	Salu kukurkate - Bhanjyang Road	km	5	7250			2417	2417	2417	Municipality office, PG, GoN	3625	3625
4	Bhatauli - Sathimure Road	km	5	7500			2500	2500	2500	Municipality office, PG, GoN	3750	3750
5	Airport- Hatechaur Ring Road	km	2	20000			6667	6667	6667	Municipality office, PG, GoN	10000	10000
6	Madan Chowk- Bhu.Pu. Armi Mathillo Basti- Tamakoshi Kholsa- Khadabari Road	km	3	30000		10000	10000	10000		Municipality office, PG, GoN	15000	15000
7	Gaiyatar- Bharuwa Road	km	3	30000		10000	10000	10000		Municipality office, PG, GoN	15000	15000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080/ 081	2081/ 082	2082/ 083	2083 /084	Response office	Amount Require ('000)	
8	Manthali- Bhadaure- Archale- Dandagau Road	km	4	40000	8000	8000	8000	8000	8000	Municipality office, PG, GoN	20000	20000
9	Salubazzar- Gairathok- Kukurakate Bhanjyang Road	km	4	40000	8000	8000	8000	8000	8000	Municipality office, PG, GoN	20000	20000
10	Talloganu- Chyandanda- Anakaiitole- Golmathan- Parsaldanda- Mahadevsthan- Sukajor Simana Road	km	5	50000	10000	10000	10000	10000	10000	Municipality office, PG, GoN	25000	25000
11	Kunauri- Dandakharka- Kalika Ma.Bi. – Kubhinde- Huklakdanda Road	km	6	60000	12000	12000	12000	12000	12000	Municipality office, PG, GoN	30000	30000
12	Thedikhola-Mugikhola- Simpani- Chisapani- ManthaliGhat Road	km	7	70000			23333	23333	23333	Municipality office, PG, GoN	35000	35000
13	Sallepani- Chisapani- Healthpost- Salena Road	km	5	50000			16667	16667	16667	Municipality office, PG, GoN	25000	25000
14	Jakhanitar- Dhalepipal- Ward office 10- Pokhari road	km	6	60000	12000	12000	12000	12000	12000	Municipality office, PG, GoN	30000	30000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080/ 081	2081/ 082	2082/ 083	2083 /084	Response office	Amount Require ('000)	
15	Chyanegaira- Narbari-Dhodeni- Aaimantar-Bagarbesi - Jiro kilo - Sikril – Sawadanda Road	km	5.5	55000	11000	11000	11000	11000	11000		27500	27500
16	Pipaldanda- Rataaahal-Achhagaun – Hattidhunga - Deaurali Road	km	7	70000	14000	14000	14000	14000	14000	Municipality office, PG, GoN	35000	35000
	Total		61.0	602,000.00	79,083.33	99,083.33	150,666.67	146,583.33	126,583.33	-	301,000.00	301,000.00

Table 7.5 Five Year Implementation Plan for Class C Roads

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Response office	Amount Require ('000)	
1	Churaute- Fyaure Khola Road	km	3	22500	7500	7500	7500			Municipality office	11250	11250
2	Machhedadi – Bhaiseshwor-Chandrashekhar Mandir Road	km	3.5	26250	8750	8750	8750			Municipality office	13125	13125

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Response office	Amount Require ('000)	
3	Bhotedanda- Pitambar Prasad Ghar Road	km	4	30000			10000	10000	10000	Municipality office	15000	15000
4	Dandaban- Kola Aanp- Setidevi Danda- Gaira Road	km	3	22500			7500	7500	7500	Municipality office	11250	11250
5	Bhadaure- Sisnepani – Kolbotedanda Road	km	3.5	26250			8750	8750	8750	Municipality office	13125	13125
6	Dwaare Dhunga- RatTar- Kalimati Road	km	2	15000		5000	5000	5000		Municipality office	7500	7500
7	Ranagaun- Besitole- Gadapani Road	km	3.6	27000		9000	9000	9000		Municipality office	13500	13500
8	Okharekhola- Bagaicha – Tallo Sunarpani	km	3	22500	4500	4500	4500	4500	4500	Municipality office	11250	11250
9	Bhairabi Ma.Bi.- Bhyakure Bagaicha- Ranajor Khola	km	2	15000	3000	3000	3000	3000	3000	Municipality office	7500	7500
10	Seleghat- Nabughat Road	km	3	22500	4500	4500	4500	4500	4500	Municipality office	11250	11250
11	Health Post- Nursari Road	km	2.5	18750	3750	3750	3750	3750	3750	Municipality office	9375	9375
12	Aakase Pakki Pul- Mugitar- Titribot-Kalleri-Pinkhuli Road	km	3	22500			7500	7500	7500	Municipality office	11250	11250

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Response office	Amount Require ('000)	
13	Aasikheta Pokhari- Paharepani- Rameshwor Thakle – Thapadanda Road	km	4	30000			10000	10000	10000	Municipality office	15000	15000
14	Pipaldanda- chiuripani Road	km	4	30000			10000	10000	10000	Municipality office	15000	15000
15	Jawade- Chuhantar- Sanibesi Road	km	4	30000			10000	10000	10000	Municipality office	15000	15000
16	Mathillo Chhapkhani- Barbot- Tallo Chhapkhani- Sikral road	km	4.05	30375			10125	10125	10125	Municipality office, PG, GoN	15187.5	15187.5
17	Salleni- Khanigaun- Thanapati- School Danda Road	km	3	22500			7500	7500	7500	Municipality office, PG, GoN	11250	11250
18	Jakhanitar- Saraswoti Ma.Bi. – Pipaldanda- Ginatol- Salleni Road	km	4.15	31125			10375	10375	10375	Municipality office	15562.5	15562.5
19	Thumki- ward office 10 Road	km	4.2	31500			10500	10500	10500	Municipality office	15750	15750
20	Pipalbot –Khamare- Barbote- Dhuseni Ban- Panthali Road	km	3	22500			7500	7500	7500	Municipality office	11250	11250
21	Laharebar- Kaaule Bhanjyang- Jalkini Road	km	2.5	18750			6250	6250	6250	Municipality office	9375	9375

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Response office	Amount Require ('000)	
22	School Danda- Aambas- Ghurpangkhol Road	km	2	15000			5000	5000	5000	Municipality office	7500	7500
23	Sikral- Belbote Road	km	4.4	33000			11000	11000	11000	Municipality office	16500	16500
24	Sadi- Dhamichaur- Bhusaltol Road	km	3	22500	4500	4500	4500	4500	4500	Municipality office	11250	11250
25	Devitar- Barre- Kisinde Road	km	2	15000			5000	5000	5000	Municipality office	7500	7500
	Total		40.1	300,750.00	32,000.00	46,000.00	89,750.00	73,500.00	59,500.00		150,375.00	150,375.00

