

Gurans Rural Rural municipality Office of the Rural Municipal Executive Karnali Province Dailekh

Preparation of Rural Rural municipality Transport Master Plan (RMTMP)

Gurans, Dailekh

(Final Report)

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SUBMITTED BY:

Safe Nepal Engineering Pvt Ltd Balaju, Kathmandu

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ACRONYMS/ABBREVIATIONS

DDC District Development Committee

DTMP District Transport Master Plan

RMIM Rural municipality Road Inventory Map

RMRCC Rural municipality Road Coordination Committee

NMT Non- Motorized Transport

RMTMP Rural municipality Transport Master Plan

RMTPP Rural municipality Transport Perspective Plan

VDC Village Development Committee

RMTPP Rural municipality Transport Perspective Plan

PCU Passenger Car Unit

DOLIDAR Department of Local Infrastructure Development and Agricultural

Roads

ToR Terms of Reference

HH Household

VDCs Village Development Committees

PT Public Transport

Min. Minute

Km. Kilometre

Sq. km Square Kilometre

Ha Hectare

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EXECUTIVE SUMMARY

Transport facilities help in developing access with the urban linkages. Road accessibility can reduce isolation, stimulate crop production and marketing activities, encourage public services and help to transfer technology. Road building has been seen to bring about notable enthusiasm and visible changes in municipal 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 is prepared for assessing and planning the present road and transport infrastructures and facilities within the rural municipality and its surrounding.

Gurans is a rural municipality located in Dailekh District of Karnali Province of Nepal. The total area of the rural municipality is 164.79 square kilometers and the total population of the rural municipality as of 2011 Nepal census is 22,033 individuals. The rural municipality is divided into total 8 wards.

The rural municipality was established on 10 March 2017, when Government of Nepal restricted all old administrative structure and announced 744 local level units (although the number increased to 753 later) as per the new constitution of Nepal 2015. Khadkawada, Baraha, Seri, Goganpani, Piladi and Lalikanda Village development committees were incorporated to form this new rural municipality. The headquarters of the municipality is situated at Baraha

Road inventory survey was done and total length of road surveyed was 396.54 km. Out of which 58.82 is Blacktop, 100.52 km is Earthen, 213.45 km is gravel and 23.75 km is New Track.

| Ward No | Blacktop | Earthen | Gravel | New Track | Total |
|---------|----------|---------|--------|-----------|--------|
| 1 | 13.27 | 5.41 | 38.84 | 1.28 | 58.80 |
| 2 | 10.85 | | 27.54 | | 38.39 |
| 3 | | 17.34 | 22.07 | 0.86 | 40.27 |
| 4 | 22.83 | 8.04 | 16.85 | 2.00 | 49.72 |
| 5 | 11.87 | 29.30 | 34.19 | 16.95 | 92.30 |
| 6 | | | 46.05 | | 46.05 |
| 7 | | 40.42 | | 2.67 | 43.09 |
| 8 | | | 27.92 | | 27.92 |
| Total | 58.82 | 100.52 | 213.45 | 23.75 | 396.54 |

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

| Road Class | Row (m) | Setback(m) |
|------------|---------|------------|
| А | >14 | >2 |
| В | >10 | 2 |
| С | >6 | 1.5 |

The total lengths of Class A, B, and C roads are summarized as shown in the table below.

| Class | Blacktop | Earthen | Gravel | New Track | Total |
|-------|----------|---------|--------|-----------|--------|
| Α | 11.87 | 20.74 | 56.18 | | 88.79 |
| В | | 23.62 | 47.37 | 6.88 | 77.86 |
| С | | 56.16 | 109.90 | 16.88 | 182.94 |
| SRN | 46.95 | | | | 46.95 |
| Total | 58.82 | 100.52 | 213.45 | 23.75 | 396.54 |

There are total 52.97 km length of district roads and 46.95 km length of SRN passing through this rural municipality which plays important role for inter-rural municipality mobility.

SECTION 1. INTRODUCTION

1.1. Context and Background

Life in organized human settlements, which are mostly referred to as communities, is only possible if people have mobility in daily basis. Residential area is spatially separated from workplaces, major shopping is concentrated in identifiable centers, and larger entertainment and relaxation facilities are found at specific locations. They have to have accessibility. Unlike in a village, very few of these destinations are reachable on foot; at least, they tend not to be within a convenient walking distance for all.

Transport facilities help in developing access with the urban linkages. Road accessibility can reduce isolation, stimulate crop production and marketing activities, encourage public services and help to transfer technology. Road building has been seen to bring about notable enthusiasm and visible changes in 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.

To bring coherence and proper planning in infrastructure development of the Rural municipality and its surrounding urbanizing, this study of preparation of RMTMP for Gurans will be a milestone. Formulation of Rural Municipal Transport Master Plan was initiated for assessing the present road and transport infrastructures and facilities within the Rural municipality and the surrounding. So as to be presented as proper Rural municipality or a city, it must have a very good mobility and accessibility by public or private means of transportation.

1.2. Objectives

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

1. Prepare the Rural municipality Inventory Map (RMIM) of all road networks.

- 2. Identify the major road networks linking the Rural municipality with the surrounding areas.
- 3. Collection of demands for new/rehabilitation transport linkages from Municipalities/settlements based on city development plan.
- 4. Analyze the present mobility and accessibility situation.
- 5. Identify and prioritize the interventions based on mobility and accessibility situation.
- 6. Prepare a five years Rural municipality Transport Master Plan (RMTMP).

1.3. Scope of Work

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

a. Accessibility data Collection and Analysis.

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

b. Prepare Rural municipality Inventory Map (RMIM) of existing roads within Gurans Rural municipality.

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

c. Road classification and Nomenclature

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

d. Scoring criteria

The consultant shall develop scoring criteria to screen and prioritize all interventions potential interventions for proper allocation of limited budget. Scoring and

prioritization criteria shall be checked with all linkages and interventions and approved by the Rural municipality

e. Prepare Rural Municipal Transport Master Plan (RMTMP) of Gurans Rural municipality

The consultant shall prepare Rural Municipal Transport Master plan (RMTMP) for Gurans Rural municipality with due consideration to the existing situation of: vehicular parking, travel routes, modes of transport, etc. and propose for future growth. The consultant shall prepare a base scenario of the existing road and transport network and prepare road inventory map and transport infrastructure network and management plan

The Consultant shall carry out activities and deliver services and documents as follows:

- Accessibility data Collection and Analysis
- Prepare Rural municipality Inventory Map (MIM) of existing roads within Gurans Rural municipality.
- Collection of demands for New/Upgrading/Rehabilitation transport Linkages from Wards/Settlements.
- Develop scoring criteria and its approval.
- Road Classification and Nomenclature
- Prepare Rural municipality Transport Master plan (RMTMP) of Gurans Rural municipality.

The consultant shall also conduct a depth review of the existing transportation network and management system within the municipal area and shall propose and recommend intervention to increase accessibility, mobility and safety, accordingly.

1.1. Approach and Methodology

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

sampling techniques, quality and quantity of data along with data processing, analysis and presentation methodology.

1.3.1. Approach:

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

1.3.2. Methodological Framework:

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

1.4. Primary Data Collection:

Primary information on present household and trip characteristics, traffic characteristics, existing accessibility and mobility level of settlements, prioritized road network required for each ward are obtained via various reliable methods. Tracking of the existing road network

along with detail information of its width, surface type and possible intervention required for the effectiveness of services is also carried out.

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

- Road Inventory Survey
- Public Transport and Services Study

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

Road Demand survey comprised of interaction session with the members of wada nagarik manch followed by asking them to fill up demand survey form, which includes demand of new facility or interventions to improve existing roads based on priority.

1.5. Data Processing, Analysis and Presentation of Reports

Data collected at field were first entered at MS office tools (MS excel and Word) and GIS database. All the complete and reliable sets of data were transformed into useable information and the present scenario of rural municipality are shown through graphs, figures and tables. Population and traffic were forecasted for the MTMP and MTPP time period.

1.6. Digital Name Coding

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

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

If the alignment of a street is not exactly North-South or West-East then the start point is defined by the angle by which a street is deviated from the North-South or the West-East line.

If a street's deviation is within 45 degrees from North-South line then its start point shall be on the Northern end, else on the Western end of the West-East line. Although the above convention was followed, the situation of streets in some places can imply the method to be impractical. Hence, major service centres and markets or thoroughfares are also considered as the reference point for start point of a street.

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

While coding, the streets branching from the main streets to the left are given only odd numbers (A01 or A13) and those branching from the right are given even numbers (A02 or A10). The major issue in Digital Name Coding process arises in the coding of new roads in the future. This issue is important as the codes are allocated progressively to each street and any new street shall be given a subsequent code after the last assigned code depending upon the left or right side of the street. The new Digital codes will break the continuity of the Digital naming of the streets but whatsoever these codes will be used for computer database as the local people only use street names for the recognition of the roads in the rural municipality.

1.7. Scoring Criteria for Prioritization

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

Table 1: Scoring Criteria for prioritization of municipal roads

| S.N | Scoring Criteria | Scoring Unit | Score |
|-----|---|------------------------------------|-------|
| 1 | Link providing service to large settlement areas/population | Population served/km | 30 |
| 3 | Link providing service to the existing service centres such as health centres, education centres (schools/campuses), offices (rural municipality office/Government office, etc.), | Number of different service sector | 30 |
| 4 | Priority of ward | Ranking of priority from 1 to 5 | 20 |
| 5 | Link providing service Hierarchy of Roads. | Connection to the type of Roads | 20 |
| | | Sub Total | 100 |

SECTION 2. REVIEW OF EXISTING INFRASTRUCTURE SITUATION

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

2.1. Location

Gurans is a rural municipality in Dailekh District in the Karnali Province of central Nepal. The rural municipality was established on 10 March 2017, when Government of Nepal restricted all old administrative structure and announced 744 local level units as per the new constitution of Nepal 2015.

Khadkawada, Baraha, Seri, Goganpani, Piladi and Lalikanda Village development committees were incorporated to form this new rural municipality. The total area of the rural municipality is 164.79 square kilometres (63.63 sq mi) and the total population of the rural municipality as of 2011 Nepal census is 22,033 individuals. The rural municipality is divided into total 8 wards.

Location Map of Gurans Rural Municipality Barahul Surans Gurans Rural Municipality Karnali Province Dailekh , Nepal Lebesh Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju, Kathmandu Map 02

Figure 1: Location map of study area

2.2. Socio-demographic

Population of this rural municipality in the year of 2021 AD is 21189 out of which 10402 are male and 10787 are female. The population of this rural municipality ward wise is as follows:

Table 2: Population of Gurans Rural municipality

| Wards | Household | Total | Male | Female | Area(sq.km.) |
|-------|-----------|-------|-------|--------|--------------|
| 1 | 509 | 2131 | 992 | 1139 | 17.17 |
| 2 | 550 | 2733 | 1313 | 1420 | 10.33 |
| 3 | 564 | 2622 | 1266 | 1356 | 13.94 |
| 4 | 799 | 3327 | 1648 | 1679 | 22.62 |
| 5 | 732 | 3421 | 1709 | 1712 | 30.31 |
| 6 | 568 | 2793 | 1387 | 1406 | 22.5 |
| 7 | 395 | 1901 | 965 | 936 | 32.73 |
| 8 | 424 | 2261 | 1122 | 1139 | 14.32 |
| Total | 4541 | 21189 | 10402 | 10787 | 163.92 |

(Source: National Population Census 2021, CBS Nepal).

2.3. Land use condition

Almost 59% of total land is covered with forest and remaining categories with respective percentages are given in table below:

Table 3: Land use condition in the study area

| Category | Percentage % |
|--------------------|--------------|
| Barren Land | 0.01 |
| Bush | 6.55 |
| Cultivation | 29.31 |
| Forest | 58.26 |
| Grass | 5.05 |
| Pond or Lake | 0.00 |
| River/Waterbody | 0.16 |
| Riverbed | 0.67 |
| Grand Total | 100 |

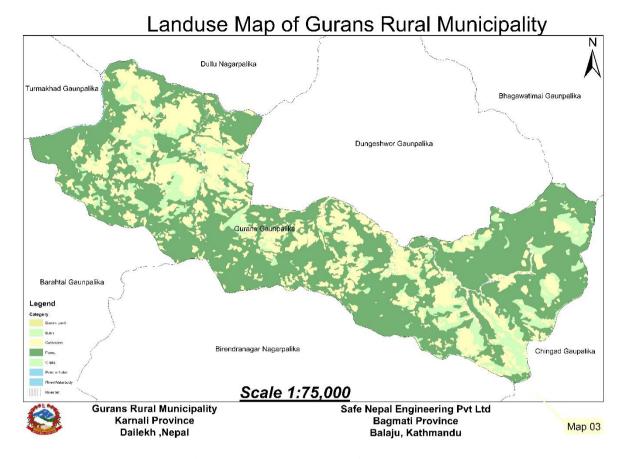


Figure 2: Landuse map of study area

2.4. Transportation

a. Road inventory

For the collection of existing road infrastructure data, GPS survey was used and total length of road surveyed was 372.79 km. The earthen road of 100.52 km need upgradation.

| Ward No | Blacktop | Earthen | Gravel | Total |
|---------|----------|---------|--------|--------|
| 1 | 13.27 | 5.41 | 38.84 | 57.52 |
| 2 | 10.85 | | 27.54 | 38.39 |
| 3 | | 17.34 | 22.07 | 39.41 |
| 4 | 22.83 | 8.04 | 16.85 | 47.72 |
| 5 | 11.87 | 29.30 | 34.19 | 75.35 |
| 6 | | | 46.05 | 46.05 |
| 7 | | 40.42 | | 40.42 |
| 8 | | | 27.92 | 27.92 |
| Total | 58.82 | 100.52 | 213.45 | 372.79 |

Table 4:Existing Road condition (Ward-Wise)

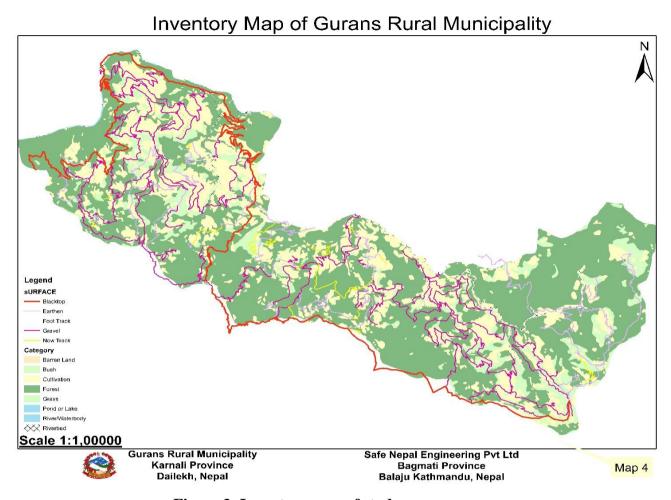


Figure 3: Inventory map of study area

Table 5: Ward-wise Road Density

| Ward No | Population | Area (Sq. Km) | Road (In Km) | Road Per Sq. Km | Road per 1000 Population |
|------------|------------|---------------|--------------|--------------------|-----------------------------|
| 1 | 2131 | 17.17 | 57.52 | 3.35 | 26.99 |
| 2 | 2733 | 10.33 | 38.39 | 3.72 | 14.05 |
| 3 | 2622 | 13.94 | 39.41 | 2.83 | 15.03 |
| 4 | 3327 | 22.62 | 47.72 | 2.11 | 14.34 |
| 5 | 3421 | 30.31 | 75.35 | 2.49 | 22.03 |
| 6 | 2793 | 22.5 | 46.05 | 2.05 | 16.49 |
| 7 | 1901 | 32.73 | 40.42 | 1.24 | 21.26 |
| 8 | 2261 | 14.32 | 27.92 | 1.95 | 12.35 |
| Total | 21189 | 163.92 | 372.79 | 2.27 | 17.59 |

Table 6: DRCN and SRN within rural municipality and length in each ward

| | Wards | | | | | | |
|--|-------|-------|------|-------|-------|-------|-------|
| Road Name/Type | 1 | 2 | 3 | 4 | 5 | 7 | Total |
| DRCN | 4.44 | | 4.18 | 4.40 | 23.60 | 16.34 | 52.97 |
| Dharma khokara bazer -markha kafal mala- | | | | | | | |
| Ratanagla-Patal khola-Gurans Bazar road | 4.44 | | | | 11.87 | 16.34 | 32.66 |
| Patikalla ,dobato bazer to gurausha road | | | 4.18 | | | | 4.18 |
| Rauta galchaina-warda office to baiurakhat bazer | | | | | 11.74 | | 11.74 |
| Seri bada ko sostha bata dobato bazer sama ko | | | | | | | |
| road | | | | 4.40 | | | 4.40 |
| SRN | 13.27 | 10.85 | | 22.83 | | | 46.95 |
| Karnali Rajmarg | 13.27 | 10.85 | | 22.83 | | | 46.95 |
| Total | 17.72 | 10.85 | 4.18 | 27.23 | 23.60 | 16.34 | 99.92 |

According to the District Transport Master Plan (DTMP) of Dailekh district prepared in the year of 2013, four roads of total length 52.97 km of this rural municipality are listed as district road core networks (DRCN) which are under the responsibility of the District Development Committee.

b. Road Priority

From the ward level workshop, the most demanding five roads for each ward are collected and these roads will be used for the road priority and while developing road hierarchy. The roads sections based on the data obtained from ward is presented below:

