Sunchhahari Rural Municipality.

Office of the Rural Municipal Executive

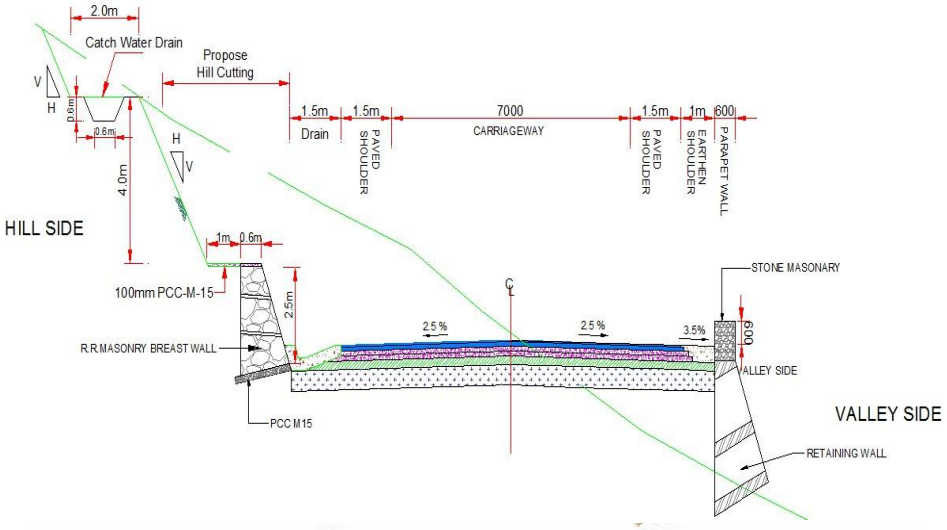
Pobang Rolpa,

Lumbini Province, Nepal

"Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality"

Final Report

Volume I – Main Report



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परियोजनाको पृष्ठभूमि

ग्रामीण क्षेत्रको समुन्नतिको लागि सडक पूर्वाधार अत्यन्तै महत्वपूर्ण आधार हो। नेपालको अधिकांश भूभाग ग्रामीण क्षेत्रले ढाकेको छ र यहाँका नागरिकहरू अझै पनि आधारभूत सेवाहरूको पहुँचबाट वञ्चित छन्। विशेषगरी दुर्गम भेगहरूमा विकास पुर्याउनका लागि यातायात सञ्जालको सुधार अपरिहार्य छ। सडक नै विकासको पहिलो पाइला हो जसले कृषि, शिक्षा, स्वास्थ्य, व्यापार लगायत जीवनका हरेक क्षेत्रलाई समेट्छ।

रोल्पा जिल्ला लगायतका धेरै ग्रामीण नगरपालिकाहरूमा अहिले विभिन्न तहका सडकहरू (क, ख , ग र घ वर्ग) निर्माण तथा स्तरोन्नतिको चरणमा छन्। यी सडकहरूले नगरपालिकाको केन्द्र, वडाहरू, गाउँहरू, तथा प्रमुख आर्थिक केन्द्रहरूलाई आपसमा जोड्ने कार्य गरिरहेका छन्। क वर्गका सडकहरू मुख्य राजमार्ग जस्तै भूमिका खेल्छन् भने ख र ग वर्गका सडकहरूले आन्तरिक गाउँहरूमा पहुँच पुर्याउँछन्। यसरी बहुआयामिक सडक संरचना rural connectivity सुनिश्चित गर्दैछ।

ग्रामीण क्षेत्रमा सडक सञ्जाल विकास हुनु भनेको मात्र यातायातको सहजता होइन, आर्थिक, सामाजिक तथा सांस्कृतिक रूपान्तरणको थालनी गर्नु पनि हो। एक गाउँलाई अर्को गाउँ, बजारलाई गाउँ र गाउँलाई शहरसँग जोड्ने कार्यले स्थानीय उत्पादनलाई बजारसम्म पुर्याउन सहयोग गर्छ। फलस्वरूप कृषक, साना उद्यमी र स्थानीय व्यवसायीहरूको आम्दानीमा वृद्धि हुन थाल्छ, जसले गर्दा समग्र आर्थिक विकासलाई गति मिल्छ।

सडक विकासका कारण स्वास्थ्य सेवामा पनि उल्लेखनीय सुधार देखिन्छ। बिरामीलाई अस्पताल लैजान सजिलो हुन्छ, आकस्मिक सेवाहरू (जस्तै एम्बुलेन्स सेवा) समयमै उपलब्ध हुन्छन् र स्वास्थ्य सेवा पहुँचयोग्य हुन्छ। यस्तै, विद्यार्थीहरूलाई विद्यालय, क्याम्पससम्म सजिलै जान सकिन्छ, जसले गर्दा शिक्षामा पहुँच वृद्धि हुन्छ।