Table 7.6 Five Year Implementation Plan for Class D Roads

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083 /084	Response office	Amount Require ('000)	
1	Chiuripani- Bichatole- Petrol Pump Road	km	4	20000	6667	6667	6667			Municipality office, PG, GoN	10000	10000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
2	Aakase – Phuyal Tole Road	km	3.8	19000	6333	6333	6333			Municipality office, PG, GoN	9500	9500
3	Kumaltar Road	km	3.5	17500			5833	5833	5833	Municipality office, PG, GoN	8750	8750
4	Katarbot- Nagar Bikas Complex- Tamakoshi Hospital Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500
5	Bhattatole- Nalami Danda- Dahal Gaun- Karka Road	km	8	40000			13333	13333	13333	Municipality office, PG, GoN	20000	20000
6	Bhyakure – Sidhure Khola Road	km	5	25000		8333	8333	8333		Municipality office, PG, GoN	12500	12500
7	Paani Ghat- BP Smriti Bhawan- Bhaiseshwor Road	km	4	20000		6667	6667	6667		Municipality office, PG, GoN	10000	10000
8	Balkanya- Damaigaun Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
9	Sallaghari Community Forest-Mathillo Bhimsenthan- Kattike Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
10	Gairatole- Sisnepani- Kolbotedanda Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
11	Deauralidanda- Kutidanda Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
12	Kathajor- Puranagaun Road	km	3	15000			5000	5000	5000	Municipality office, PG, GoN	7500	7500
13	Paunaghar- Dalita Basti- Simbaari Tole Road	km	4.7	23500			7833	7833	7833	Municipality office, PG, GoN	11750	11750
14	Bhumetar- Bhimsenthan- Saalketole Road	km	6	30000			10000	10000	10000	Municipality office, PG, GoN	15000	15000
15	Bitra- Kuwapani- Dunde Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
16	Gairachaur- Chilaunetar- Birta Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500
17	Thanti- Lampata- Dunde Road	km	3	15000			5000	5000	5000	Municipality office, PG, GoN	7500	7500
18	Lampata Road	km	2	10000			3333	3333	3333	Municipality office, PG, GoN	5000	5000
19	Thado Pakha- Aahaldanda- Pakhatole- Basbote Road	km	4	20000			6667	6667	6667	Municipality office, PG, GoN	10000	10000
20	Deaurali Danda- Basabote- Dhungedanda Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500
21	Thati- Airambas Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500
22	Thati- Kaldanda Road	km	3	15000			5000	5000	5000	Municipality office, PG, GoN	7500	7500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
23	Bhairabi Ma.Bi. – Chyandanda- Paharigaun- Machabari- Gufadanda- Mahadevsthan- Tinghari Road	km	3	15000			5000	5000	5000	Municipality office, PG, GoN	7500	7500
24	Petaridanda- Gaikharka- Gadapani- Pari Bhyahre- Aaitabarekhola- Darimbot Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
25	Koldanda- Rusepani- Machabari- Jamdardanda- Khaltepani- Sukajor Road	km	6	30000	10000	10000	10000			Municipality office, PG, GoN	15000	15000
26	Kirakhori – Bhyahre- Kholapari Road	km	5	25000	8333	8333	8333			Municipality office, PG, GoN	12500	12500
27	Hattitar Agriculture Road	km	4	20000	6667	6667	6667			Municipality office, PG, GoN	10000	10000
28	Thulachaur- Gairakhola Road	km	4	20000	6667	6667	6667			Municipality office, PG, GoN	10000	10000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
29	Deaurali- Masanghat Road	km	2	10000	3333	3333	3333			Municipality office, PG, GoN	5000	5000
30	Kunauri- Dhwaandre Khola Road	km	3	15000		5000	5000	5000		Municipality office, PG, GoN	7500	7500
31	Thaklekhola- Samibot- Patle-Bangesaala Road	km	5	25000		8333	8333	8333		Municipality office, PG, GoN	12500	12500
32	Lampate- Ghatedanda- Manegaira- Pingkhuri Road	km	5	25000		8333	8333	8333		Municipality office, PG, GoN	12500	12500
33	Swaaghanra- Jiro Point-Dadiram tole Road	km	3	15000		5000	5000	5000		Municipality office, PG, GoN	7500	7500
34	Ekle Pipal- Titribot Road	km	3	15000		5000	5000	5000		Municipality office, PG, GoN	7500	7500
35	Salbote- Jyamirebot- Kaaliaanpa – Aanpachaur Road	km	4	20000		6667	6667	6667		Municipality office, PG, GoN	10000	10000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
36	Rolini – Salbote- Simpani Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
37	Mathillo Aambot- Danda Pokhari- Badimuhan Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
38	Dhadekhola- Gopitar- Gaebote –Rameshowar Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
39	Barbote- Waiibatole- Manedanda Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
40	Barpipal- Chhatune Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000
41	Ratamata- Jugepani- Salleni- Indrawati – Kalidevi Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
42	Tunibot Khola-Puchharbari- Mahadevsthan Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
43	Tunibot- Dumre Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
44	Gairaghar- Chautara- Kabase Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
45	Dhadakhariya – Kaaliaanpa Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
46	Ruiidase- Bahunchura- Sailung Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
47	Maanedanda- Ruiidas Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
48	Basnedhunga- Jyangkhar- Birauta Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
49	Dhapgaira- Sarankhel- Kalikadevi Pra.Bi. Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
50	Budilose- Bangesalla- Eklemane- Bahunchura Pokhari Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000
51	Simle- Jyakhar- Sikaral Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
52	Dhansar- Pakhar- Gurje Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
53	Botechaur- Saunepani- Basabote Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
54	Ward office 10- Mukhiyatole- Puchhartole- Kaulekhola Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
55	Thulogaira- Padhero- Kerabari Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
56	Dhalepipal- Thapagaun Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
57	Schoolwari- Khatrigaun-Khaharekhola Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
58	Kaphalgaira- Samatole Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
59	Kaphle Bhanjyangdhad-Simle Dandagaun- Bhyangle Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
60	Pokharidanda- Aaryaghat Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000
61	Deaurali- Basapani-Gitedanda- Lokangahero-Jadkade- Bapharkhola Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
62	Pachharpuda- Okharen khola-Bhaunchura Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
63	Bhattar- Maakhlo Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
64	Mukhiyatole- Pasupati – Petasi- Khulaltole- Pitle Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
65	Paatlekhola- Nagpokhari- Bhimsenthan- Bhimar Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
66	Petasi- Dalita Basti Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
67	Dhankhoriya- Khairani Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
68	Singarebote- Tarbari Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
69	Simalbote- Deaurali- Ratedanda Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
70	Similbote- Tinpokhare- Oallo Deaurali Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
71	Bhulbhule - School Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
72	Bungdal- Sikarkateri Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
73	Paleban- Community Building Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
74	Aambasbesi- Bhandare Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
75	Simalbote- Khandadevi Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
76	Pasubali- Bhandare Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
77	School Danda – Batase-Bhorle Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
78	Bungdal- Dumre- Dhusune Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
79	Lakuri Danda- Harre Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
80	Aale Gaira- Aayaldanda Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000
81	Khamare- Aanpa- Gairi- Bagarbesi Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
82	Dharapani- Sisneri Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
83	Bagarbesi- Aambote- Nayatar Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500
84	Sadigaira- Bhujel Tole Road	km	3	15000	3000	3000	3000	3000	3000	Municipality office, PG, GoN	7500	7500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
85	Phulasi- Jhagadedanda-Karjan- Niure- Milti Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
86	Chauki School- Roktaali-Biruwa- Aophara Road	km	6	30000	6000	6000	6000	6000	6000	Municipality office, PG, GoN	15000	15000
87	Pokhari – Manedanda-Chhapali Road	km	5	25000	5000	5000	5000	5000	5000	Municipality office, PG, GoN	12500	12500
88	Pokhari- Biruli – MiltiKhola Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
89	Chinne – Rotali- Biruwa-Mandalu- Odare – Saje Road	km	4	20000	4000	4000	4000	4000	4000	Municipality office, PG, GoN	10000	10000
90	Phulasi- Karanjang-Samundra- Biruli Road	km	2	10000	2000	2000	2000	2000	2000	Municipality office, PG, GoN	5000	5000
91	Okharbot- Ramitedhunga-Paiyakhola- Okhal Road	km	3	15000		5000	5000	5000		Municipality office, PG, GoN	7500	7500