Table 7: Name of Prioritized Road (Ward Wise)

| | Priority | | | | |
|---|----------|-------|-------|------|------|
| Road Name | 1 | 2 | 3 | 4 | 5 |
| Ward 1 | | | | | |
| Brathan Mandir Road | 0.44 | | | | |
| Dharma khokara bazer -markha kafal | | | | | |
| mala-Ratanagla-Patal khola-Gurans Bazar | | | | | |
| road | | 13.86 | | | |
| Karnali Rajmarg | | | 13.27 | | |
| Maine khola , gayala ghadi to badu gau | | | | 7.31 | |
| Chautara to patikalla road | | | | | 9.36 |
| Ward 2 | | | | | |
| Ward 2 office to Khadgawada Health Post | | | | | |
| Road | 3.41 | | | | |
| Sauli Bazar-Ward 2 Office-Dauti Yesthan- | | | | | |
| Seti Bada Road | | 10.70 | | | |
| Duda pokhara , dubari, tehari than , rani | | | | | |
| ban road | | | 2.76 | | |

| | | | Priority | | |
|--|-------|-------|----------|------|-------|
| Road Name | 1 | 2 | 3 | 4 | 5 |
| School bata chaur jana road | | | | 0.44 | |
| Karnali Rajmarg | | | | | 10.85 |
| Ward 3 | | | | | |
| Patikalla-chharchi gau -sati bada -teyadi | 4.35 | | | | |
| ward numbar 4 bata kum khola-ward 3- | | | | | |
| santi mavi-gungra khola road | | 8.54 | | | |
| Chchain danda , talo thar sari gau road | | | 2.03 | | |
| Patikalla ,dobato bazer to gurausha road | | | | 4.18 | |
| talo thari gau to rati khola sama ko road | | | | | 3.65 |
| Ward 4 | | | | | |
| ward numbar 4 bata kum khola-ward 3- | | | | | |
| santi mavi-gungra khola road | 4.14 | | | | |
| Gurausha bazer to laxmi pravi school | | 2.94 | | | |
| Sakindhara gau to rani bana sama ko | | | | | |
| road | | | 2.27 | | |
| Shanti mavi - Dobato | | | | 2.55 | |
| Karnali Rajmarg | | | | | 22.83 |
| Ward 5 | | | | | |
| Bubairakhe-Bhairi-Sana Kadha | 10.07 | | | | |
| Rauta galchaina-warda office to | | 44 74 | | | |
| baiurakhat bazer | | 11.74 | 42.40 | | |
| Zero Point- Ward 5-Ghoda bass ko Bazar | | | 13.10 | 2.26 | |
| Bhari khor chowk to aalyati gaira road Dharma khokara bazer -markha kafal | | | | 3.26 | |
| mala-Ratanagla-Patal khola-Gurans Bazar | | | | | |
| road | | | | | 11.87 |
| Ward 6 | | | | | |
| Bhuichura-Bagaura-Puliya | 13.72 | | | | |
| Dhan Takuri-Milan Chowk-0Thati-Masta | | | | | |
| Mandir-Garche Khola to Kuli | | 7.31 | | | |
| Zero point to lamjaula gaau road | | | 3.39 | | |
| Churtani chowk road | | | | 1.48 | |
| Pati halana Ping halana to jana kalyan | | | | | |
| road | | | | | 3.44 |
| Ward 7 | | | | | |
| Dharma pokhara , chota phokara to | 2.62 | | | | |
| jumra gau road Ghumna beshau chowk ,sadhala,okhalani | 2.62 | | | | |
| gau road | | 7.33 | | | |
| Khala Tahu to lali Khola | | | 6.04 | | |
| lali khola to dhora bana road | | | 2.5.1 | 4.24 | |
| Chadani bazer to khureya, bahuna gau | | | | | |
| road | | | | | 3.13 |
| Ward 8 | | | | | |

| | Priority | | | | | |
|--------------------------------------|----------|------|------|------|------|--|
| Road Name | 1 | 2 | 3 | 4 | 5 | |
| Dhan Takuri-Milan Chowk-0Thati-Masta | | | | | | |
| Mandir-Garche Khola to Kuli | 6.51 | | | | | |
| Thati Khola Chowk to malika Ma Bi | | 4.35 | | | | |
| Dhan Takuri-Milan Chowk-0Thati-Masta | | | | | | |
| Mandir-Garche Khola to Kuli | | | 6.16 | | | |
| Ghau Pokhari- Garga Gaau-Sarasothi | | | | | | |
| Mandir | | | | 4.48 | | |
| Dharam Pokhara Bazar Road | | - | | | 0.82 | |

2.5. Review of previous RMTMP

Previous RMTMP was done at December of 2017 which had survey of 288.27 km of roads having 23.94 km Gravel roads, 213.33 km Earthen roads, 51 km Blacktopped roads. Furthermore, 81.78 km of roads were proposed at that time. Survey length of road now has been increased by 184.52 km, making it a total of 472.79 km of roads in this RMTMP. Only 23.75 kms of roads have been proposed this time. Comparing the data of both RMTMPs, we can clearly see that most of the previous earthen roads have now been Graveled. And same as of previous RMTMP, roads are classified into three different classes i.e. A, B and C.

Table 8: Comparison of Road Surface

| | Length (In KM) | | | | |
|--------------|----------------|--------|--|--|--|
| Road Surface | Then | Now | | | |
| Earthen | 213.33 | 100.52 | | | |
| Gravel | 23.94 | 313.45 | | | |
| Blacktopped | 51 | 58.82 | | | |
| Total | 288.27 472.7 | | | | |

Table 9: Comparison of Road Class

| Road Class | Length (In KM) | | | | |
|------------|----------------|--------|--|--|--|
| Koad Class | Then | Now | | | |
| Α | 125.57 | 88.79 | | | |
| В | 43.01 | 77.86 | | | |
| С | 130.47 | 182.94 | | | |
| Total | 299.05 | 349.59 | | | |

SECTION 3. RURAL MUNICIPALITY TRANSPORT NETWORK PLANNING

3.1. Road Classification

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

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

A well-formed road hierarchy will reduce overall impact of traffic by concentrating longer distance flow onto routes in less sensitive locations, ensuring land uses and activities that are incompatible with traffic flow are restricted from routes where traffic movement should predominate and preserving areas where through traffic is discouraged.

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

This study also formulates the road hierarchy for the various roads. After going through large number of literatures, the study has proposed four level hierarchy roads namely Class A, B, C

and D. Class C and D basically deals with access while Class A and B basically deals with mobility and accessibility to higher services.

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

| is recommended for class A, B, C and D road respectively. | | | | | | | | | | |
|---|---|---------------|--------------------|---------|------------------------|-----------|-------|--|--|--|
| | | | ROW based | on Roac | l Hierard | chy (m) | | | | |
| Type of City | Criteria | Expressway | Arterial | Sub a | terial | Collector | Local | | | |
| Sub city | 10,000-40,000 | - | - | 3 | 80 | 20 | 10 | | | |
| City | 40,000- 100,000 | - | 50 | 3 | 80 | 20 | 10 | | | |
| Sub Metro City | 100,000-300,000 | 50 | 30 | 2 | 20 | 10 | 10 | | | |
| | Ref: Planning Norms and Standard 2015, GoN, DUDBC | | | | | | | | | |
| | ROW | / based on Ro | ad Hierarchy | (m) | | | | | | |
| Expressway | Arteria | Sub arterial | | | Collector | Local | | | | |
| - | 50-60 | ı | 30 | 0-40 | | 20-30 | 10-20 | | | |
| | Ref: No | epal Urban R | oad Standard | 2068 | | | | | | |
| Standard | Cycle T | rack Fo | ootpath (Minii | num) | Media | n Strip | | | | |
| NURS 20 | 68 2 m on | both side 2 | m on both sid | e | 5 m | | | | | |
| NRS 2070 2 r | | both side 1. | 1.5 m on both side | | 1.5 m on both side 5 m | | 5 m | | | |

Table 10: Comparison of Criterion of Road hierarchy

| Criteria | Class A | Class B | Class C |
|----------|--|--|---|
| Purpose | Mobility | Mobility and control access | Access and mobility |
| Function | Through and long-distance movement High network | Connection between Class A and C roads; and also Provide alternative connection routes between Class A Support through movement | Connects higher order roads and mobility to local trips Access to property |
| | coverage | of traffic | racess to property |

| Criteria | Class A | Class B | Class C |
|-------------------------------|---|---|------------------------------------|
| | Segregated NMT facilities and Bus lay-bys | Segregated NMT facilities and Bus lay-bys | Segregated NMT facilities |
| | Complete access to public transport | High access to public transport | Limited access to public transport |
| Maintenance Responsibility | Rural municipality | Rural municipality | Rural municipality & Community |
| Design Speed (Kmph) | 40 | 30 | 25 |
| Minimum Right of Way(m) | 14 | 10 | 6 |
| Extra width at curve (m) | 6 | 2 | 1.5 |
| Setback distance (m) | 2 | 1.5 | 1.5 |
| Access Control | Applicable | Applicable | Not Applicable |
| Public transport services | Local Public transport | Local Public transport | No public transportation |

Class A road

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

Table 11: List of Class A roads (ROW=14m)

| | | | | Length (In KM) | | | |
|----|------|--|----------|----------------|--------|-----------|----------------|
| SN | Code | Road Name | Blacktop | Earthen | Gravel | New Track | Grand Total |
| | | Dharma khokara bazer -markha kafal mala- | | | | | |
| 1 | A001 | Ratanagla-Patal khola-Gurans Bazar road | 22.24 | 18.17 | 13.86 | | 54.28 |
| 2 | A002 | Bhuichura-Bagaura-Puliya | | | 13.72 | | 13.72 |
| | | Rauta galchaina-warda office to baiurakhat | | | | | |
| 3 | A003 | bazer | | | 11.74 | | 11.74 |
| 4 | A004 | ward numbar 4 bata kum khola-ward 3- santi mavi-gungra khola road | | | 12.68 | | 12.68 |
| | | Seri bada ko sostha bata dobato bazer sama | | | | | |
| 5 | A005 | ko road | | 4.40 | | | 4.40 |
| 6 | A006 | Patikalla ,dobato bazer to gurausha road | | | 4.18 | | 4.18 |

Class B Road

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

Table 12: List of Class B roads (ROW=10)

| Tubic 120 21st of Class D Toute (110 11 10) | | | | | | | | |
|---|------|--------------------------------------|----------|----------------|--------|-----------|-------|--|
| | | | | Length (In KM) | | | | |
| SN | Code | Road Name | Blacktop | Earthen | Gravel | New Track | Total | |
| | | Ghumna beshau chowk- sadhala- | | | | | | |
| 1 | B001 | okhalani gau road | | 7.33 | | | 7.33 | |
| | | Dhan Takuri-Milan Chowk-Thati- | | | | | | |
| 2 | B002 | Masta Mandir-Garche Khola to Kuli | | | 19.98 | | 19.98 | |
| 3 | B003 | Bubairakhe-Bhairi-Sana Kadha | | 9.28 | | 0.78 | 10.07 | |
| | | Zero Point- Ward 5-Ghoda bass ko | | | | | | |
| 4 | B004 | Bazar | | 8.78 | | 6.09 | 14.87 | |
| 5 | B005 | Maine khola-gayala ghadi to badu gau | | | 7.31 | | 7.31 | |
| 6 | B006 | Chautara to patikalla road | | | 9.36 | | 9.36 | |
| | | Sauli Bazar-Ward 2 Office-Dauti | | | | | | |
| 7 | B007 | Yesthan-Seti Bada Road | | | 10.72 | | 10.72 | |

Class C Roads

All other small roads present inside the rural municipality lie under class C roads. Such roads provide service to very small population and are for mobility inside a small area. The proposed right of way for class C roads is 6 m.

Table 13: List of Class C roads (ROW=06)

| | | Table 13: List of Class C roads | KOW-00 | Length (in | KW) | | |
|----|------|--|----------|-------------|--------|-------|-------|
| | | | | Length (iii | Kivij | New | |
| SN | Code | Road Name | Blacktop | Earthen | Gravel | Track | Total |
| 1 | C001 | Demura chowk bata school sama ko road | | 1.52 | | | 1.52 |
| 2 | C002 | lali khola to dhora bana road | | 4.24 | | | 4.24 |
| 3 | C003 | Khala Tahu to lali Khola | | 6.04 | | | 6.04 |
| 4 | C004 | Mathan bata thana takura road | | 1.87 | | | 1.87 |
| 5 | C005 | Chadani bazer to khureya , bahuna gau road | | 0.47 | | 2.67 | 3.13 |
| 6 | C006 | Dharma pokhara , chota phokara to jumra gau road | | 2.62 | | | 2.62 |
| 7 | C007 | Dharam Pokhara Bazar Road | | | 0.82 | | 0.82 |
| 8 | C008 | Thati Khola Chowk to malika Ma Bi | | | 4.35 | | 4.35 |
| 9 | C009 | dobata bata gangi mara jana road | | | 0.71 | | 0.71 |
| 10 | C010 | talo khanara jana road | | | 0.63 | | 0.63 |
| 11 | C011 | Ghau Pokhari- Garga Gaau-Sarasothi Mandir | | | 4.48 | | 4.48 |
| 12 | C012 | Garcha Khola Road | | | 2.49 | | 2.49 |
| 13 | C013 | Garnja Chowk - Jhyanje Chowk | | | 0.98 | | 0.98 |
| 14 | C014 | Jhyanje Chowk Road | | | 0.79 | | 0.79 |
| 15 | C015 | Pati halana Ping halana to jana kalyan road | | | 3.44 | | 3.44 |
| 16 | C016 | Jay janta sec school road | | | 1.37 | | 1.37 |
| 17 | C017 | bagura chowk- bhagapati tool to milan chowk | | | 4.47 | | 4.47 |
| 18 | C018 | dhan takura chowk to kun tada sama ko road | | | 2.67 | | 2.67 |
| 19 | C019 | Raga danda chowk to naula road | | | 2.42 | | 2.42 |
| 20 | C020 | Ward 6 office to raga gaau road | | | 1.81 | | 1.81 |
| 21 | C021 | Zero point to lamjaula gaau road | | | 7.03 | | 7.03 |
| 22 | C022 | churtani chowk road | | | 1.48 | | 1.48 |
| 23 | C023 | Jungle kuna chowk to kota sama ko road | | | 1.82 | | 1.82 |
| 24 | C024 | Tarsha bata chowk , rana bon sama ko road | | | 2.13 | | 2.13 |
| 25 | C025 | Krishna mavi bata chameri gufa road | | 0.71 | | 0.52 | 1.22 |
| 26 | C026 | Ping danda to chahari gau sama ko roah | | | 0.93 | | 0.93 |
| 27 | C027 | Bhari khor chowk to aalyati gaira road | | | 3.26 | | 3.26 |
| 28 | C028 | Bhari khota chowk , chafla danda sama ko road | | | 0.71 | | 0.71 |
| 29 | C029 | thuli beshau to kuti mandir row | | | | 0.81 | 0.81 |
| 30 | C030 | Durga devi- Malika Pravi-Mosura danda chowk | | 4.19 | | 0.91 | 5.10 |
| 31 | C031 | Durga devi- Malika Pravi-Mosura danda chowk | | 0.41 | 1.76 | | 2.16 |
| 32 | C032 | Kanxi Bazar- Danda Pokhara gaau | | 2.46 | | | 2.46 |
| 33 | C033 | Kanxi Bazar- Danda Pokhara gaau | | 0.69 | | | 0.69 |
| 34 | C034 | kanxi Bazar road | | | | 0.86 | 0.86 |
| 35 | C035 | Hataru Bas Chowk Road | | 2.15 | | | 2.15 |
| 36 | C036 | hataru bas , negal pani to gaurava marja road | | | 3.04 | | 3.04 |
| 37 | C037 | Mostha Than Road | | | 1.30 | | 1.30 |
| 38 | C038 | Shahi tol bata aaushauja sama ko road | | | | 2.19 | 2.19 |
| 39 | C039 | Bhairi Gaau- Kuti Gaau to Chahara Khola Road | | | 1.99 | | 1.99 |
| 40 | C040 | Bhutakahni- Nautala Gaau road | | 2.40 | | | 2.40 |
| 41 | C041 | Salari Danda Pravi Road | | | | 1.61 | 1.61 |