त्यस्तै, ग्रामीण सडकहरूले आपतकालीन उद्धार कार्यमा पनि ठूलो मद्दत पुर्याउँछन्। प्राकृतिक प्रकोपका बेला राहत तथा उद्धार टोलीले दुर्गम क्षेत्रमा छिटो पुग्न सक्छन्। खाद्यान्न, औषधि तथा अन्य अत्यावश्यक सामग्रीको आपूर्ति सहज हुन्छ। यसले विपद् व्यवस्थापनमा सुधार ल्याएर जनधनको क्षति न्यूनीकरणमा मद्दत गर्दछ।

सडक संरचना विकासले सामाजिक समावेशीकरणमा पनि सकारात्मक प्रभाव पार्छ। टाढा रहेका दलित, जनजाति, महिला, अशक्तजस्ता समुदायहरू मुख्य विकास प्रवाहमा समावेश हुन्छन्। तिनीहरूको

स्वास्थ्य, शिक्षा र आर्थिक अवस्थाको स्तर उकास्न सडकले महत्वपूर्ण भुमिका खेल्छ। समग्रमा सामाजिक न्याय र समानताको भावना बलियो हुन्छ।

यसरी हेर्दा, ग्रामीण सडक विकास केवल यातायात सुविधा नभई ग्रामीण जीवनको बहुआयामिक रूपान्तरणको माध्यम बन्न पुगेको छ। त्यसैले यस्ता परियोजनाहरू राष्ट्रिय समृद्धि प्राप्तिका लागि आधारशिला हुन्। ग्रामीण क्षेत्रमा गुणस्तरीय र दिगो सडक पूर्वाधारको विकासले मात्र आर्थिक, सामाजिक र सांस्कृतिक समुन्नतिको लक्ष्य पूरा गर्न सकिन्छ।

भूमिका

सुनछहरी गाउँपालिका पश्चिम नेपालको पहाडी भेगमा अवस्थित एक ग्रामीण क्षेत्र हो, जहाँ विकासका विविध पक्षहरू अझै पनि आधारभूत पूर्वाधारको कमीका कारण अपेक्षित रूपमा अघि बढ्न सकेका छैनन्। विशेषतः यातायात पूर्वाधारको अभावले गर्दा कृषिमा उत्पादकत्व वृद्धि, बजार पहुँच, शिक्षा र स्वास्थ्य जस्ता अत्यावश्यक सेवा प्रवाहमा अवरोध सिर्जना हुँदै आएको छ। ग्रामीण बस्तीहरूमा सडक नै समृद्धिको मूल आधार हुने कुरालाई आत्मसात गर्दै गाउँपालिकाले यातायात पूर्वाधारको समुचित व्यवस्थापन र दीगो विकासका लागि ठोस योजना तयार गर्ने आवश्यक महसुस गर्यो।

यसै सन्दर्भमा, सुनछहरी गाउँपालिकाले ग्रामीण यातायात मास्टर योजना (Rural Municipal Transport Master Plan – RMTMP) तयार पारेको छ, जसले दीगो, पहुँचयुक्त तथा समावेशी यातायात संरचना निर्माणतर्फ स्पष्ट मार्गनिर्देशन प्रदान गर्दछ। यो योजना केवल भौतिक पूर्वाधार विकासमा केन्द्रित छैन; यसले सामाजिक समावेशीकरण, आर्थिक प्रगतिशीलता र वातावरणीय सन्तुलनका पक्षहरूलाई समेत ध्यानमा राखेको छ।

RMTMP ले गाउँपालिकाभित्र हाल रहेको सडक सञ्जालको विस्तृत विश्लेषण गर्नेछ र आगामी दिनमा आवश्यक पर्ने प्रस्तावित सडकहरूको वर्गीकरण, चौडाइ (ROW), सञ्चालन प्राथमिकता तथा निर्माण चरणहरू समेत समेट्नेछ। यसले गर्दा योजना कार्यान्वयन सजिलो र लक्षित हुनेछ, र सबै वडाहरू समान रूपमा यातायात सञ्जालसँग आबद्ध गरिनेछन्।