S. N.	Description	Target		Total Budget ('000)	Implementation Year					Source of Budget		Gap Budget
		Unit	Nos.		2079 /080	2080 /081	2081 /082	2082 /083	2083/ 084	Response office	Amount Require ('000)	
92	Ekmame – Painya Leka Road	km	8	40000		13333	13333	13333		Municipality office, PG, GoN	20000	20000
93	Khokarkhola- Labsi- Bhitnagi Road	km	4	20000		6667	6667	6667		Municipality office, PG, GoN	10000	10000
94	Karkale- Khokarkhola- Birali- Khadkagaun Road	km	3	15000			5000	5000	5000	Municipality office, PG, GoN	7500	7500
95	Biruli- Ward office 14 Road	km	3.5	17500			5833	5833	5833	Municipality office, PG, GoN	8750	8750
96	Bhumethan – Khor Road	km	5	25000			8333	8333	8333	Municipality office, PG, GoN	12500	12500
	Total	km	390.5	1952500.0	28600.0	36433.3	49216.7	44416.7	36583.3		976250.0	976250.0

CHAPTER 8: CONCLUSION

8.1 Conclusion

Municipal Transport Master Plan has been prepared for Manthali Municipality. A series surveys for data collection, series of different level interaction with the locals and various authorities was conducted. The study has identified all the roads of the municipality, their status and interventions required. The map of IDPM, MIM, MTPP and other maps are prepared.

The study has formulated hierarchy of roads which is necessary for long term rapid development of the municipality area. The study has shown increased trend of motorized vehicle. This is necessary to be implemented as the developed cities are have trouble to address the demand of active mode user friendly urban road infrastructures. As the implementation strategy suggests, the municipality needs to develop proper framework and policies for the implementation of the perspective plans, built the capacity of the municipality and the local organizations and committees and proper stages of development of the roads.

Transport and land use along with nodal development cannot be disintegrated. Preparation of Municipal Transport Master Plan is the first step in the planned development of the municipal area. MTMP alone cannot circumscribe the potential development of the municipal area. Comprehensive city development plan, land use plan, drainage master plan, etc. are some other plans that needs to be prepared and integrated with Municipal Transport Master Plan. For future nodal development and transport development, land use master plan and comprehensive city development plan should also be prepared. MTMP should then be revised based on those plans.

8.2 Recommendation

- Unplanned urbanization has rendered many cities unlivable because of the growing pollution and lack of green/open spaces. Road space is most frequently used public space. ***Provision of green belt*** along the urban roads creates safer and pleasant walking spaces, and acts as median to separate motorists from each other and from the NMT users.
- ***Proper structured public transport routes*** are vital for sustainable transport development. As the demand increases, before well-structured and formal transport is justified economically, the local government should introduce City Bus to ply at least within the municipality.
- ***A proper hierarchy of settlement*** should be developed to segregate the commercial and business centers from settlement areas and industrial area. A hierarchy of the market centers should be developed as main market
- Better provision of ***Road and road side infrastructure*** is must for effectiveness of planning. Due to very high active users, proper networks of pedestrian way and cycle tracks should fit in the basic road width. Proper bus lay bys are necessary elements for proper public transport system. Adequate lighting system along with proper connected pedestrian ways and zebra crossings is another major road infrastructure.
- Increase private motorized vehicle ownership will have witnessed the need of parking, so ***Proper Parking Management*** is must. Similarly, parking at the major destinations such as business and market centers, industrial and commercial areas should be managed by the private sector.
- ***Integrated service planning*** is a very important factor for damage minimization during construction and expansion of various facilities. As the road follows, settlement also expands

which demands other facilities such as electricity, drainage and drinking water. All these facilities are provided along with road infrastructure, mostly within the ROW of road. Proper integration of these services with road planning is necessary to minimize multiple investment in the individual infrastructure and the damage to other infrastructure during maintenance and/or expansion.

- The proposed roads cannot be directly implemented at a glance. ***Proper phases of development*** of roads of all hierarchy should be envisaged and planned.
- ***Land acquisition*** should go parallel with development phase of roads and possibly concept of land pooling can be adopted for land acquisition.
- ***Proper Land Use Plan and Comprehensive city development plan*** is must for better effectiveness of this MTMP and these three need to be correlated with each other.
- It is recommended to adopt ***Labour based Environmental friendly and Participatory (LEP)*** approach popularly known as Green Roads construction method. Green Road approach aims at reducing scarring by minimizing the amount of cut necessary and by balancing the amount of material cut with the amount of fill required.
- Revised Scoring criteria and Mid Period Review is must to ensure the MTMP is in accordance with the future developed policies on Land Use and Comprehensive City Development Plan.