| | | | | Length (in | KM) | | |
|----|------|--|----------|------------|--------|-------|-------|
| | | | | | | New | 1 |
| SN | Code | Road Name | Blacktop | Earthen | Gravel | Track | Total |
| 42 | C042 | Bhutakani bata dopaka gau veti khola sama road | | | | 3.17 | 3.17 |
| 43 | C043 | Prabhu Bank to Sasna Khola road | | | 5.84 | | 5.84 |
| 44 | C044 | Gurausha bazer to laxmi pravi school | | | 2.94 | | 2.94 |
| 45 | C045 | Shanti mavi - Dobato | | | 2.55 | | 2.55 |
| 46 | C046 | Kirshe firm , nigal pani ,daura ghadi road | | 3.64 | | 2.00 | 5.64 |
| 47 | C047 | Sakindhara gau to rani bana sama ko road | | | 2.27 | | 2.27 |
| 48 | C048 | Mallo mod to ratikhola road | | | 2.49 | | 2.49 |
| 49 | C049 | Suwoa Pokhari chowk Road | | | 0.70 | | 0.70 |
| 50 | C050 | Chesta paani to sari bada chauki | | | 1.76 | | 1.76 |
| 51 | C051 | talo thari gau to rati khola sama ko road | | 3.33 | | 0.33 | 3.65 |
| 52 | C052 | Puna kota chowk road | | 1.09 | | 0.53 | 1.63 |
| 53 | C053 | Kuti khola- Puna kota chowk | | 1.09 | | | 1.09 |
| 54 | C054 | Chchain danda , talo thar sari gau road | | 2.03 | | | 2.03 |
| 55 | C055 | Patari chowk road | | | 0.79 | | 0.79 |
| 56 | C056 | Bhuta khola , chain danda sama ko road | | | 2.04 | | 2.04 |
| 57 | C057 | Ghumti chowk- guwalla chowk road | | 2.16 | | | 2.16 |
| 58 | C058 | Ghumti chowk- ala pane sama ko road | | | 2.17 | | 2.17 |
| 59 | C059 | Ghumti chowk ,damar sama ko road | | 3.68 | | | 3.68 |
| 60 | C060 | ward office , tara khasa sama ko road | | 0.40 | | | 0.40 |
| 61 | C061 | Khana khama , patikalla sama ko road | | 3.58 | | | 3.58 |
| 62 | C062 | Khadka bata to kalo khola sama ko road | | | 3.00 | | 3.00 |
| 63 | C063 | Brathan Mandir Road | | | | 0.44 | 0.44 |
| 64 | C064 | Sungur khal samako bato | | 0.87 | | 0.84 | 1.71 |
| 65 | C065 | Safti to patal khola road | | 3.17 | | | 3.17 |
| 66 | C066 | Mosta mandir to GV Chowk | | 1.37 | | | 1.37 |
| 67 | C067 | ward numbar 1 to bhagapati school road | | | 2.70 | | 2.70 |
| 68 | C068 | Pepal boad chautara to dadema gau road | | | 1.55 | | 1.55 |
| 69 | C069 | magala puna motar bato | | | 1.06 | | 1.06 |
| 70 | C070 | Ward 2 office to Khadgawada Health Post road | | | 3.41 | | 3.41 |
| 71 | C071 | Lumchudi gau-Chepli khanla to tower samma road | | | 1.43 | | 1.43 |
| 72 | C072 | Raseni gaira-chahala-naulasing road | | | 3.70 | | 3.70 |
| 73 | C073 | School bata chaur jana road | | | 0.44 | | 0.44 |
| 74 | C074 | Khadka chowk-Mai mandir to Rasane gaira chowk | | | 3.59 | | 3.59 |
| 75 | C075 | Dauti Yesthan to Durga Mavi raod | | | 1.49 | | 1.49 |
| 76 | C076 | Duda pokhara , dubari, tehari than , rani ban road | | | 2.76 | | 2.76 |
| 77 | C077 | Patikalla-chharchi gau -sati bada -teyadi | | | 4.35 | | 4.35 |

SECTION 4. PERSPECTIVE PLAN OF RURAL MUNICIPALITY TRANSPORT NETWORK

4.1. RMTMP Process

4.1.1. Process and procedure for collection of demand

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

4.1.2. Scoring system for screening, grading and prioritization

As the financial resources of rural municipality is less as compared to the demand of people there is always conflict among the leaders from different parts for the development of road infrastructure. For this we have to prioritize roads, based on the certain conditions. For this RMTMP, we have adopted the criteria given by the ministry with discussion and minor modification with the concerned stakeholders. Based on these criteria, municipal and ward roads have been prioritized class wise. The details of prioritization criteria are explained previously on this report.

4.1.3. Possible inter-rural municipality/district linkages

This rural municipality is supported with 46.95 km long SRN which is under construction by Department of Road and 52.97 km long district roads (after the re-structure of local authorities, the construction and repair-maintenance work of DRCN is not yet finalized under whom these projects are). These SRN and district roads mainly serve for the inter rural municipality and inter district mobility. The municipal roads planned on this MTMP also serves for inter-rural municipality/district mobility.

4.1.4. Interventions for RMTPP

a. Maintenance

Maintenance refers to the actions required to repair a road and keep it in good and passable condition. For RMTMP planning purposes standard costs per kilometer for each maintenance

type are applied to the entire road network, whereby for certain maintenance type's distinction is made according to the surface type of the road. Maintenance activities include:

Emergency maintenance - Basic repairs aimed at removing landslides and repairing damage to the road that inhibit the proper use of the road and make it impassable. This mainly takes place during and after the rainy season. A provisional lump sum is reserved for the entire road network based on the network length. Allocation to specific road sections is based on the actual need for clearing landslides or repairing washouts and cuts in the road.

Routine maintenance - General maintenance of the road aimed at preventing damage by ensuring the proper working of the different road elements (retaining walls, drainage system, carriageway, etc.) and cutting vegetation. This is carried out each year on a more or less continuous basis. Routine maintenance is required for the entire road network. The specific requirements for routine maintenance are determined on an annual basis through the road condition survey.

Recurrent maintenance - Repairs of minor damage to the road surface and road structures to bring them back to good condition. This is generally carried out once or twice a year. Recurrent maintenance is required for the entire municipal road network, whereby distinction is made according to the surface type. The specific requirements for recurrent maintenance are determined on an annual basis through the road condition survey.

Periodic maintenance - Larger repairs to the road largely aimed at renewing the road surface through re-gravelling, resealing or overlays. It is generally carried out with several years interval. Although periodic maintenance is only required for specific sections of the road network, a lump sum allocation is made for the entire road network based on average annual requirements, distinguishing between different surface types. The specific periodic maintenance requirements are determined on an annual basis through the annual road condition survey.

b. Improvement

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

- **1. Rehabilitation** Significant repairs required to bring a very poor road back to a maintainable standard. This does not include any changes to the original surface type.
- **2. Gravelling** Placement of gravel layer to make it all-weather and ensure that the road remains passable during the rainy season.
- **3. Cross drainage** Placement of suitable cross-drainage structures with the aim of making the road all-weather and ensuring that the road remains passable even during the rainy season.
- **4. Protective structures** Placement of retaining walls and lined side drains to avoid excessive damage to the road during the rainy season and bring it to a maintainable standard.
- **5. Blacktopping** Placement of a blacktop layer in roads with traffic volumes exceeding 50 passenger car units (PCU) to reduce damage to the road surface.
- **6. Widening** Increase of the road width in roads with traffic volumes exceeding 500 passenger car units (PCU) to ensure the proper flow of traffic.

4.2. Perspective Plan of RMTPP

4.2.1. Vision of RMTPP

"Gurans Rural municipality will provide safe, reliable, efficient and accessible transportation system."

4.2.2. Goal of RMTPP

To develop environment friendly and geologically sustainable road infrastructure to increase the accessibility and mobility of the people.

4.2.3. Objectives of RMTPP

- 1. to develop and expand a balanced road network so that the total transport cost is minimum.
- 2. to ensure smooth traffic movement through appropriate measures for protection, maintenance and road safety.

4.2.4. Policy of RMTPP

- RMTMP will consider three broader aspects of economic, social, and environmental issues for sustainable transport management.
- RMTMP will employ management aspect interconnects the broader principles of mobility, assets, safety, and technology.
- RMTMP will manage the whole transport system with an integrated approach.

4.2.5. Programs of RMTPP

To achieve above goal and objectives, RMTPP adopted strategies under the policy framework as follows:

- A network operation plan will be prepared for implementing RMTMP.
- Traffic standards and systems will be developed and established.
- Safety technology and measures will be installed on the whole roads.
- Public Information system will be set up to access information about road assets quality and standard.
- The road construction standards will be improved, checked, and monitored with a punishment and reward system.
- Vehicle and Passengers insurance will be made mandatory.
- Mass transportation system will be preferred instead of private vehicles.

SECTION 5. CONCLUSION AND RECOMMENDATION

Rural Municipality Transport Master Plan final report has been prepared for Gurans Rural municipality. A series surveys for data collection, series of different level interaction with the locals and various authorities was conducted. The map of MIM, MTPP and other maps are prepared. The inventory shows that majority of roads are narrow and earthen and needs maintenance and upgrading. This is in line with the demand by the wards. Access to facilities is hindered due to lack of reliable and safe public transport services within the rural municipality.

This rural municipality has huge potential for infrastructure development and socio-economic growth. Recently the development of urban area is faster in this rural municipality as compared to other but this development is haphazard. Development without planning would be dangerous for future. So, proper and timely planning and implementation of urban development is needed for this rural municipality. There are good possibilities of internal and external tourism but due to poor road network and inefficient public transportation facilities, this is lacking.

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ANNEX 1- WARWISE ROAD LIST

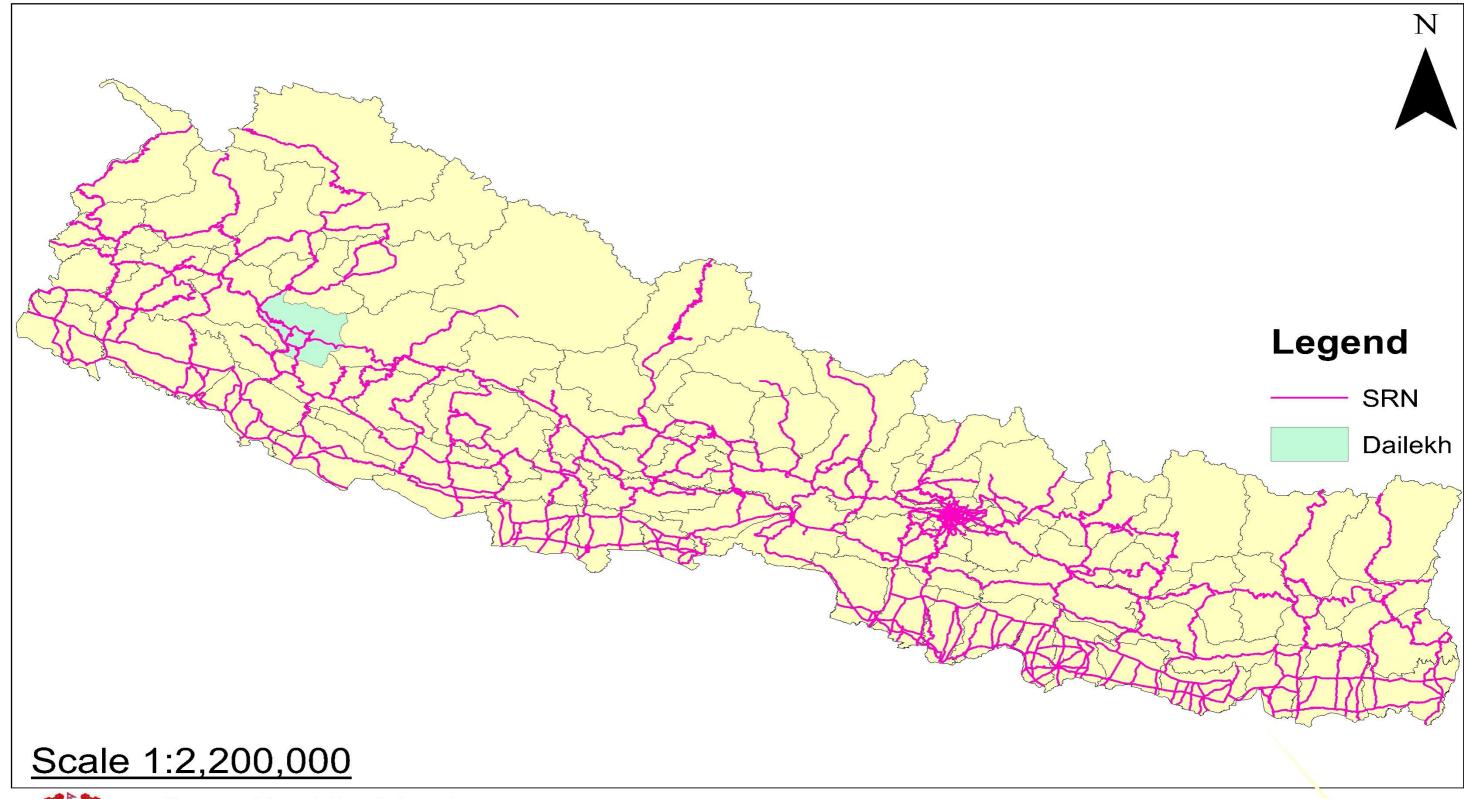
| Code | Road Name | Blacktop | Earthen | Gravel | New Track | Total |
|------|---|----------|---------|--------|-----------|-------|
| | Ward 1 | 13.27 | 5.41 | 38.84 | 1.28 | 58.80 |
| | Dharma Pokhara bazer -markha kafal | | | | | |
| | mala-Ratanagla-Patal khola-Gurans Bazar | | | | | |
| A001 | road | | | 13.86 | | 13.86 |
| B005 | Maine khola , gayala ghadi to badu gau | | | 7.31 | | 7.31 |
| B006 | Chautara to patikalla road | | | 9.36 | | 9.36 |
| C062 | Khadka bata to kalo khola sama ko road | | | 3.00 | | 3.00 |
| C063 | Brathan Mandir Road | | | | 0.44 | 0.44 |
| C064 | Sungur khal samako bato | | 0.87 | | 0.84 | 1.71 |
| C065 | Safti to patal khola road | | 3.17 | | | 3.17 |
| C066 | Mosta mandir to GV Chowk | | 1.37 | | | 1.37 |
| C067 | ward numbar 1 to bhagapati school road | | | 2.70 | | 2.70 |
| C068 | Pepal boad chautara to dadema gau road | | | 1.55 | | 1.55 |
| C069 | magala puna motar bato | | | 1.06 | | 1.06 |
| SRN | Karnali Rajmarg | 13.27 | | | | 13.27 |
| | Ward 2 | 10.85 | | 27.54 | | 38.39 |
| | Sauli Bazar-Ward 2 Office-Dauti Yesthan- | 20.00 | | | | 00.00 |
| B007 | Seti Bada Road | | | 10.72 | | 10.72 |
| | Ward 2 office to Khadgawada Health Post | | | | | |
| C070 | road | | | 3.41 | | 3.41 |
| | Lumchudi gau-Chepli khanla to tower | | | | | |
| C071 | samma road | | | 1.43 | | 1.43 |
| C072 | Raseni gaira-chahala-naulasing road | | | 3.70 | | 3.70 |
| C073 | School bata chaur jana road | | | 0.44 | | 0.44 |
| | Khadka chowk-Mai mandir to Rasane gaira | | | 0 =0 | | 2 = 2 |
| C074 | chowk | | | 3.59 | | 3.59 |
| C075 | Dauti Yesthan to Durga Mavi raod | | | 1.49 | | 1.49 |
| C076 | Duda pokhara , dubari, tehari than , rani ban road | | | 2.76 | | 2.76 |
| | | 10.05 | | 2.76 | | 2.76 |
| SRN | Karnali Rajmarg | 10.85 | 47.24 | 22.07 | 0.06 | 10.85 |
| | Ward 3 Ward numbar 4 bata kum khola-ward 3- | | 17.34 | 22.07 | 0.86 | 40.27 |
| A004 | santi mavi-gungra khola road | | | 8.54 | | 8.54 |
| A006 | Patikalla ,dobato bazer to gurausha road | | | 4.18 | | 4.18 |
| C051 | talo thari gau to rati khola sama ko road | | 3.33 | 4.10 | 0.33 | 3.65 |
| C051 | Puna kota chowk road | | 1.09 | | 0.53 | 1.63 |
| C052 | Kuti khola- Puna kota chowk | | 1.09 | | 0.55 | 1.09 |
| C054 | | | 2.03 | | | 2.03 |
| | Chchain danda , talo thar sari gau road | | 2.03 | 0.70 | | |
| C055 | Patari chowk road | | | 0.79 | | 0.79 |
| C056 | Bhuta khola , chain danda sama ko road | | 2.46 | 2.04 | | 2.04 |
| C057 | Ghumti chowk- guwalla chowk road | | 2.16 | 2.17 | | 2.16 |
| C058 | Ghumti chowk- ala pane sama ko road | | | 2.17 | | 2.17 |
| C059 | Ghumti chowk ,damar sama ko road | | 3.68 | | | 3.68 |
| C060 | ward office , tara khasa sama ko road | | 0.40 | | | 0.40 |
| C061 | Khana khama , patikalla sama ko road | | 3.58 | | | 3.58 |

| Code | Road Name | Blacktop | Earthen | Gravel | New Track | Total |
|------|--|----------|---------|--------|-----------|-------|
| C077 | Patikalla-chharchi gau -sati bada -teyadi | • | | 4.35 | | 4.35 |
| | Wartd 4 | 22.83 | 8.04 | 16.85 | 2.00 | 49.72 |
| | Ward numbar 4 bata kum khola-ward 3- | | | | | _ |
| A004 | santi mavi-gungra khola road | | | 4.14 | | 4.14 |
| | Seri bada ko sostha bata dobato bazer | | | | | |
| A005 | sama ko road | | 4.40 | | | 4.40 |
| C044 | Gurausha bazer to laxmi pravi school | | | 2.94 | | 2.94 |
| C045 | Shanti mavi - Dobato | | | 2.55 | | 2.55 |
| C046 | Kirshe firm , nigal pani ,daura ghadi road | | 3.64 | | 2.00 | 5.64 |
| C047 | Sakindhara gau to rani bana sama ko road | | | 2.27 | | 2.27 |
| C048 | Mallo mod to ratikhola road | | | 2.49 | | 2.49 |
| C049 | Suwoa Pokhari chowk Road | | | 0.70 | | 0.70 |
| C050 | Chesta paani to sari bada chauki | | | 1.76 | | 1.76 |
| SRN | Karnali Rajmarg | 22.83 | | | | 22.83 |
| | Ward 5 | 11.87 | 29.30 | 34.19 | 16.95 | 92.30 |
| | Dharma khokara bazer -markha kafal | | | | | |
| | mala-Ratanagla-Patal khola-Gurans Bazar | | | | | |
| A001 | road | 11.87 | | | | 11.87 |
| A003 | Rauta galchaina-warda office to baiurakhat bazer | | | 11.74 | | 11.74 |
| B003 | Bubairakhe-Bhairi-Sana Kadha | | 9.28 | 11.74 | 0.78 | 10.07 |
| B003 | Zero Point- Ward 5-Ghoda bass ko Bazar | | 7.01 | | 6.09 | 13.10 |
| C021 | Zero point to lamjaula gaau road | | 7.01 | 3.64 | 0.03 | 3.64 |
| C021 | Krishna mavi bata chameri gufa road | | 0.71 | 3.04 | 0.52 | 1.22 |
| C025 | Ping danda to chahari gau sama ko roah | | 0.71 | 0.93 | 0.32 | 0.93 |
| C020 | Bhari khor chowk to aalyati gaira road | | | 3.26 | | 3.26 |
| C027 | Bhari khota chowk , chafla danda sama ko | | | 3.20 | | 3.20 |
| C028 | road | | | 0.71 | | 0.71 |
| C029 | thuli beshau to kuti mandir row | | | | 0.81 | 0.81 |
| | Durga devi- Malika Pravi-Mosura danda | | | | | |
| C030 | chowk | | 4.19 | | 0.91 | 5.10 |
| | Durga devi- Malika Pravi-Mosura danda | | | | | |
| C031 | chowk | | 0.41 | 1.76 | | 2.16 |
| C032 | Kanxi Bazar- Danda Pokhara gaau | | 2.46 | | | 2.46 |
| C033 | Kanxi Bazar- Danda Pokhara gaau | | 0.69 | | | 0.69 |
| C034 | kanxi Bazar road | | | | 0.86 | 0.86 |
| C035 | Hataru Bas Chowk Road | | 2.15 | | | 2.15 |
| | hataru bas , negal pani to gaurava marja | | | | | |
| C036 | road | | | 3.04 | | 3.04 |
| C037 | Mostha Than Road | | | 1.30 | | 1.30 |
| C038 | Shahi tol bata aaushauja sama ko road | | | | 2.19 | 2.19 |
| C039 | Bhairi Gaau- Kuti Gaau to Chahara Khola Road | | | 1.99 | | 1.99 |
| C040 | Bhutakahni- Nautala Gaau road | | 2.40 | 1.33 | | 2.40 |
| C040 | Salari Danda Pravi Road | | 2.40 | | 1 61 | |
| CU41 | Saiati Datiua PidVi KUdU | | | | 1.61 | 1.61 |

| Code | Road Name | Blacktop | Earthen | Gravel | New Track | Total |
|------|---|----------|---------|--------|-----------|-------|
| | Bhutakani bata dopaka gau veti khola | • | | | | |
| C042 | sama road | | | | 3.17 | 3.17 |
| C043 | Prabhu Bank to Sasna Khola road | | | 5.84 | | 5.84 |
| | Ward 6 | | | 46.05 | | 46.05 |
| A002 | Bhuichura-Bagaura-Puliya | | | 13.72 | | 13.72 |
| | Dhan Takuri-Milan Chowk-0Thati-Masta | | | | | |
| B002 | Mandir-Garche Khola to Kuli | | | 7.31 | | 7.31 |
| | Pati halana Ping halana to jana kalyan | | | | | |
| C015 | road | | | 3.44 | | 3.44 |
| C016 | Jay janta sec school road | | | 1.37 | | 1.37 |
| C017 | bagura chowk- bhagapati tool to milan chowk | | | 4.47 | | 4.47 |
| C017 | dhan takura chowk to kun tada sama ko | | | 4.47 | | 4.47 |
| C018 | road | | | 2.67 | | 2.67 |
| C019 | Raga danda chowk to naula road | | | 2.42 | | 2.42 |
| C020 | Ward 6 office to raga gaau road | | | 1.81 | | 1.81 |
| C021 | Zero point to lamjaula gaau road | | | 3.39 | | 3.39 |
| C023 | Jungle kuna chowk to kota sama ko road | | | 1.82 | | 1.82 |
| | Tarsha bata chowk , rana bon sama ko | | | | | |
| C024 | road | | | 2.13 | | 2.13 |
| | Ward 7 | | 40.42 | | 2.67 | 43.09 |
| | Dharma khokara bazer -markha kafal | | | | | |
| | mala-Ratanagla-Patal khola-Gurans Bazar | | 45.04 | | | 4604 |
| A001 | road | | 16.34 | | | 16.34 |
| B001 | Ghumna beshau chowk ,sadhala,okhalani gau road | | 7.33 | | | 7.33 |
| C001 | Demura chowk bata school sama ko road | | 1.52 | | | 1.52 |
| C001 | lali khola to dhora bana road | | 4.24 | | | 4.24 |
| C002 | Khala Tahu to lali Khola | | 6.04 | | | 6.04 |
| C004 | Mathan bata thana takura road | | 1.87 | | | 1.87 |
| C004 | Chadani bazer to khureya , bahuna gau | | 1.67 | | | 1.07 |
| C005 | road | | 0.47 | | 2.67 | 3.13 |
| | Dharma pokhara , chota phokara to jumra | | | | | |
| C006 | gau road | | 2.62 | | | 2.62 |
| | Ward 8 | | | 27.92 | | 27.92 |
| | Dhan Takuri-Milan Chowk-0Thati-Masta | | | | | |
| B002 | Mandir-Garche Khola to Kuli | | | 12.67 | | 12.67 |
| C007 | Dharam Pokhara Bazar Road | | | 0.82 | | 0.82 |
| C008 | Thati Khola Chowk to malika Ma Bi | | | 4.35 | | 4.35 |
| C009 | dobata bata gangi mara jana road | | | 0.71 | | 0.71 |
| C010 | talo khanara jana road | | | 0.63 | | 0.63 |
| 6044 | Ghau Pokhari- Garga Gaau-Sarasothi | | | 4.40 | | 4 40 |
| C011 | Mandir | | | 4.48 | | 4.48 |
| C012 | Garcha Khola Road | | | 2.49 | | 2.49 |
| C013 | Garnja Chowk - Jhyanje Chowk | | | 0.98 | | 0.98 |
| C014 | Jhyanje Chowk Road | | | 0.79 | | 0.79 |

ANNEX 2- GIS MAPS

Strategic Road Network of Nepal



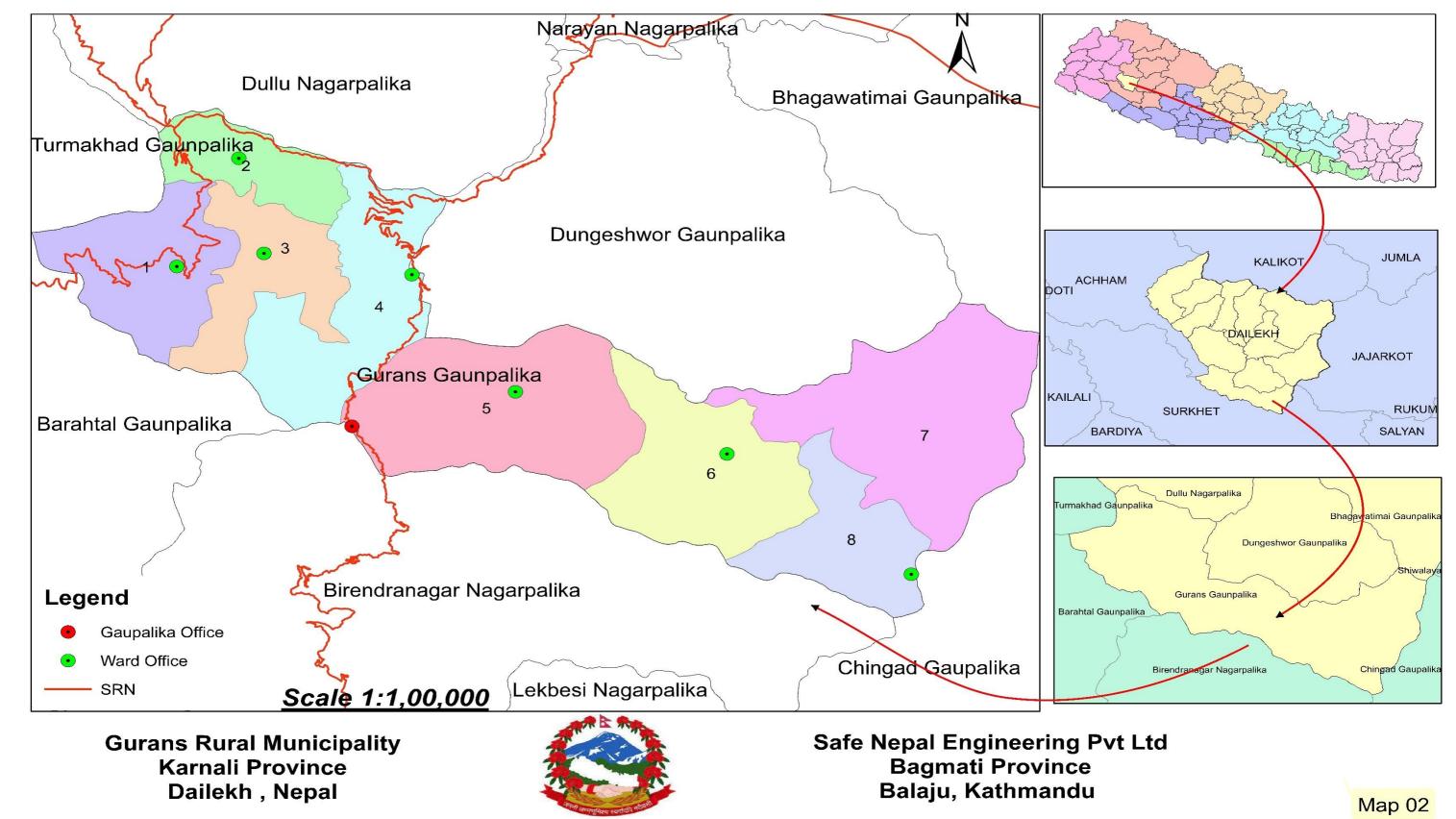


Gurans Rural Municipality Karnali Province Dailekh ,Nepal

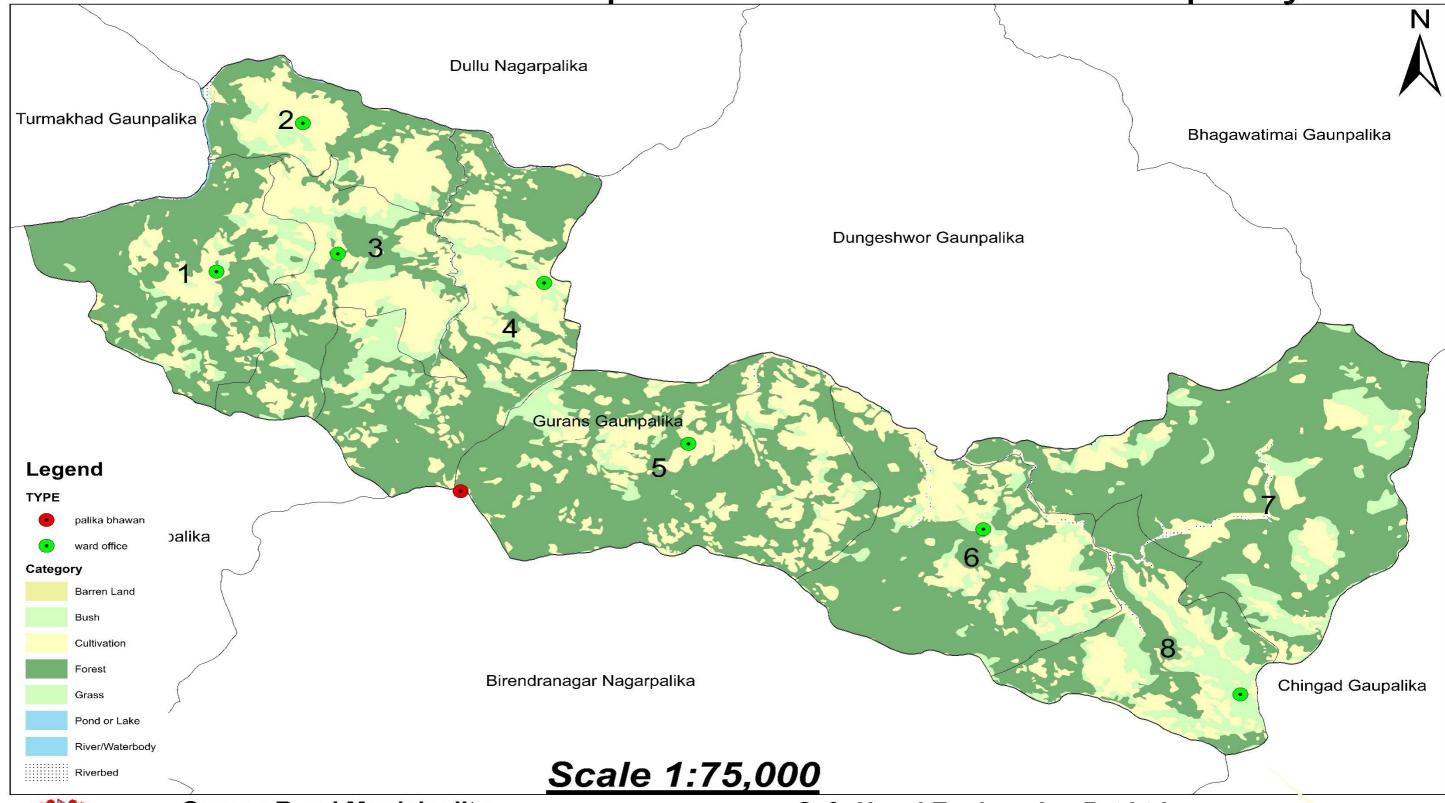
Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju Kathmandu, Kathmandu

Map 01

Location Map of Gurans Rural Municipality



Landuse Map of Gurans Rural Municipality

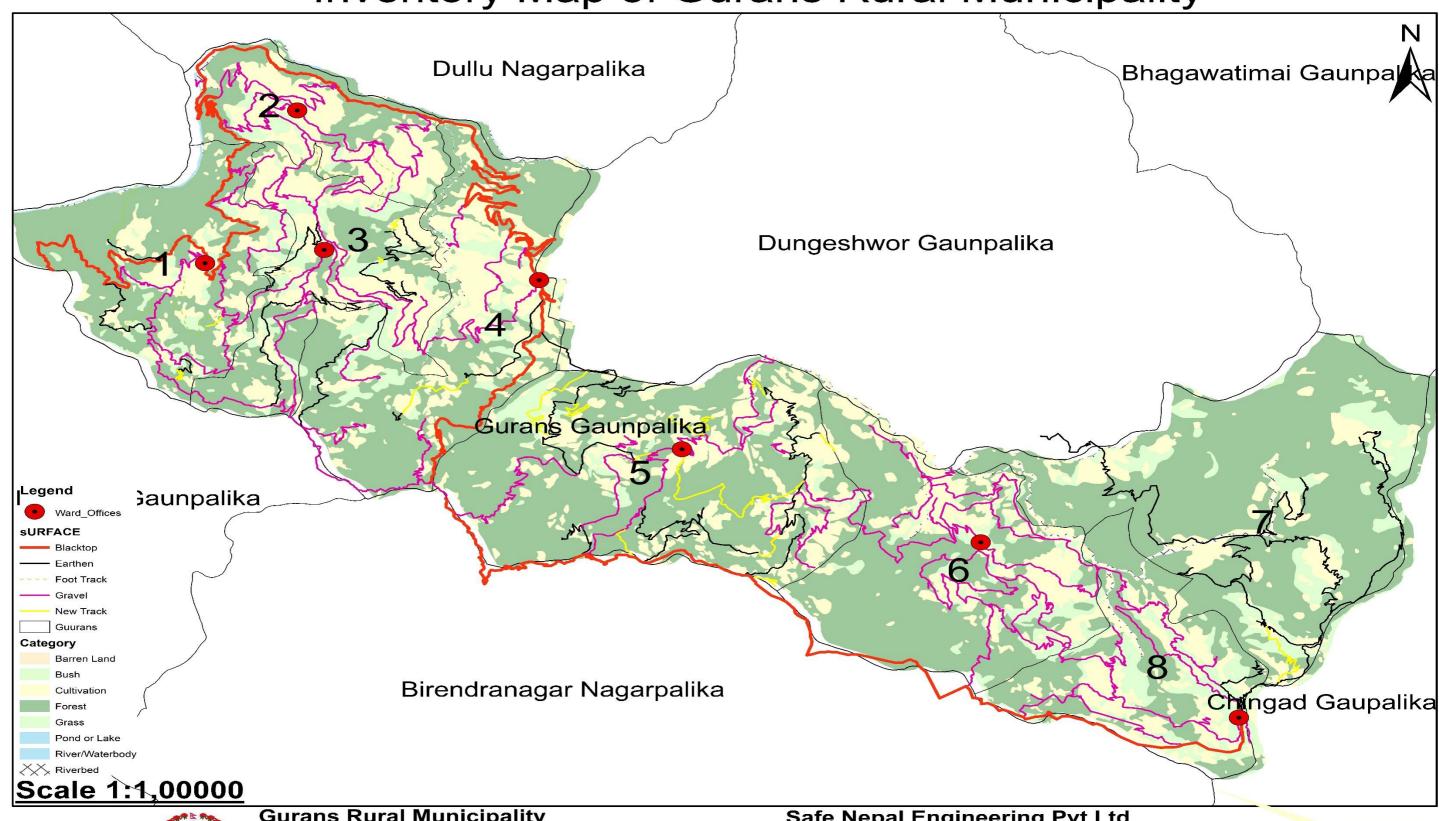




Gurans Rural Municipality Karnali Province Dailekh ,Nepal Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju, Kathmandu