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ANNEX A: MAPS

ANNEX B: ROAD INVENTORY DATA

S.N .	Road Class	Total Length(Km)	Black Top/Concrete	Gravel/ Soling	Earthen	Remarks
1	Strategic Road /Feeder	42.5	26.5	1	15	
2	DRCN (District Road)	141.15	33.518	20.98	86.652	
3	Municipal Road/Urban	360.05	4.96	13.963	341.127	
	Total Length	543.7	64.978	35.943	442.779	

Strategic and DRCN (District)Roads within Municipality

A. Strategic Roads

S. N.	Name of Road	Length (km)	Blacktop/c oncrete	Gravel/ soling	Eart hen	Remarks
1	Pushpalal Marg (Devitar- Kathajorkhola- Mnthali-Manthali - Sukajor khola)	11.5	11.5		0	
2	Manthali - Khurkot	15	15		0	
3	Seleghat - Ramechhap - Sanghutar	16	0	1	15	Bhaluwaj or/Salu
	Total Length	42.5	26.5	1	15	

B. DRCN (District)Roads

S.N .	Name of Road	Length (km)	Blacktop/c oncrete	Gravel/ soling	Eart hen	Remarks
1	Manthali - Sunarpani Road	9.15	8.85	0.3	0	
2	Manthali - Kathajor Road	18	2.348	1	14.652	
3	Manthali - Bhatauli Road	7	5.5	0.5	1	
4	Devitar - Pokharidanda Road	18	4.32	13.68	0	
5	Manthali - Chisapani - Puranagaon Healthpost - Thanapati Road	18	1	2	15	
6	Sathimure- Kalleri Road	5			5	
7	Manthali - Bhaluwajor Road	12	0.5	1	10.5	
8	Manthali - Raltar - Samalsthan - Salu Road	12	7	0	5	
9	Manthali - Chanakhu - Pokharidanda Road	14		1	13	
10	Salu kukurkate - Bhanjyang Road	5		0.5	4.5	
11	Manthali - Gelu - Sikral Road	18	4	1	13	
12	Bhatauli - Sathimure Road	5			5	
13	Salu- Kathajor Road					
14	Puranagaun- Chanakhu Road					

Ward wise Road

SN	Description	Ward No.
1	Churaute- Fyaure Khola Road	1
2	Madan Chowk- Bhu.Pu. Armi Mathillo Basti- Tamakoshi Kholsa- Khadabari Road	1
3	Machhedadi – Bhaisheshwor- Chandrashekhar Mandir Road	1
4	Chiuripani- Bichatole- Petrol Pump Road	1
5	Aakase – Phuyal Tole Road	1
6	Kumaltar Road	1
7	Katarbot- Nagar Bikas Complex- Tamakoshi Hospital Road	1
8	Bhattatole- Nalami Danda- Dahal Gaun- Karka Road	1
9	Airport- Hatechaur Ring Road	1
10	Bhyakure – Sidhure Khola Road	1
11	Paani Ghat- BP Smriti Bhawan- Bhaisheshwor Road	1
12	Bhotedanda- Pitambar Prasad Ghar Road	2
13	Dandaban- Kola Aanp- Setidevi Danda- Gaira Road	2
14	Balkanya- Damaigaun Road	2
15	Gaiyatar- Bharuwa Road	2
16	Sallaghari Community Forest- Mathillo Bhimsenthan- Kattike Road	2
17	Manthali- Bhadaure- Archale- Dandagau Road	3
18	Bhadaure- Sisnepani – Kolbotedanda Road	3
19	Dwaare Dhunga- RatTar- Kalimati Road	3
20	Gairatole- Sisnepani- Kolbotedanda Road	3
21	Deauralidanda- Kutidanda Road	3
22	Kathajor- Puranagaun Road	3
23	Paunaghar- Dalita Basti- Simbaari Tole Road	3
24	Bhumetar- Bhimsenthan- Saalketole Road	3
25	Bitra- Kuwapani- Dunde Road	3
26	Gairachaur- Chilaunetar- Birta Road	3
27	Thanti- Lampata- Dunde Road	3
28	Lampata Road	3
29	Thado Pakha- Aahaldanda- Pakhatole- Basbote Road	3
30	Deaurali Danda- Basabote- Dhungedanda Road	3
31	Thati- Airambas Road	3
32	Thati- Kaldanda Road	3
33	Salubazzar- Gairathok- Kukurakate Bhanjyang Road	4
34	Ranagaun- Besitole- Gadapani Road	4
35	Talloganu- Chyandanda- Anakaiitole- Golmathan- Parsaldanda- Mahadevsthan- Sukajor Simana Road	5
36	Road	5
37	Okharekhola- Bagaicha – Tallo Sunarpani	5
38	Bhairabi Ma.Bi.- Bhyakure Bagaicha- Ranajor Khola	5
39	Bhairabi Ma.Bi. – Chyandanda- Paharigaun- Machabari- Gufadanda- Mahadevsthan- Tinghari Road	5
40	Petaridanda- Gaikharka- Gadapani- Pari Bhyau- Aaiitabarekhola- Darimbot Road	5
41	Koldanda- Rusepani- Machabari- Jamdardanda- Khaltepani- Sukajor Road	

SN	Description	Ward No.
42	Kirakhor – Bhyaure- Kholapari Road	5
43	Selegat- Nabughat Road	6
44	Kunauri- Dandakharka- Kalika Ma.Bi. – Kubhinde- Huklakdanda Road	6
45	Health Post- Nursari Road	6
46	Hattitar Agriculture Road	6
47	Thulachaur- Gairakhola Road	6
48	Deaurali- Masanghat Road	6
49	Kunauri- Dhwaandre Khola Road	6
50	Aakase Pakki Pul- Mugitar- Titribot-Kalleri-Pinkhuli Road	7
51	- Chisapani Road	7
52	Thedikhola-Mugikhola- Simpani- Chisapani- ManthaliGhat Road	7
53	Aasikheta Pokhari- Paharepani- Rameshwor Thakle – Thapadanda Road	7
54	Thaklekhola- Samibot- Patle- Bangesaala Road	7
55	Lampate- Ghatedanda- Manegaira- Pingkhuri Road	7
56	Swaaghanra- Jiro Point- Dadiram tole Road	7
57	Ekle Pipal- Titribot Road	7
58	Salbote- Jyamirebot- Kaaliaanpa – Aanpachaur Road	7
59	Rolini – Salbote- Simpani Road	7
60	Mathillo Aambot- Danda Pokhari- Badimuhan Road	7
61	Dhadekhola- Gopitar- Gaaebote –Rameshowor Road	7
62	Barbote- Waiibatole- Manedanda Road	7
63	Barpipal- Chhatune Road	7
64	Ratamata- Jugepani- Salleni- Indrawati – Kalidevi Road	7
65	Tunibot Khola-Puchharbari- Mahadevsthan Road	7
66	Tunibot- Dumre Road	7
67	Gairaghar- Chautara- Kabase Road	7
68	Dhadakhariya – Kaaliaanpa Road	7
69	Sallepani- Chisapani- Healthpost- Salena Road	8
70	Pipaldanda- chiuripani Road	8
71	Jawade- Chuhantar- Sanibesi Road	8
72	Ruiidase- Bahunchura- Sailung Road	9
73	Sanankhel- Ward office 9- Bahunchura Pokhari Road	9
74	Maanedanda- Ruiidas Road	9
75	Mathillo Chhapkhani- Barbot- Tallo Chhapkhani- Sikral road	9
76	Salleni- Khanigaun- Thanapati-School Danda Road	9
77	Basnedhunga- Jyangkhar- Birauta Road	9
78	Dhapgaira- Sarankhel- Kalikadevi Pra.Bi. Road	9
79	Budilose- Bangesalla- Eklemane- Bahunchura Pokhari Road	9
80	Simle- Jyakhar- Sikaral Road	9
81	Dhansar- Pakhar- Gurje Road	9
82	Jakhanitar- Dhalepipal- Ward office 10- Pokhari road	10
83	Jakhanitar- Saraswoti Ma.Bi. – Pipaldanda- Ginatol- Salleni Road	10
84	Thumki- ward office 10 Road	10
85	Botechaur- Saunepani- Basabote Road	10
86	Ward office 10- Mukhiyatole- Puchhartole- Kaulekhola Road	10
87	Thulogaira- Padhero- Kerabari Road	10
88	Dhalepipal- Thapagaun Road	10
89	Schoolwari- Khatrigaun- Khaharekhola Road	10
90	Achhagaun Road	10
91	Pipaldanda- Rataaahal- Achhagaun – Hattidhunga - Deaurali Road	10
92	Kaphalgaira- Samatole Road	10