Map 03

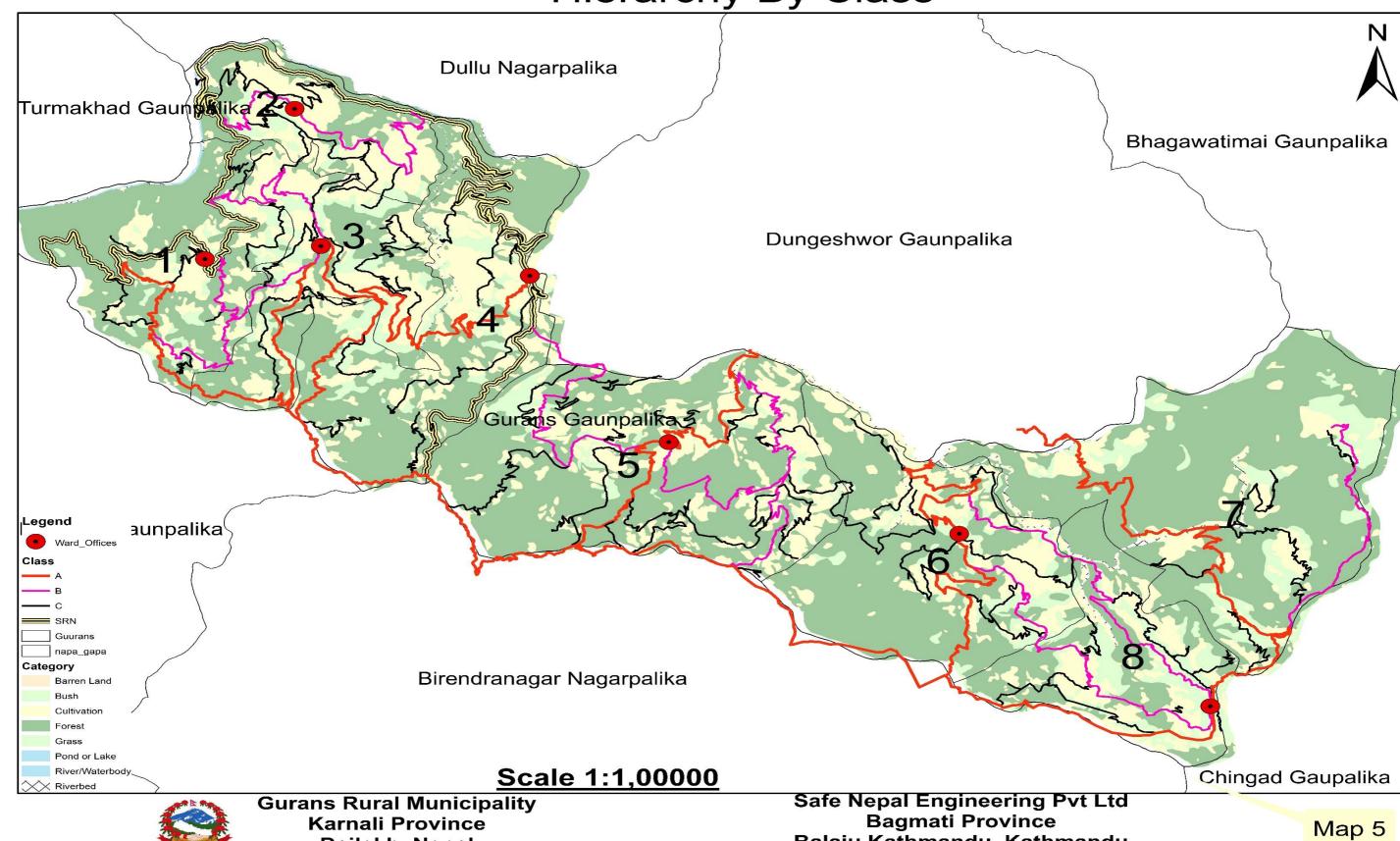
Inventory Map of Gurans Rural Municipality



Gurans Rural Municipality Karnali Province Dailekh, Nepal Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju Kathmandu, Kathmandu

Map 4

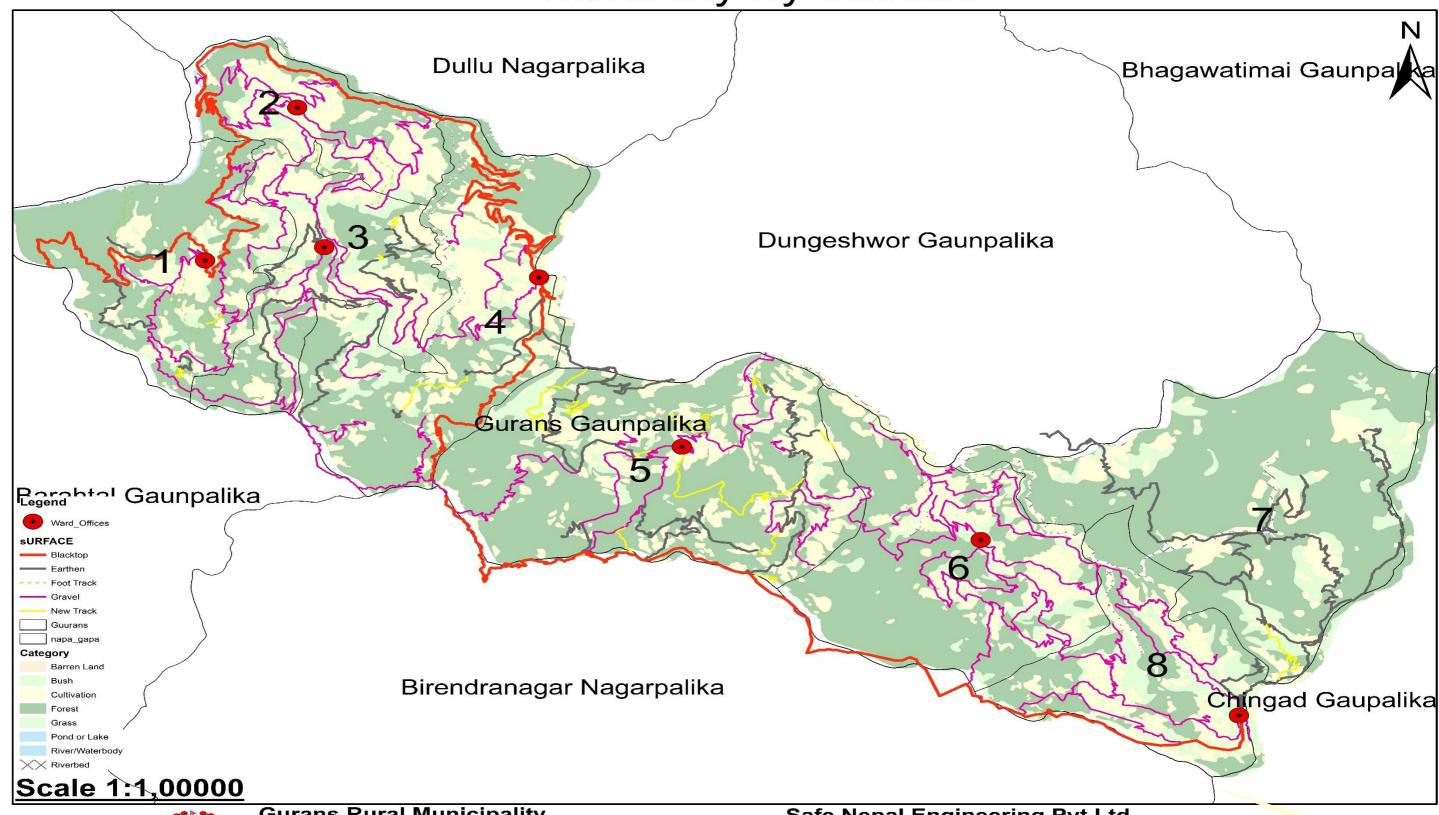
Hierarchy By Class



Dailekh, Nepal

Balaju Kathmandu, Kathmandu

Hierarchy By Surface



Gurans Rural Municipality Karnali Province Dailekh, Nepal Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju Kathmandu, Kathmandu

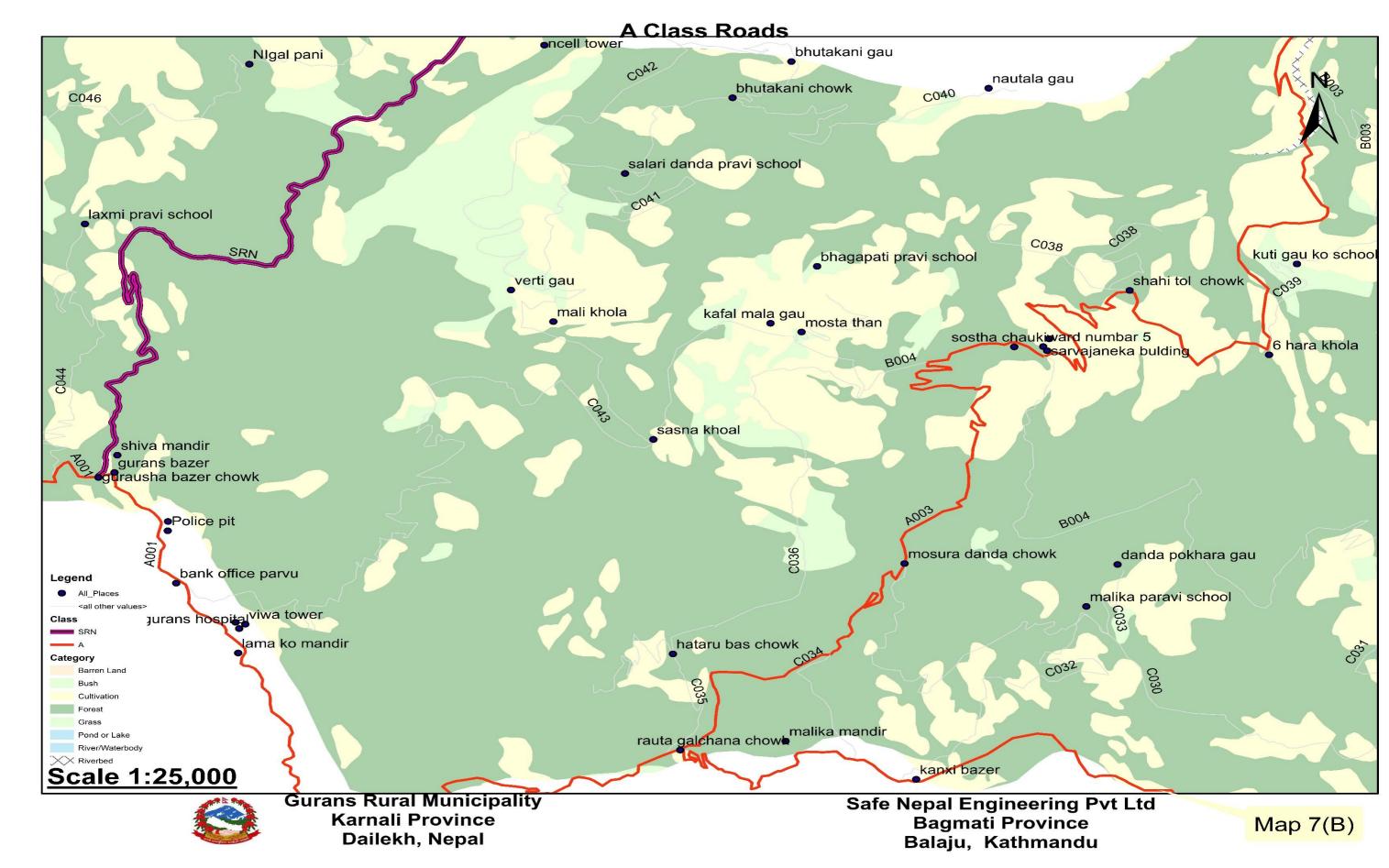
Map 6

A Class Roads



Gurans Rural Municipality Karnali Province Dailekh, Nepal Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju, Kathmandu

Map 7(A)





Final Report of MTMP of Gurans Rural municipality **B Class Roads** sadaka bevaka bulding naula singa mode pull bhairab pravi school rasane gaira chowle purane gau ward number 2 ko chowkward number 2
samudayeka bulding bhairaya mandir aadar bhut sostha poat office
lamchaudi gau kaula khola ko iharana hora khola BP pravi school sauli bazer chowk janta aabush bulding of ward 2 duda pokhara lafting khana pane tan duda pokhara chowk C076 duda pokhara chowk chhara moteya kola ko jharana umra khola gayal saina gau gaughar celneka HP teyadi than mandir eyadi than chowk chadi khola sechai pane dadema sama ko chai talo sari badha chowk dauti yesthan mandii duti mandir dadema gau chowk nadgawada helth post dauti yeasthan chowk seyala khola khana pane dadema khadgawada gurans campas karnali rivar arayan karnali sahakar mosta mandir khadabada nto tower charchai sari bada ko khana pani tank obulding of pratechalaya mosta birkota chowk sarasothi mavi ko pravi taha school durga mavi school peapal chautara chowk kula ko mandir khadka bada mandir dhog dine chowk saraswati mavi school nela khola C053 sarva janeka toilatmaine khola pull puna kota chowk pan ghata p<mark>ravi puna kota scho</mark>ol janta pravi school patikalla bazer chowk sahakari ko building p mandir Maphal toli chain danda chowk kuti khola tara khasha chowk rati khola CHOWK vard **g**ayala ghadi chowk ball bekasha bulding chaubata chowk khama jara pane chowk sahakari office chaubata sost a chauki gauri khelna danda chowk talo thar sari gau maina khola han chowk hairam ra kaleka mandir talo sari puna kota chowk bhut khola ko chowk CO5A patal khola ghumti chowk A004 guwalla chowk play groundplay ground ball bekash office 2 chain danda santi mavi school seri health post simal chowk brathan mandosadha ko paila shiva mandir obrayasthan pravi school sema sal bakhara foom patari chowk daura ghadi chowk dane galpha chowk kaleka pravi school bara mandir Patati gauLegend pull sakindharasakindhara Ahelkuta place A005 SRN

Gurans Rural Municipality Karnali Province Dailekh, Nepal

lafting tank sungarkhal

saldadi

lapha murti dandha

Scale 1:28,000



pravi dambar school

Safe Nepal Engineering Pvt Ltd **Bagmati Province** Balaju Kathmandu, Nepal

COAT

Map 8 (A)

Category

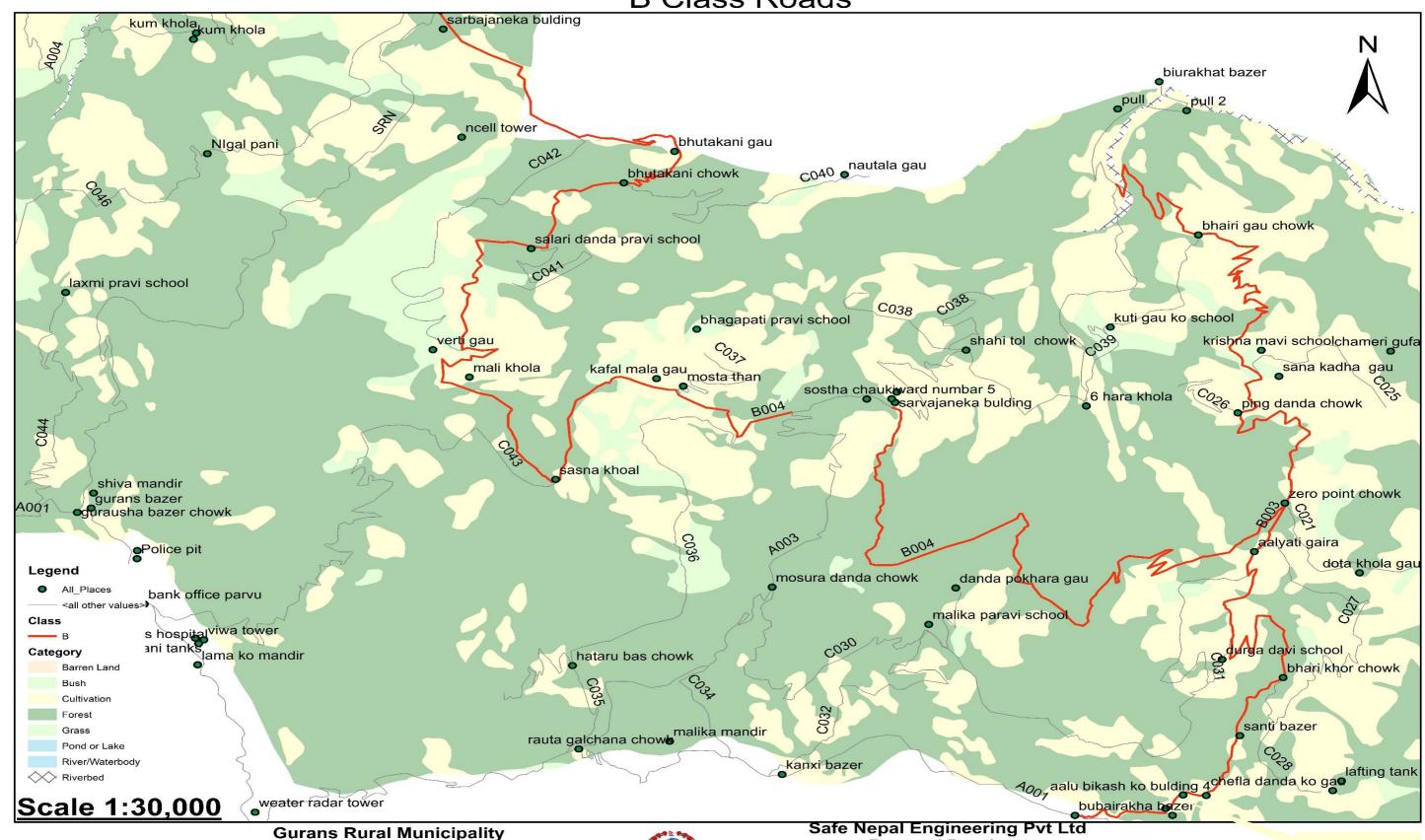
Barren Land

Bush Cultivation

Grass Pond or Lake River/Waterbody

Riverbed

B Class Roads

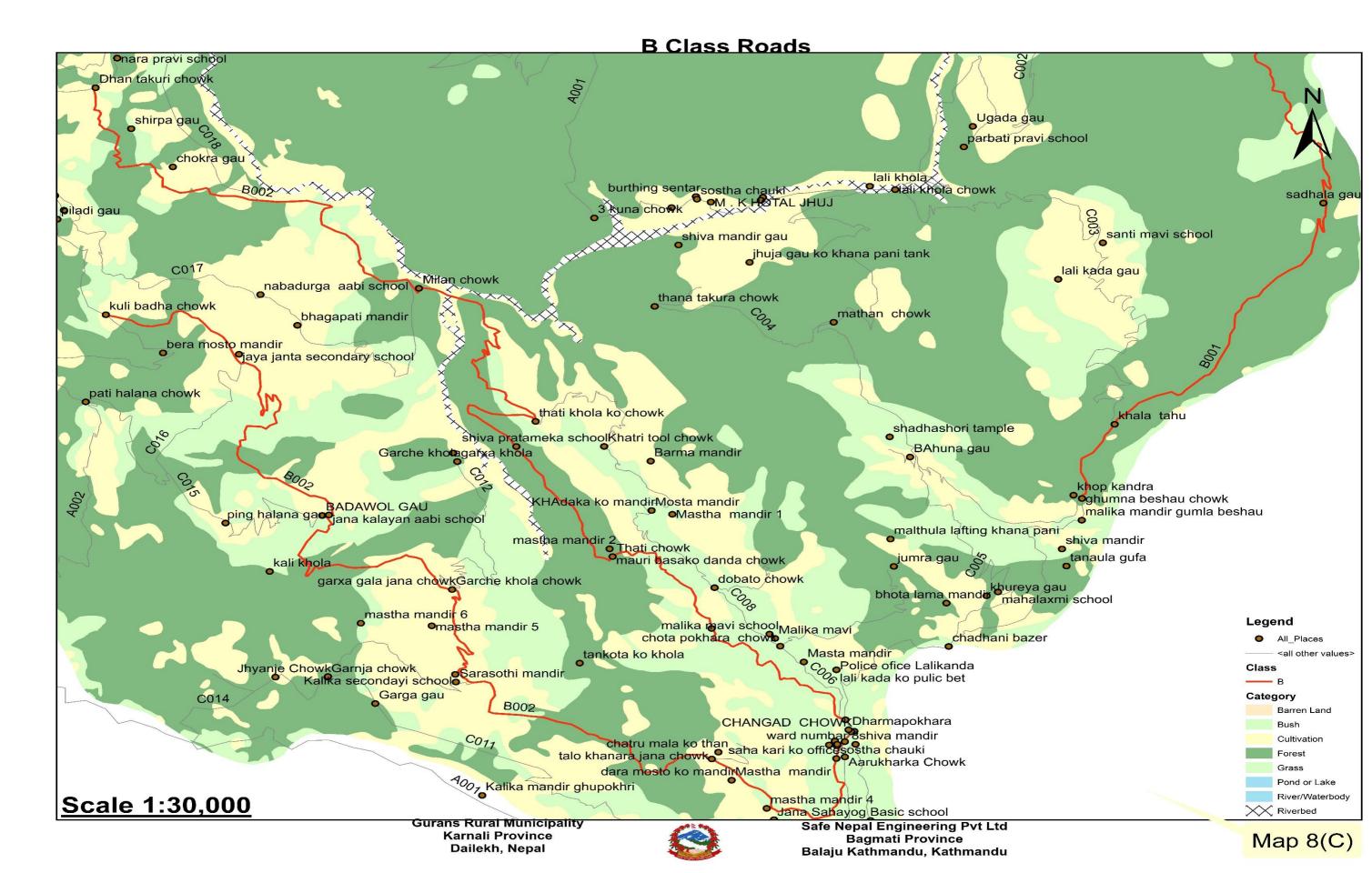


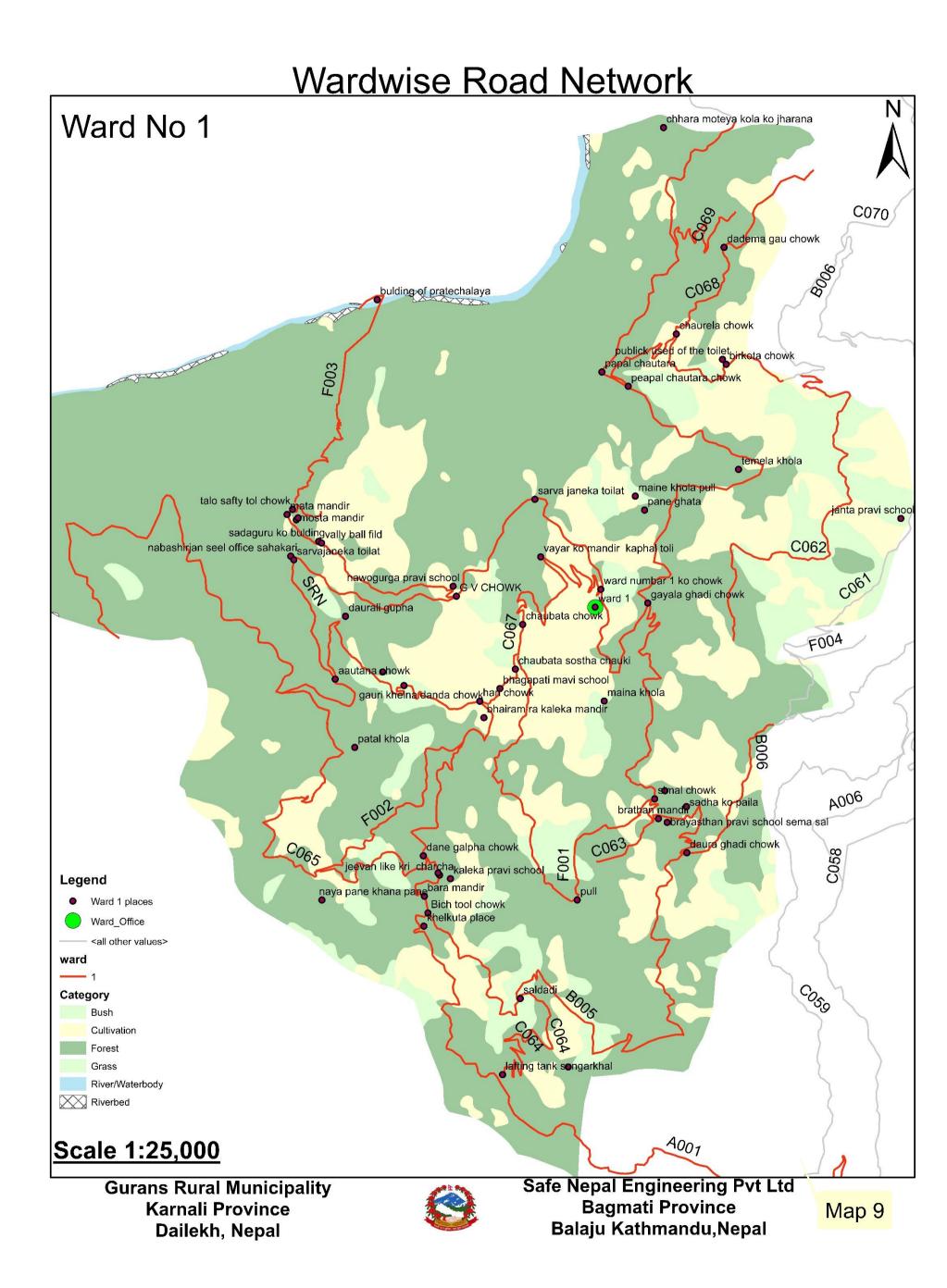
Gurans Rural Municipality Karnali Province Dailekh, Nepal



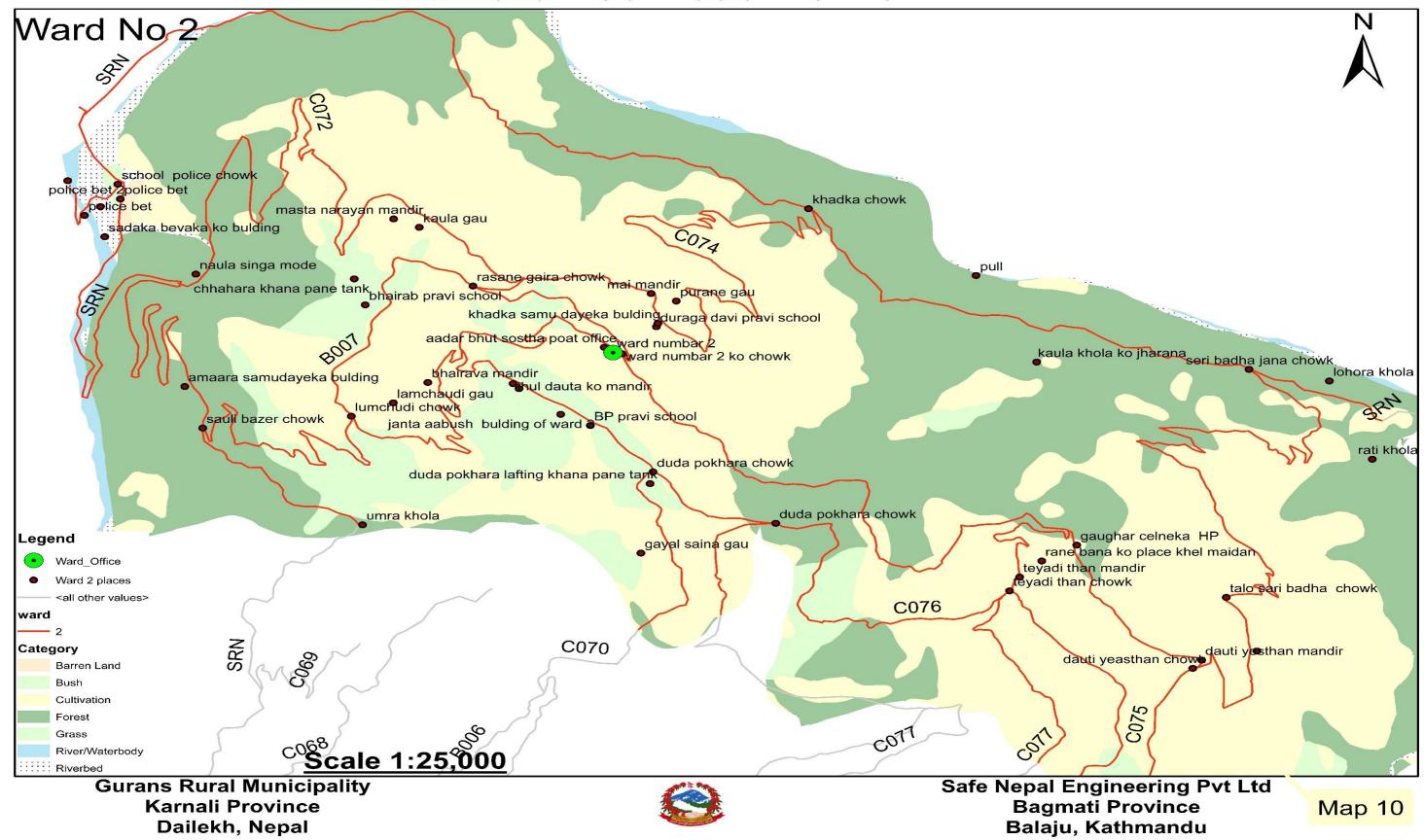
Safe Nepal Engineering Pvt Ltd Bagmati Province Balaju Kathmandu, Kathmandu

Map 8(B)