SN	Description	Ward No.
93	Kaphle Bhanjyangdhad- Simle Dandagaun- Bhyangle Road	10
94	Pokharidanda- Aaryaghat Road	10
95	Deaurali- Basapani- Gitedanda- Lokangahero- Jackade- Bapharkhola Road	10 (New Track)
96	Pachharpuda- Okharen khola- Bhaunchura Road	10 (New Track)
97	Bhattar- Maakhlo Road	11
98	Pipalbot –Khamare- Barbote- Dhuseni Ban- Panthali Road	11
99	Laharebar- Kaaule Bhanjyang- Jalkini Road	11
100	Mukhiyatole- Pasupati – Petasi- Khulaltole- Pitle Road	11
101	Paatlekhola- Nagpokhari- Bhimsenthan- Bhimar Road	11
102	Petasi- Dalita Basti Road	11
103	Dhankhoriya- Khairani Road	11
104	Singarebote- Tarbari Road	11
105	School Danda- Aambas- Ghurpangkhola Road	12
106	Sikral- Belbote Road	12
107	Simalbote- Deaurali- Ratedanda Road	12
108	Similbote- Tinpokhare- Oallo Deaurali Road	12
109	Bhulbhule - School Road	12
110	Bungdal- Sikarkateri Road	12
111	Paleban- Community Building Road	12
112	Aambasbesi- Bhandare Road	12
113	Simalbote- Khandadevi Road	12
114	Pasubali- Bhandare Road	12
115	School Danda – Batase- Bhorle Road	12
117	Bungdal- Dumre- Dhusune Road	12
118	Chyanegaira- Narbari- Dhodeni- Aaimantar- Bagarbesi - Jiro kilo - Sikril – Sawadanda Road	13
119	Lakuri Danda- Harre Road	13
120	Sadi- Dhamichaur- Bhusaltale Road	13
121	Devitar- Barre- Kisinde Road	13
122	Aale Gaira- Aayaldanda Road	13
123	Khamare- Aanpa- Gairi- Bagarbesi Road	13
124	Dharapani- Sisneri Road	13
125	Bagarbesi- Aambote- Nayatar Road	13
126	Sadigaira- Bhujel Tole Road	13
127	Phulasi- Jhagadedanda- Karjan- Niure- Milti Road	14
128	Chauki School- Roktaali- Biruwa- Aophara Road	14
129	Pokhari – Manedanda- Chhapali Road	14
130	Pokhari- Biruli – MiltiKhola Road	14
131	Chinne – Rotali- Biruwa- Mandalu- Odare – Saje Road	14
112	Phulasi- Karanjang- Samundra- Biruli Road	14
113	Okharbot- Ramitedhunga- Paiyakhola- Okhal Road	14
114	Ekmane – Painya Leka Road	14
115	Khokarkhola- Labsi- Bhitnagi Road	14
116	Karkale- Khokarkhola- Birali- Khadkagaun Road	14
117	Biruli- Ward office 14 Road	14
118	Phulasi- Pakhrin Tole Road	14

Inventory Sheet 3: Hierarchy of Roads by Class

S. N.	Road Code	Class	Road Name	Proposed RoW (m)	Length (km)	Black Top (km)	Gravel/Soling (km)	Earthen (km)
1	A001	A	Manthali - Sunarpani Road	14	9.15	8.85	0.3	0
2	A002	A	Manthali - Kathajor Road	14	18	2.348	1	14.652
3	A003	A	Manthali- Bhutiyakhola- Kathjor- Dhobi Road	14	21.3	5	0	16.3
4	A004	A	Devitar - Pokharidanda Road	14	18	4.32	13.68	0
5	A005	A	Manthali - Chisapani - Puranagaon Healthpost - Thanapati Road	14	18	1	2	15
6	A006	A	Manthali - Bhaluwajor Road	14	12	0.5	1	10.5
7	A007	A	Manthali - Raltar - Samalsthan - Salu Road	14	12	7	0	5
8	A008	A	Manthali - Chanakhu - Pokharidanda Road	14	14		1	13
9	A009	A	Manthali - Gelu - Sikral Road	14	18	4	1	13

S. N.	Road Code	Class	Road Name	Proposed RoW (m)	Length (km)	Black Top (km)	Gravel/Soling (km)	Earthen (km)
1	B001	B	Manthali - Bhatauli Road	10	7	5.5	0.5	1
2	B002	B	Sathimure- Kalleri Road	10	5			5
3	B003	B	Salu kukurkate - Bhanjyang Road	10	5		0.5	4.5
4	B004	B	Bhatauli - Sathimure Road	10	5			5
5	B005	B	Airport- Hatechaur Ring Road	10	2			
6	B006	B	Tamakoshi Kholsa- Khadabari Road	10	3			
7	B007	B	Gaiyatar- Bharuwa Road	10	3			
8	B008	B	Manthali- Bhadaure- Archale- Dandagau Road	10	4			
9	B009	B	Salubazzar- Gairathok- Kukurakate Bhanjyang Road	10	4			
10	B010	B	Talloganu- Chyandanda- Anakaitole- Golmathan- Parsaldanda- Mahadevsthan- Sukajor Simana Road	10	5			
11	B011	B	Kunauri- Dandakharka- Kalika Ma.Bi. – Kubhinde- Huklakdanda Road	10	6			
12	B012	B	Thedikhola-Mugikhola- Simpani- Chisapani- ManthaliGhat Road	10	7			
13	B013	B	Sallepani- Chisapani- Healthpost- Salena Road	10	5			
14	B014	B	Jakhanitar- Dhalepipal- Ward office 10- Pokhari road	10	6			
15	B015	B	Chyanegaira- Narbari- Dhodeni- Aaimantar- Bagarbesi - Jiro kilo - Sitali - Sawadanda Road	10	5.5			
16	B016	B	Pipaldanda- Rataaahal- Achhagaun – Hattidhunga - Deaurali Road	10	7			