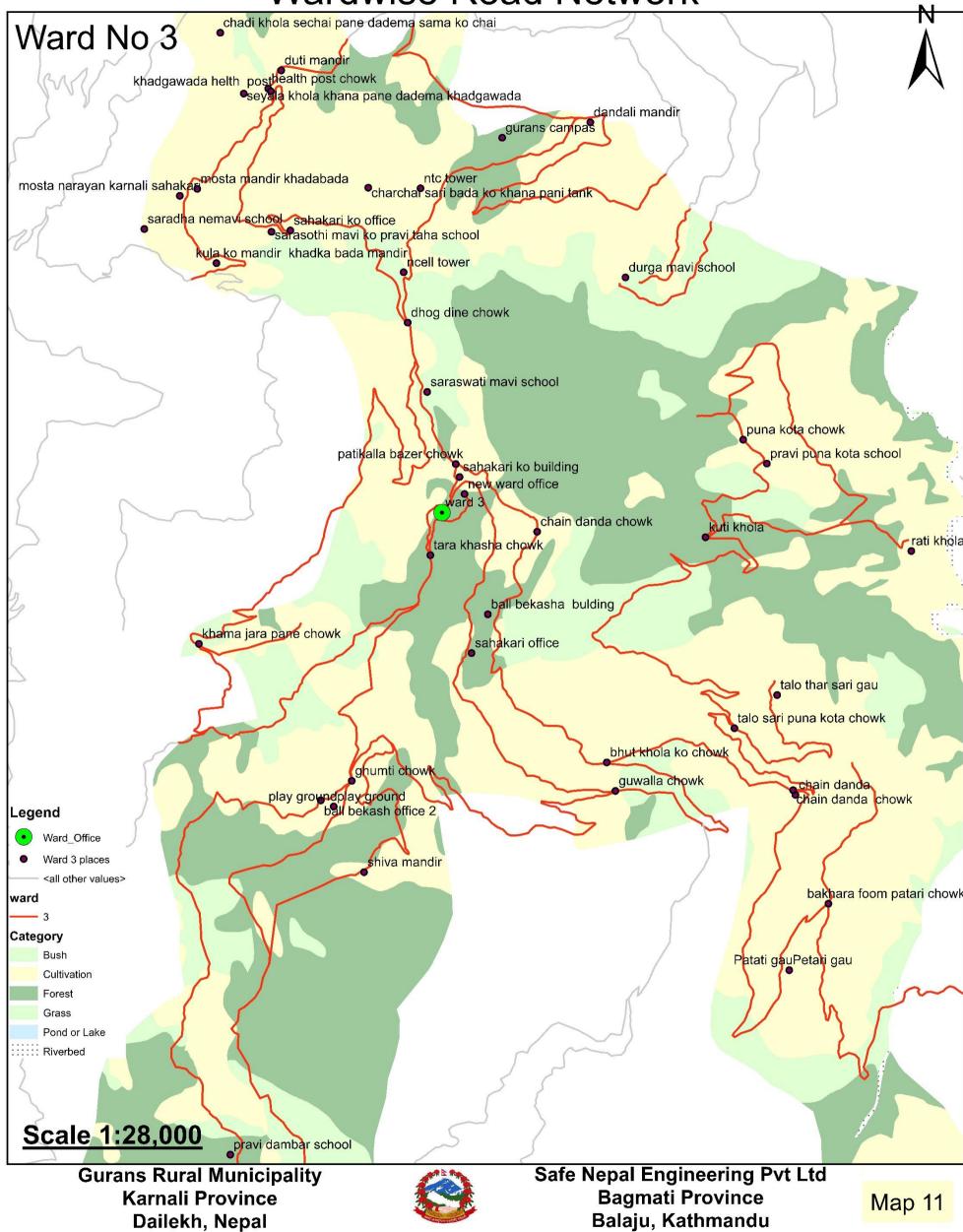




Wardwise Road Network



Wardwise Road Network

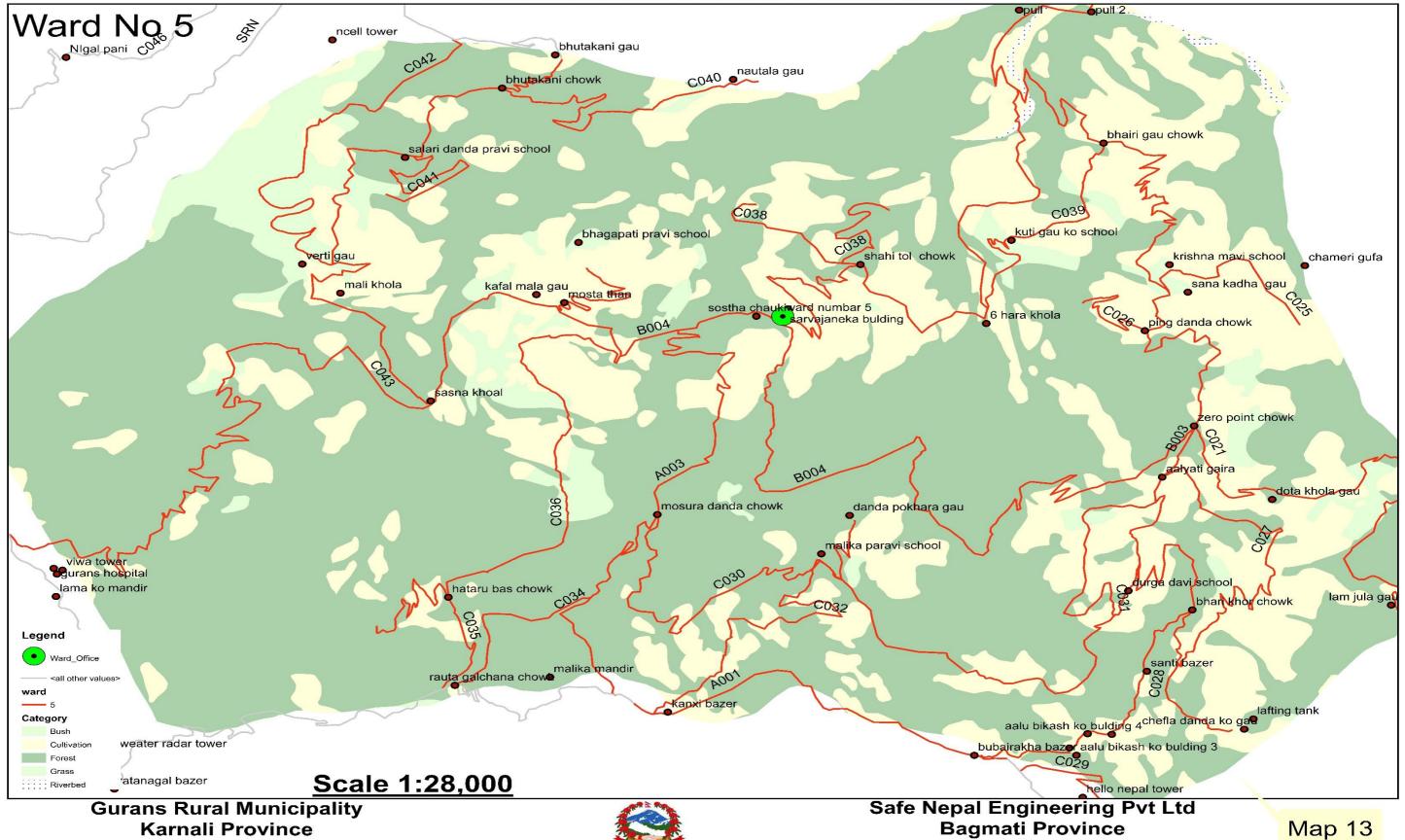


<u>Wardwise Road Network</u> chesha pani chowk C075 Ward No 4 Balkalyan school B006 C052 C061 C053 mallo moad chowk sari bada sostha chauki suwoa pokhari chowk gaughar clineka B006 C051 <mark>lax<mark>mi m</mark>avi school</mark> C056 ward numbar 4 ko chowkward office 4 A006 COST C054 C059 A004 rati khola santi mavi schoolseri health post kirshe ra vate nati ko office C055 C058 nara abi school kum kholakum khola sarbajaneka bulding sakindharasakindhara B004 6047 Sold nce<mark>ll t</mark>ower NIgal pani/ CO42 <mark>budha</mark> gumba A005 daura ghadi gau gaibanna gau 2 Legend laxmi pravi school Name ward office 4 buddha pravi schoogaibanna gau Ward 4 Places <all other values> ward Category Bush Cultivation Forest Grass Pond or Lake shiva mandir gurans bazer River/Waterbody :::::: Riverbed gurausha bazer chowk Scale 1:25,000 Ward 4 Safe Nepal Engineering Pvt Ltd **Gurans Rural Municipality Bagmati Province Karnali Province** Map 12

Dailekh, Nepal

Balaju, Kathmandu

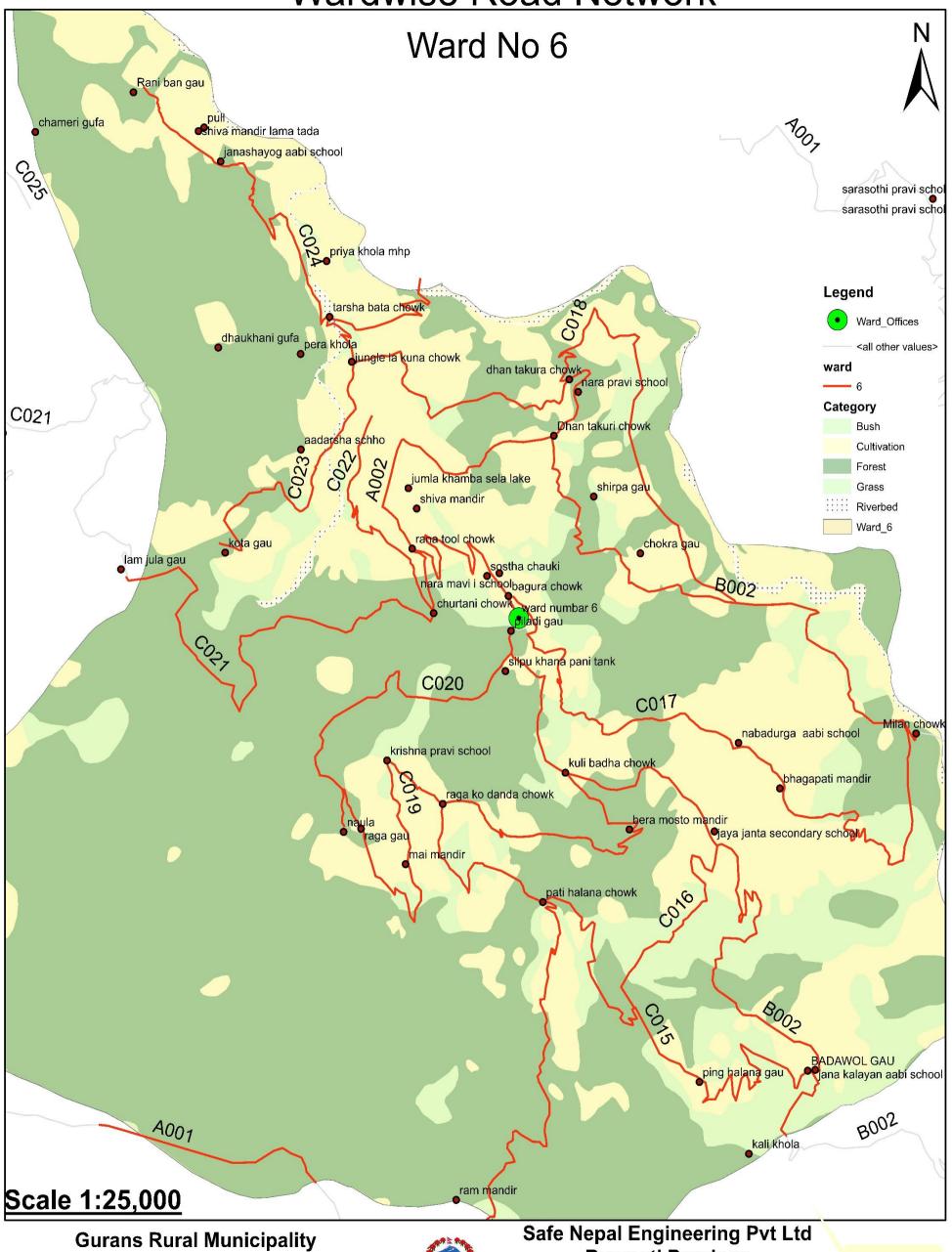
Wardwise Road Network



Dailekh, Nepal

Balaju, Kathmandu

Wardwise Road Network



Karnali Province

Dailekh, Nepal

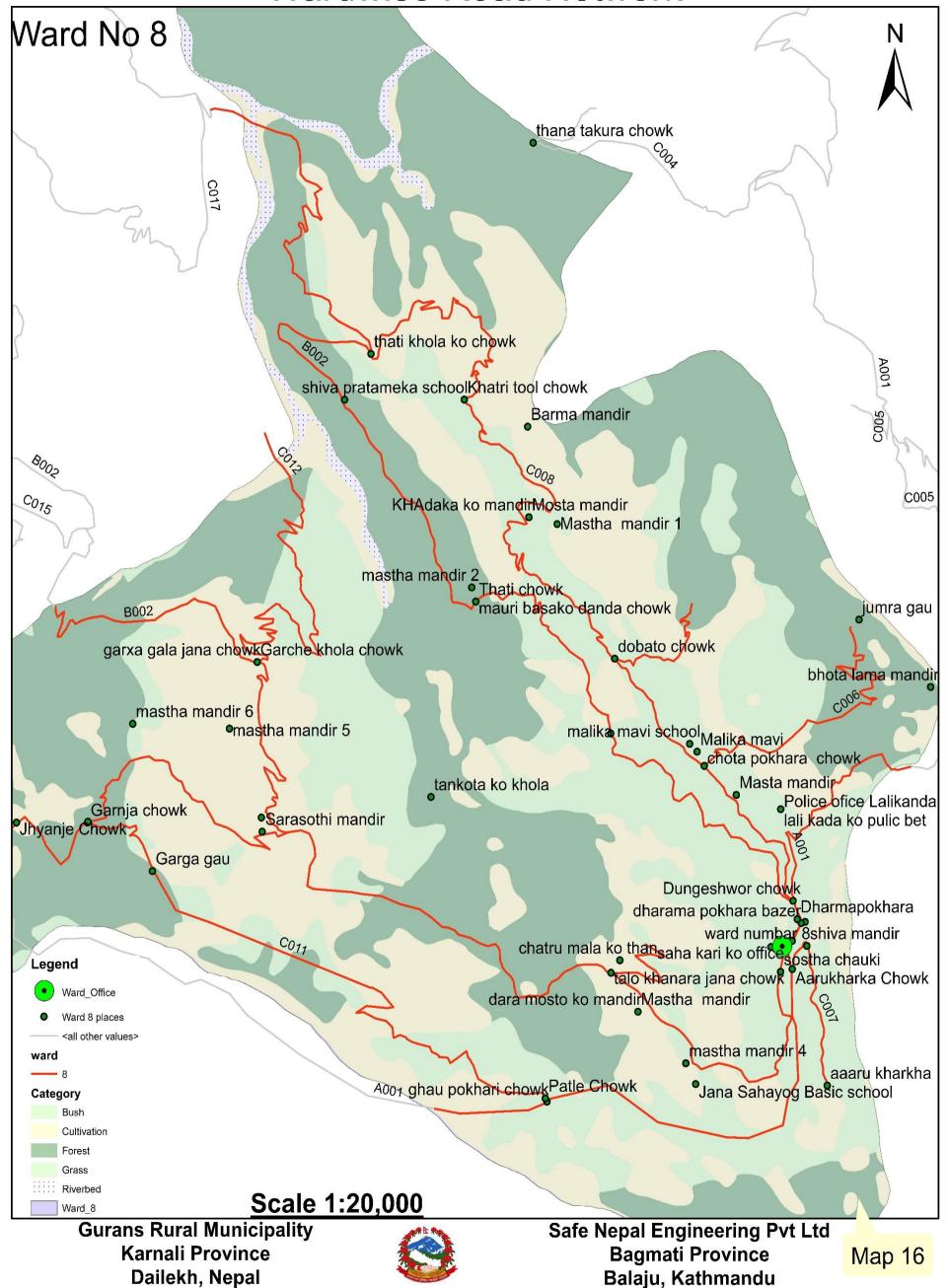
Map 14

Bagmati Province

Balaju, Kathmandu

Wardwise Road Network Ward Nomortha khola sarasothi pravi schol malika mandir okhalani gau demura chowk dhora bana parbati pravi school A001 lali khola chowk burthing sentar_{sostha} chauki M . K HO TAL JHUJ 3 kuna chowk new building of sostha sadhala gau shiva mandir gau santi mavi school jhuja gau ko khana pani tank C004 mathan chowk C017 khala tahu adhashori tample BAhuna gau Legend <all other values: khop kandra Oghumna beshau chowk ward malika mandir gumla beshau Category C008 malthula lafting khana pani shiva mandir B002 Bush tanaula gufa Cultivation C009 Forest khureya gau mahalaxmi school Grass C006 Riverbed Scale 1:30,000 Ward 7 Places Safe Nepal Engineering Pvt Ltd **Gurans Rural Municipality Bagmati Province** Karnali Province Map 15 Balaju, Kathmandu Dailekh, Nepal