S.N.	Road Code	Road Name	Average Width	Length of road based on surface type					Proposed RoW (m)	Intervention
				Existing			New Constructio	Total		
				Black Ton	Gravel	Earthen				
1	C001	Churaute- Fyaure Khola Road	4.5			3		3	8	Upgrading
2	C002	Machhedadi – Bhaiseshwor- Chandrashekhar Mandir Road	4.5			3.5		3.5	8	Upgrading
3	C003	Bhotedanda- Pitambar Prasad Ghar Road	4.5			4		4	8	Upgrading
4	C004	Dandaban- Kola Aanp- Setidevi Danda- Gaira Road	4.5			3		3	8	Upgrading
5	C005	Bhadaure- Sisnepani – Kolbotedanda Road	4.5			3.5		3.5	8	Upgrading
6	C006	Dwaare Dhunga- RatTar- Kalimati Road	6			2		2	8	Upgrading
7	C007	Ranagaun- Besitole- Gadapani Road	4.5			3.6		3.6	8	Upgrading
8	C008	Okharekhola- Bagaicha – Tallo Sunarpani	4.5			3		3	8	Upgrading
9	C009	Bhairabi Ma.Bi.- Bhyakure Bagaicha- Ranajor Khola	4.5			2		2	8	Upgrading
10	C010	Seleghat- Nabughat Road	6			3		3	8	Upgrading
11	C011	Health Post- Nursari Road	6			2.5	-	2.5	8	Upgrading
12	C012	Aakase Pakki Pul- Mugitar- Titribot-Kalleri- Pinkhuli Road	6			3	-	3	8	Upgrading
13	C013	Aasikheta Pokhari- Paharepani- Rameshwor Thakle – Thapadanda Road	6			4	-	4	8	Upgrading
14	C014	Pipaldanda- chiuripani Road	6			4	-	4	8	Upgrading
15	C015	Jawade- Chuhantar- Sanibesi Road	6			4	-	4	8	Periodic Maintenance
16	C016	Mathillo Chhapkhani- Barbot- Tallo Chhapkhani- Sikral road	6			4.05	-	4.05	8	Upgrading
17	C017	Salleni- Khanigaun- Thanapati-School Danda Road	4.5			3	-	3	8	Upgrading

S.N.	Road Code	Road Name	Average Width	Length of road based on surface type					Proposed RoW (m)	Intervention
				Existing			New Constructio	Total		
				Black Ton	Gravel	Earthen				
18	C018	Jakhanitar- Saraswoti Ma.Bi. – Pipaldanda-Ginatol- Salleni Road	4.5			4.15	-	4.15	8	Upgrading
19	C019	Thumki- ward office 10 Road	4.5			4.2	-	4.2	8	Upgrading
20	C020	Pipalbot –Khamare- Barbote- Dhuseni Ban-Panthali Road	4.5			3	-	3	8	Upgrading
21	C021	Laharebar- Kaaule Bhanjyang- Jalkini Road	4.5			2.5	-	2.5	8	Upgrading
22	C022	School Danda- Aambas- Ghurpangkhola Road	4.5			2	-	2	8	Periodic Maintenance
23	C023	Sikral- Belbote Road	6			4.4	-	4.4	8	Periodic Maintenance
24	C024	Sadi- Dhamichaur- Bhusaltole Road	6			3	-	3	8	Periodic Maintenance
25	C025	Devitar- Barre- Kisinde Road	6			2	-	2	8	Periodic Maintenance