Wardwise Road Network



ANNEX 3- WARD MEETING PHOTOGRAPHS & MINUTES





















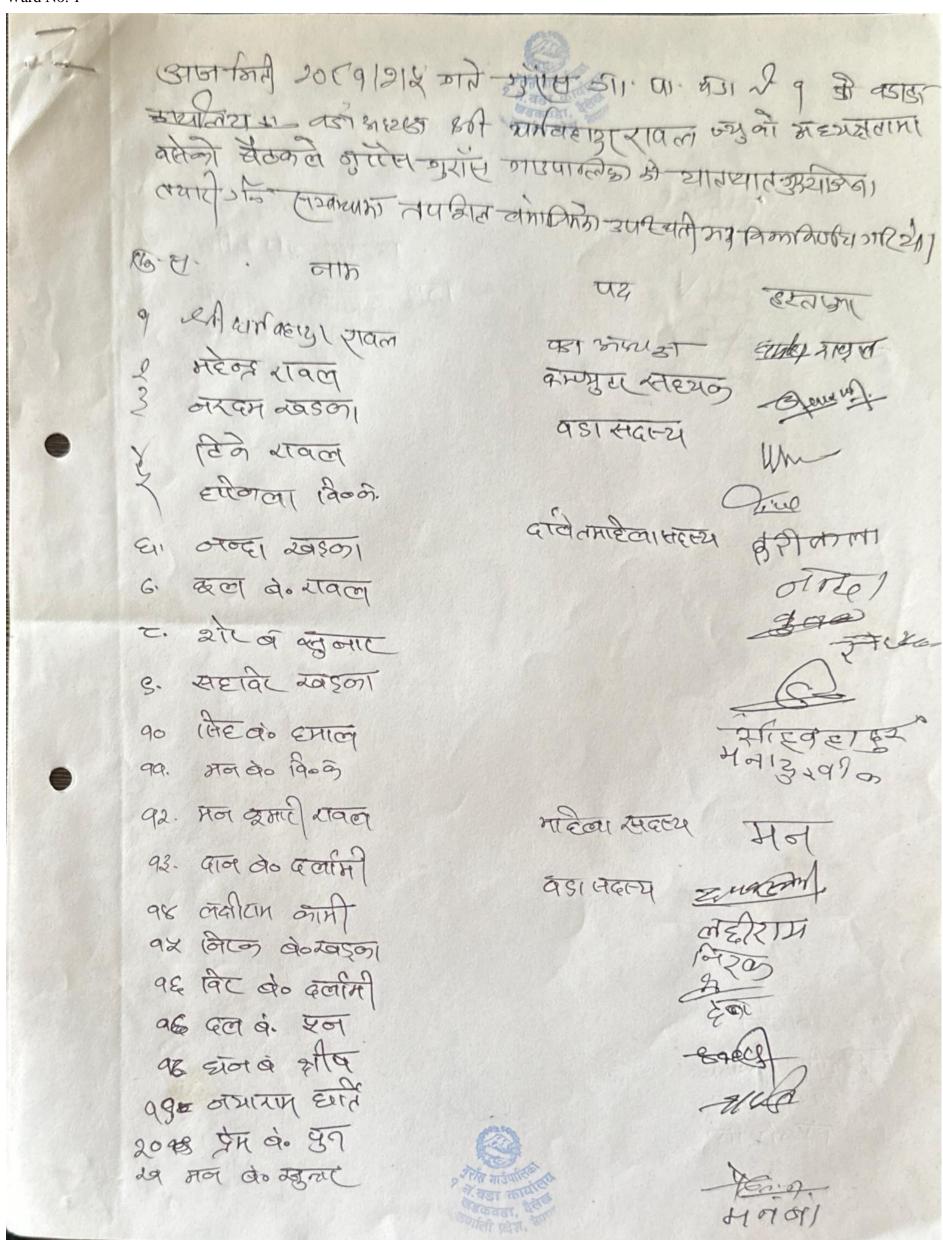


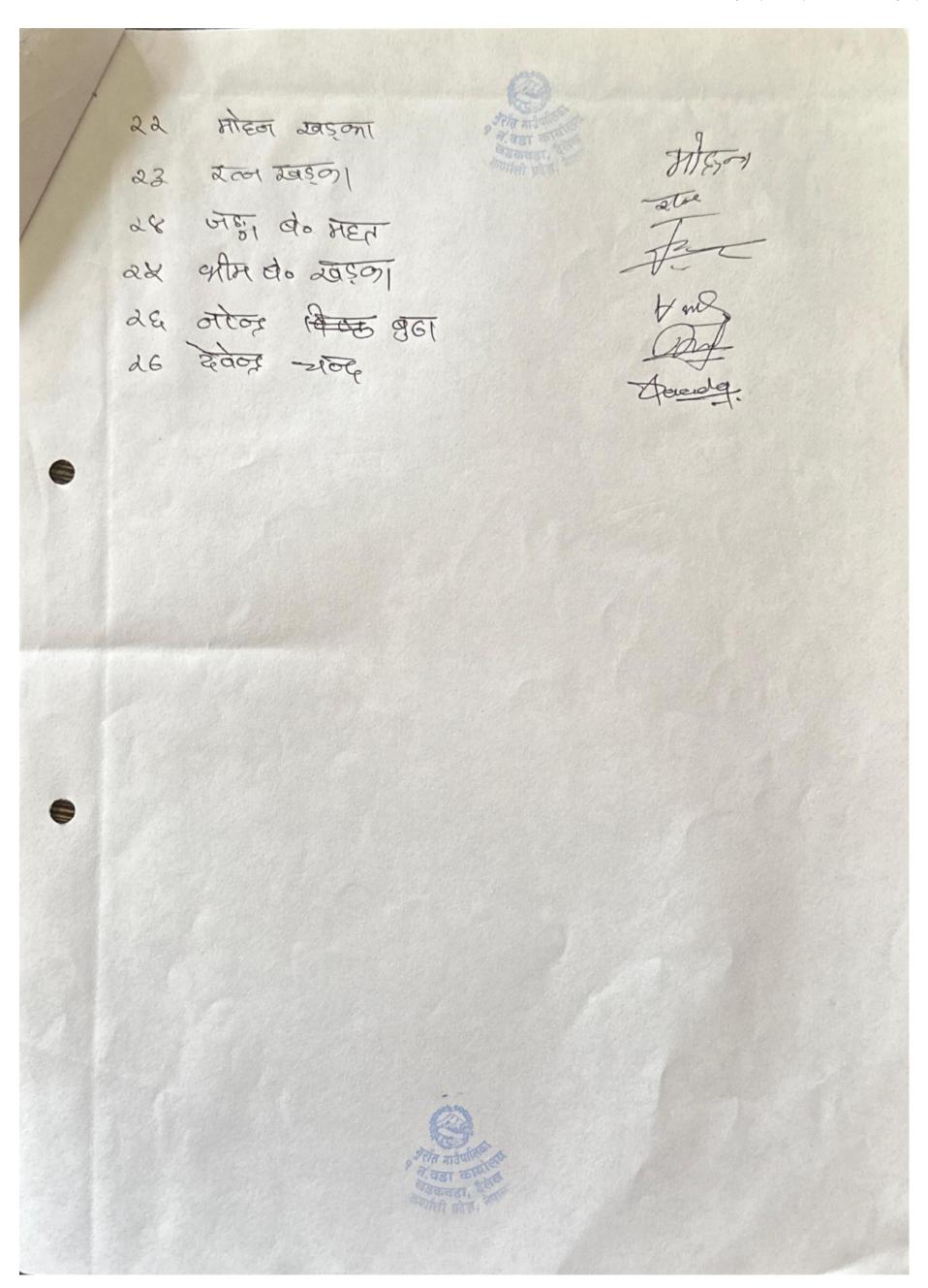


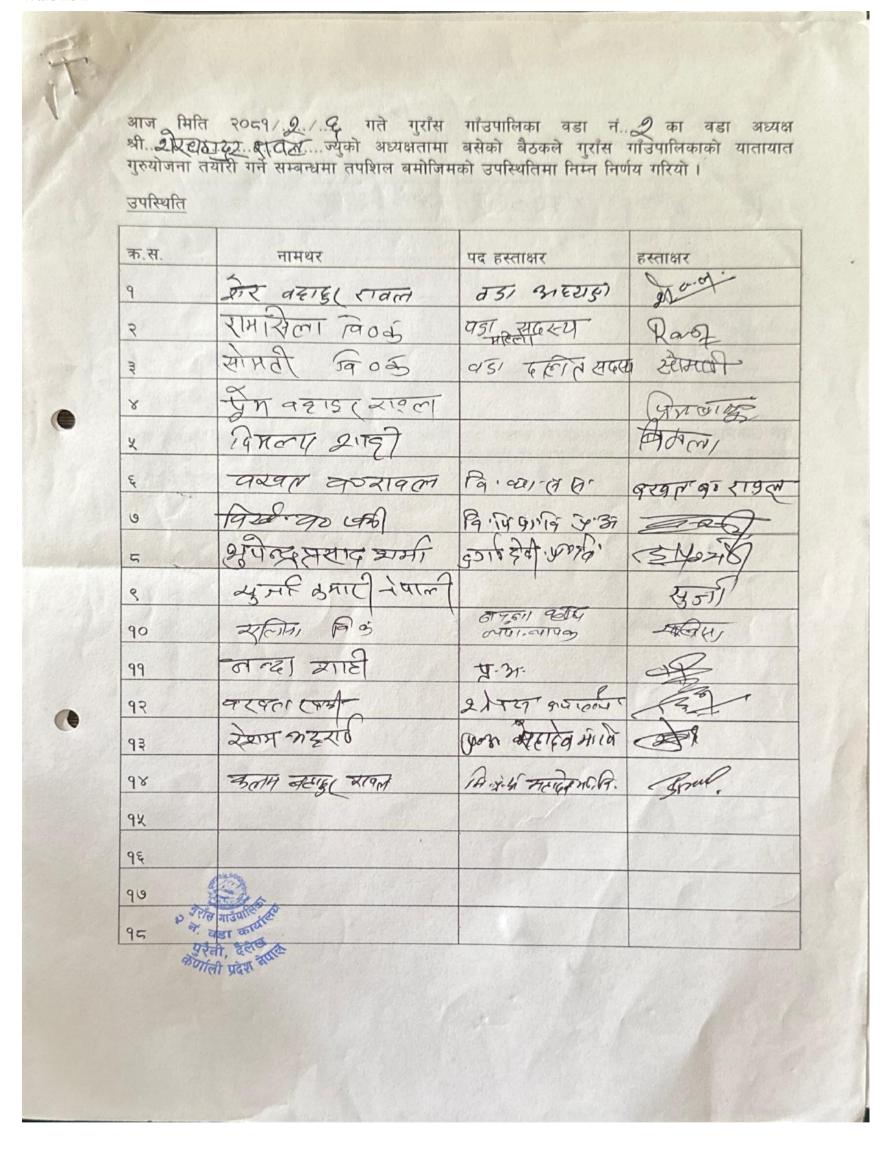












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| 79 | मनाव व | ट्डर नेपाली | काळ्य | A Come | ak |
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| 24 | 10 7 3 3 | | | 37.19 | कार्याः नेपार्च |
| यस वडा वडामा भ गराउने रि | था निर्णय : को यातायात गुरुयोज एका सडक,चोक तथ नर्णय गरियो । | ना तयारीका लागि व ा सम्भावित बजार क्षे | वडा अध्यक्ष,स्दस्यहरु विहरुको विस्तृत विवर | तथा अन्य महानुभावब ण सर्वेक्षण टोलीलाई उ | |
| यस वडा वडामा भ गराउने रि | को यातायात गुरुयोज एका सडक,चोक तथ | ना तयारीका लागि व ा सम्भावित बजार क्षे | वडा अध्यक्ष,स्दस्यहरु विहरुको विस्तृत विवर | तथा अन्य महानुभावव ण सर्वेक्षण टोलीलाई | |
| यस वडा वडामा भ गराउने रि | को यातायात गुरुयोज एका सडक,चोक तथ | ना तयारीका लागि व ा सम्भावित बजार क्षे | वडा अध्यक्ष,स्दस्यहरु विहरुको विस्तृत विवर | तथा अन्य महानुभावव ण सर्वेक्षण टोलीलाई | |
| यस वडा वडामा भ गराउने रि | को यातायात गुरुयोज एका सडक,चोक तथ | ना तयारीका लागि व ा सम्भावित बजार क्षे | वडा अध्यक्ष,स्वस्यहरु विहरुको विस्तृत विवर | तथा अन्य महानुभावव ण सर्वेक्षण टोलीलाई | |
| यस वडा वडामा भ गराउने रि | को यातायात गुरुयोज एका सडक,चोक तथ | ना तयारीका लागि व ा सम्भावित बजार क्षे | वडा अध्यक्ष,स्वस्यहरु | तथा अन्य महानुभावव | |

आज मिति २०६१/९... गते गुरासले साम्मालिका वडा नं.. द्वा वडा अध्यक्ष श्री. का वडा अध्यक्ष श्री. का वडा अध्यक्ष तामा बसेको बैठकले गुराँस गाँउपालिकाको यातायात गुरुयोजना तयारी गर्ने सम्बन्धमा तपशिल बमोजिमको उपस्थितिमा निम्न निर्णय गरियो।

उपस्थिति

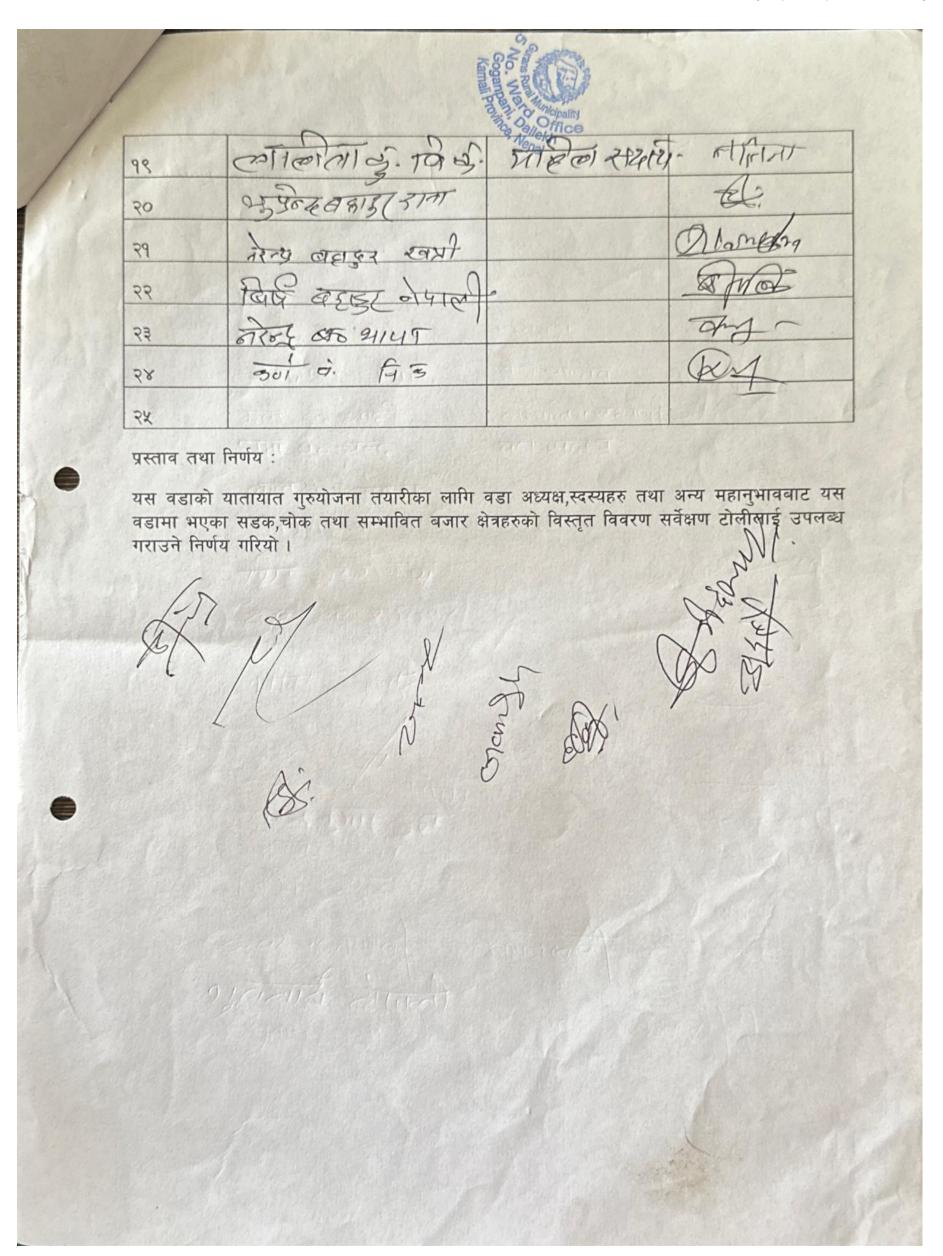
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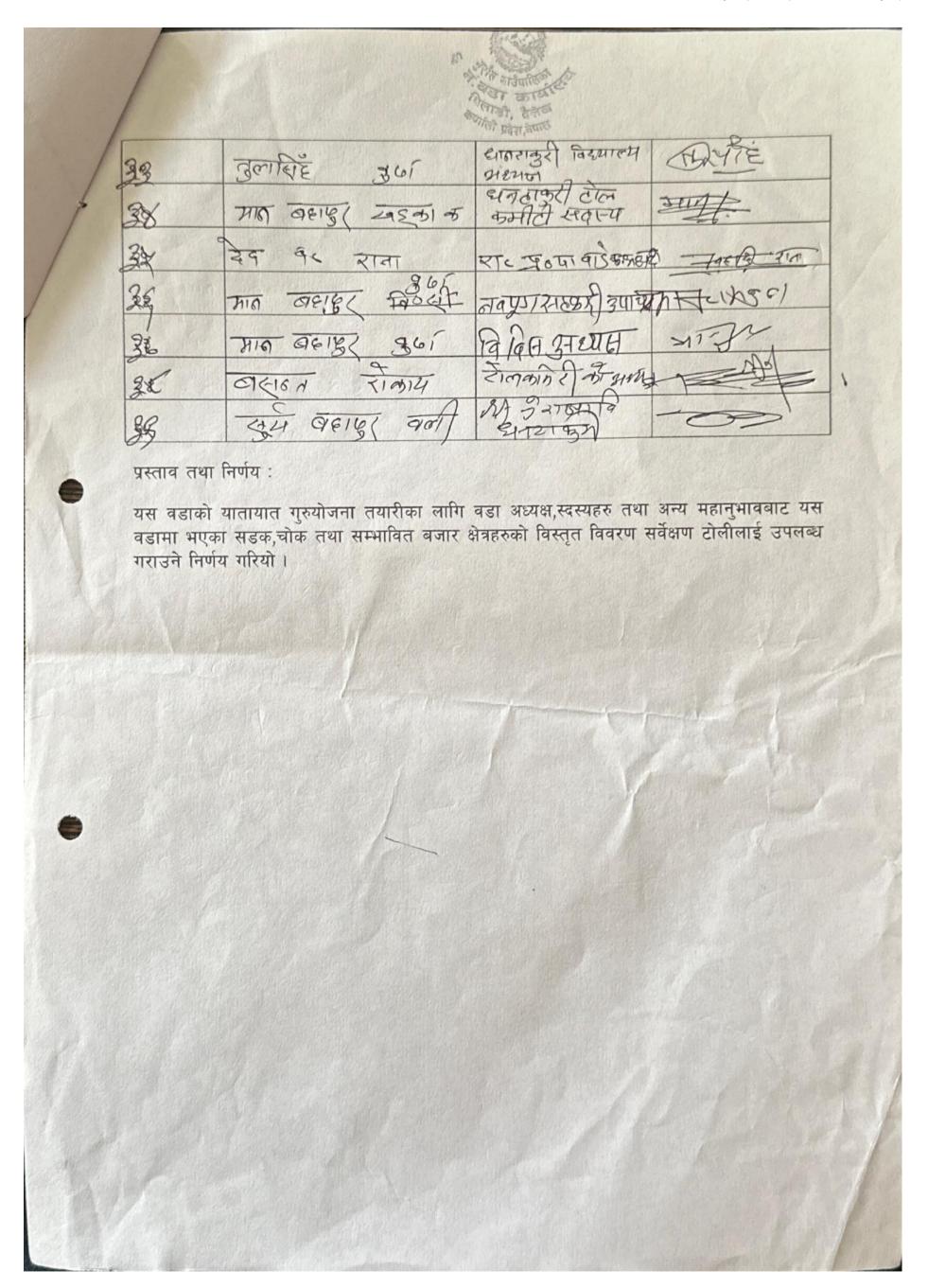
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प्रस्ताव तथा निर्णय:

यस वडाको यातायात गुरुयोजना तयारीका लागि वडा अध्यक्ष,स्दस्यहरु तथा अन्य महानुभावबाट यस वडामा भएका सडक,चोक तथा सम्भावित बजार क्षेत्रहरुको विस्तृत विवरण सर्वेक्षण टोलीलाई उपलब्ध गराउने निर्णय गरियो।