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
			Unit	Nos.			
1	D001	Chiuripani- Bichatole- Petrol Pump Road	km	4	Upgrading + Maintenance	1	
2	D002	Aakase – Phuyal Tole Road	km	3.8	Upgrading + Maintenance	1	
3	D003	Kumaltar Road	km	3.5	Upgrading + Maintenance	1	
4	D004	Katarbot- Nagar Bikas Complex- Tamakoshi Hospital Road	km	5	Upgrading + Maintenance	1	
5	D005	Bhattatole- Nalami Danda- Dahal Gaun- Karka Road	km	8	Upgrading + Maintenance	1	
6	D006	Bhyakure – Sidhure Khola Road	km	5	Upgrading + Maintenance	1	
7	D007	Paani Ghat- BP Smriti Bhawan- Bhaiseshwor Road	km	4	Upgrading + Maintenance	1	
8	D008	Balkanya- Damaigaun Road	km	4	Upgrading + Maintenance	2	
9	D009	Sallaghari Community Forest- Mathillo Bhimsenthan- Kattike Road	km	4	Upgrading + Maintenance	2	
10	D010	Gairatole- Sisnepani- Kolbotedanda Road	km	6	Upgrading + Maintenance	3	
11	D011	Deauralidanda- Kutidanda Road	km	4	Upgrading + Maintenance	3	
12	D012	Kathajor- Puranagaun Road	km	3	Upgrading + Maintenance	3	
13	D013	Paunaghar- Dalita Basti- Simbaari Tole Road	km	4.7	Upgrading + Maintenance	3	
14	D014	Bhumetar- Bhimsenthan- Saalketole Road	km	6	Upgrading + Maintenance	3	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
15	D015	Bitra- Kuwapani- Dunde Road	km	5	Upgrading + Maintenance	3	
16	D016	Gairachaur- Chilaunetar- Birta Road	km	5	Upgrading + Maintenance	3	
17	D017	Thanti- Lampata- Dunde Road	km	3	Upgrading + Maintenance	3	
18	D018	Lampata Road	km	2	Upgrading + Maintenance	3	
19	D019	Thado Pakha- Aahaldanda- Pakhatole- Basbote Road	km	4	Upgrading + Maintenance	3	
20	D020	Deaurali Danda- Basabote- Dhungedanda Road	km	5	Upgrading + Maintenance	3	
21	D021	Thati- Airambas Road	km	5	Upgrading + Maintenance	3	
22	D022	Thati- Kaldanda Road	km	3	Upgrading + Maintenance	3	
23	D023	Bhairabi Ma.Bi. – Chyandanda- Paharigaun- Machabari- Gufadanda- Mahadevsthan- Tinghari Road	km	3	Upgrading + Maintenance	5	
24	D024	Petaridanda- Gaikharka- Gadapani- Pari Bhyaure- Aaiitabarekhola- Darimbot Road	km	4	Upgrading + Maintenance	5	
25	D025	Koldanda- Rusepani- Machabari- Jamdardanda- Khaltepani- Sukajor Road	km	6	Upgrading + Maintenance		
26	D026	Kirakhor – Bhyaure- Kholapari Road	km	5	Upgrading + Maintenance	5	
27	D027	Hattitar Agriculture Road	km	4	Upgrading + Maintenance	6	
28	D028	Thulachaur- Gairakhola Road	km	4	Upgrading +	6	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
					Maintenance		
29	D029	Deaurali- Masanghat Road	km	2	Upgrading + Maintenance	6	
30	D030	Kunauri- Dhwaandre Khola Road	km	3	Upgrading + Maintenance	6	
31	D031	Thaklekhola- Samibot- Patle- Bangesaala Road	km	5	Upgrading + Maintenance	7	
32	D032	Lampate- Ghatedanda- Manegaira- Pingkhuri Road	km	5	Upgrading + Maintenance	7	
33	D033	Swaaghanra- Jiro Point- Dadiram tole Road	km	3	Upgrading + Maintenance	7	
34	D034	Ekle Pipal- Titribot Road	km	3	Upgrading + Maintenance	7	
35	D035	Salbote- Jyamirebot- Kaaliaanpa – Aanpachaur Road	km	4	Upgrading + Maintenance	7	
36	D036	Rolini – Salbote- Simpani Road	km	6	Upgrading + Maintenance	7	
37	D037	Mathillo Aambot- Danda Pokhari- Badimuhan Road	km	5	Upgrading + Maintenance	7	
38	D038	Dhadekhola- Gopitar- Gaaebote – Rameshowor Road	km	4	Upgrading + Maintenance	7	
39	D039	Barbote- Waiibatole- Manedanda Road	km	4	Upgrading + Maintenance	7	
40	D040	Barpipal- Chhatune Road	km	2	Upgrading + Maintenance	7	
41	D041	Ratamata- Jugepani- Salleni- Indrawati – Kalidevi Road	km	3	Upgrading + Maintenance	7	
42	D042	Tunibot Khola-Puchharbari- Mahadevsthan Road	km	5	Upgrading + Maintenance	7	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
43	D043	Tunibot- Dumre Road	km	3	Upgrading + Maintenance	7	
44	D044	Gairaghar- Chautara- Kabase Road	km	3	Upgrading + Maintenance	7	
45	D045	Dhadakhariya – Kaaliaanpa Road	km	4	Upgrading + Maintenance	7	
46	D046	Ruiidase- Bahunchura- Sailung Road	km	6	Upgrading + Maintenance	9	
47	D047	Maanedanda- Ruiidas Road	km	5	Upgrading + Maintenance	9	
48	D048	Basnedhunga- Jyangkhar- Birauta Road	km	4	Upgrading + Maintenance	9	
49	D049	Dhapgaira- Sarankhel- Kalikadevi Pra.Bi. Road	km	4	Upgrading + Maintenance	9	
50	D050	Budilose- Bangesalla- Eklemane- Bahunchura Pokhari Road	km	2	Upgrading + Maintenance	9	
51	D051	Simle- Jyakhar- Sikaral Road	km	3	Upgrading + Maintenance	9	
52	D052	Dhansar- Pakhar- Gurje Road	km	5	Upgrading + Maintenance	9	
53	D053	Botechaur- Saunepani- Basabote Road	km	3	Upgrading + Maintenance	10	
54	D054	Ward office 10- Mukhiyatole- Puchhartole- Kaulekhola Road	km	3	Upgrading + Maintenance	10	
55	D055	Thulogaira- Padhero- Kerabari Road	km	4	Upgrading + Maintenance	10	
56	D056	Dhalepipal- Thapagaun Road	km	6	Upgrading + Maintenance	10	
57	D057	Schoolwari- Khatrigaun-	km	5	Upgrading +	10	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
		Khaharekhola Road			Maintenance		
58	D058	Kaphalgaira- Samatole Road	km	4	Upgrading + Maintenance	10	
59	D059	Kaphle Bhanjyangdhad- Simle Dandagaun- Bhyangle Road	km	4	Upgrading + Maintenance	10	
60	D060	Pokharidanda- Aaryaghat Road	km	2	Upgrading + Maintenance	10	
61	D061	Deaurali- Basapani- Gitedanda- Lokangahero- Jadkade- Bapharkhola Road	km	3	Upgrading + Maintenance	10 (New Track)	
62	D062	Pachharpuda- Okharen khola- Bhaunchura Road	km	5	Upgrading + Maintenance	10 (New Track)	
63	D063	Bhattar- Maakhlo Road	km	3	Upgrading + Maintenance	11	
64	D064	Mukhiyatole- Pasupati – Petasi- Khulaltole- Pitle Road	km	3	Upgrading + Maintenance	11	
65	D065	Paatlekhola- Nagpokhari- Bhimsenthan- Bhimar Road	km	4	Upgrading + Maintenance	11	
66	D066	Petasi- Dalita Basti Road	km	6	Upgrading + Maintenance	11	
67	D067	Dhankhoriya- Khaireni Road	km	5	Upgrading + Maintenance	11	
68	D068	Singarebote- Tarbari Road	km	4	Upgrading + Maintenance	11	
69	D069	Simalbote- Deaurali- Ratedanda Road	km	4	Upgrading + Maintenance	12	
70	D070	Similbote- Tinpokhare- Oallo Deaurali Road	km	2	Upgrading + Maintenance	12	
71	D071	Bhulbhule - School Road	km	3	Upgrading +	12	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
					Maintenance		
72	D072	Bungdal- Sikarkateri Road	km	5	Upgrading + Maintenance	12	
73	D073	Paleban- Community Building Road	km	3	Upgrading + Maintenance	12	
74	D074	Aambasbesi- Bhandare Road	km	3	Upgrading + Maintenance	12	
75	D075	Simalbote- Khandadevi Road	km	4	Upgrading + Maintenance	12	
76	D076	Pasubali- Bhandare Road	km	6	Upgrading + Maintenance	12	
77	D077	School Danda – Batase- Bhorle Road	km	5	Upgrading + Maintenance	12	
78	D078	Bungdal- Dumre- Dhusune Road	km	4	Upgrading + Maintenance	12	
79	D079	Lakuri Danda- Harre Road	km	4	Upgrading + Maintenance	13	
80	D080	Aale Gaira- Aayaldanda Road	km	2	Upgrading + Maintenance	13	
81	D081	Khamare- Aanpa- Gairi- Bagarbesi Road	km	3	Upgrading + Maintenance	13	
82	D082	Dharapani- Sisneri Road	km	5	Upgrading + Maintenance	13	
83	D083	Bagarbesi- Aambote- Nayatar Road	km	3	Upgrading + Maintenance	13	
84	D084	Sadigaira- Bhujel Tole Road	km	3	Upgrading + Maintenance	13	
85	D085	Phulasi- Jhagadedanda- Karjan- Niure- Milti Road	km	4	Upgrading + Maintenance	14	

S.N.	Road Code	Description	Length		Intervention	Ward No.	Remarks
86	D086	Chauki School- Roktaali- Biruwa- Aophara Road	km	6	Upgrading + Maintenance	14	
87	D087	Pokhari – Manedanda- Chhapali Road	km	5	Upgrading + Maintenance	14	
88	D088	Pokhari- Biruli – MiltiKhola Road	km	4	Upgrading + Maintenance	14	
89	D089	Chinne – Rotali- Biruwa- Mandalu- Odare – Saje Road	km	4	Upgrading + Maintenance	14	
90	D090	Phulasi- Karanjang- Samundra- Biruli Road	km	2	Upgrading + Maintenance	14	
91	D091	Okharbot- Ramitedhunga- Paiyakhola- Okhal Road	km	3	Upgrading + Maintenance	14	
92	D092	Ekmene – Painya Leka Road	km	8	Upgrading + Maintenance	14	
93	D093	Khokarkhola- Labsi- Bhitnagi Road	km	4	Upgrading + Maintenance	14	
94	D094	Karkale- Khokarkhola- Birali- Khadkagaun Road	km	3	Upgrading + Maintenance	14	
95	D095	Biruli- Ward office 14 Road	km	3.5	Upgrading + Maintenance	14	
96	D096	Bhumethan – Khor Road	km	5	Upgrading + Maintenance	14	
		Total	km	390.5			

ANNEX C PHOTOGRAPHS





ANNEX D : MEETING MINUTES

आज मिति २०७३/०१/१८ गते विहिवारका दिन
यस गणकी नगरपालिकाको सदर कार्यालय गुड्डियोजना
सम्बन्धित अभियुक्तको कार्यालय गोरेठमा निम्न
उल्लेखित महानुभावहरु उपरिस्थित कार्यक्रम सम्पन्न
गरियो ।

क्र.सं.	नाम	पद	सम्पर्क नं.	सह
१.	रमेश कुमार बस्नेत	नगरप्रमुख	९८५१०४८४८८	
२.	माया कुमारी कुर्मी	नगर उपप्रमुख	९८५४०४०८३१	
३.	लिताराम पौडेल	प्र.प्र.अ.	९८५४०४८१११	
४.	हेमन्त कुमार बुढाथोकी	प्रा.उपसचिव	९८५४०४०८४४	
५.	होम बहादुर सङ्का	सक.इन्जिनियर		
६.	कृष्णदाश श्रेष्ठ	"		
७.	लक्ष्मण बुढाथोकी	"	९८५११५८५१३	
८.	सरोज सुवेदी	"	९८५१५५२५५५	
९.	बालु बोगी खत्री	"	९८५११५६९६९	
१०.	राम कुमार श्रेष्ठ	अ.स.ई.	९८५४०४३०५७	
११.	राज कुमार पुजारी	अ.स.ई.	९८५२३३६००५	
१२.	सीताराम खत्री	आ.स.ई.	९८५४३८७०५७	
१३.	गुणवत्त पौडेल	आ.स.ई.	९८५११३२०२५	
१४.	दीपक मल्ल सुवेदी	आ.स.ई.		
१५.	गोविन्द बुढाथोकी	आ.स.ई.	९८५४२२६४४४	
१६.	शिवराम दाहा	आ.स.ई.	९८५११८४५५	

ANNEX E : FIELD FORMS

माग फारम

बाटोकालागि अनुरोध
वार्डले भर्ने

1. वार्ड न. :
2. प्राथमिकताका आधारमा तालिका भर्नुहोस् :

Code	बाटोको नाम	चौडाई	बाटोको प्रकार				प्राथमिकता न. *
			नया बाटो खोल्ने	स्तरोन्नति गर्ने	पुनरुत्थान गर्ने	अबधिक मर्मत	
क							
ख							
ग							
घ							
ङ							

पहिलो प्राथमिकताका लागि १, दोस्रोका लागि २ भर्नुहोस्

3. माथिको प्राथमिकता मितिको वडा बैठक बाट तोकिएको छ ।
4. लाभान्वित बस्ती :

कोड**	बस्तीको नाम, घरधुरी, जनसंख्या
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5. लाभको प्रकार र प्राथमिकताका कारण :

कोड**	कस्तो किसिमको फाइदा पुग्छ लेख्नुहोस्
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** २ न. तालिका अनुसार भर्नुहोस्

6. अरु संस्थाहरुको संलग्नता :

कोड	अरु संस्थाहरु कुनै यो project मा संलग्न भएको (बाह्य donor, NGOs, INGOs, नेपाल सरकारको संस्थाहरु) भए उल्लेख गर्नुहोस् ? वा नजिकैको कुनै गा. वि. स. ले अनुरोध गरेको भए उल्लेख गर्नुहोस् ? तिनीहरुको संलग्नता र प्रकार समेत उल्लेख गर्नुहोस्
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२ न. तालिका अनुसार भर्नुहोस्

7. वडामा अन्य विकासको योजना:

यातायात क्षेत्र बाहेक अन्य बिकासको योजना भए उल्लेख गर्नुहोस् :

S. No.	विकास योजनाको नाम	प्राथमिकता क्रम	कैफियत (स्थान , महत्व , सहयोग, आदी)
1.			
2.			
3.			
4.			
5.			
6.			
7.			

8. प्रस्तावित बाटोको लागि वडाको भूमिका (उल्लेख गर्नुहोस्):

a) वडाले निम्न किसिमले सहयोग गर्नेछ :

- नगद पैसा सहयोग (कति प्रतिशत उल्लेख गर्नुहोस्:.....%)
- श्रमदान (सिमांकन औल्याउनुस) कति सम्म रु.....
- जग्गा जमिन दान.....
- खानाका लागि काम.....
- मर्मत कार्य सहयोग.....
- अन्य (उल्लेख गर्नुहोस्).....

b) मितिमा बसेको वडा बैठकले माथि उल्लेखित विवरण सबै छलफलबाट पारित गरिएको घोसणा गर्दछ | एक प्रतिलिपि वडामा रेकर्डमा राख्नुहोस् |

वडा संयोजकको हस्ताक्षरसडक समितिको संयोजकको हस्ताक्षर

(नाम:) (नाम:)

मिति : मिति :