गाउँपालिकाको भौगोलिक विषमता र सामाजिक विविधता हेर्दा एकीकृत र व्यावहारिक योजना अति आवश्यक थियो। मास्टर योजनाको माध्यमबाट भौगोलिक रुपमा दुर्गम क्षेत्रहरूलाई पनि समेटेर त्यसको आवश्यकताअनुसार पूर्वाधार विस्तार गरिनेछ, जसले विकासको लाभ सबै वर्ग र समुदायसम्म पुऱ्याउने सुनिश्चितता दिन्छ।

RMTMP को मूल उद्देश्य गाउँपालिकाभित्र समुचित, सुरक्षित, वातावरणमैत्री र दीगो सडक संरचना विकास गर्नु हो। यसले सडक पहुँच नभएका बस्तीहरूमा पहुँच पुऱ्याउने मात्र होइन, आपतकालीन उद्धार, महिला तथा बालबालिकाको सेवा सुविधा पहुँचमा समेत सुधार ल्याउनेछ।

यस योजनाबाट कृषि उत्पादनको बजारसम्म सहज पहुँच, स्थानीय स्तरमै रोजगार सिर्जना, विद्यालय तथा स्वास्थ्य चौकीसम्म सहज यातायात, तथा सामुदायिक सम्पर्क विस्तार जस्ता धेरै पक्षमा सुधार आउने अपेक्षा गरिएको छ। यस्तो दीर्घकालीन दृष्टिकोणसहितको योजनाले सुनछहरी गाउँपालिकालाई आत्मनिर्भर, गतिशील र समृद्ध बनाउने दिशामा अगाडि बढाउनेछ।

NEC Registration Council Number E.r Gokul Bhandari 415 “Geomatics”

हालको अवस्था र प्रस्ताव

सुनछहरी गाउँपालिका, पश्चिम नेपालको एक पहाडी क्षेत्र हो जहाँ पहाडका बस्तीहरू र कृषि क्षेत्रहरू बीचको दूरी निकै धेरै छ। यी दुर्गम स्थानहरूमा यातायातको पहुँच सीमित भएकोले ग्रामीण विकासमा बाधा पुगेको छ। ग्रामीण यातायात सञ्जालको विकास गर्नका लागि सुनछहरी गाउँपालिकाले समग्र सडक सञ्जालको विस्तार र सुधारको योजना बनाएको छ। यो योजना एउटा दीगो र समावेशी यातायात प्रणाली सिर्जना गर्नका लागि अत्यन्त महत्त्वपूर्ण छ।

गाउँपालिकामा समग्रमा ३१७.७० किलोमिटर सडक सञ्जालको प्रस्ताव गरिएको छ। हालसम्म २२५.८६ किलोमिटर सडक सञ्जाल निर्माण भइसकेको छ, यस योजनाले गाउँपालिकाभित्रका सबै वडाहरूलाई एकसाथ जोड्ने लक्ष्य राखेको छ, जसले सामाजिक, आर्थिक र सांस्कृतिक विकासमा महत्त्वपूर्ण योगदान पुर्याउनेछ।

सडकहरूलाई वर्गीकरण गर्दै चार प्रमुख वर्गहरूमा विभाजन गरिएको छः क, ख ग र घ । प्रत्येक वर्गका सडकहरूले आ-आफ्नो स्तरमा भिन्न कार्य र उद्देश्य पूरा गर्नेछन्। क वर्गका सडकहरू मुख्य मार्गका रूपमा, ख वर्गका सडकहरू माध्यमिक मार्गका रूपमा, ग र घ वर्गका सडकहरू स्थानीय मार्गका रूपमा काम गर्नेछन्। यी सडकहरूको निर्माण र विस्तारसँगै गाउँपालिकाभित्र यातायातको अवस्था सुधार हुनेछ।

क वर्ग सडक

क वर्गका सडकहरू सबैभन्दा महत्त्वपूर्ण सडकहरू हुनेछन् जसका लागि १५ मिटरको अधिकार क्षेत्र (ROW) निर्धारण गरिएको छ। यी सडकहरू मुख्य व्यापारिक केन्द्र, नगरपालिका केन्द्र र अन्तरपालिका सीमा जोड्ने मार्गका रूपमा विकास गरिनेछन्। क वर्गका सडकहरूको मुख्य उद्देश्य व्यापार, उद्योग, शिक्षा, स्वास्थ्य र अन्य महत्त्वपूर्ण सामाजिक सेवाहरूलाई आपसमा जोड्ने हो।

हालसम्म ११५.४८ किमी क वर्गका सडकहरूको निर्माण सम्पन्न भइसकेको छ। यसका अतिरिक्त, ५४.७३किमी नयाँ क वर्ग सडकहरूको निर्माण गर्ने योजना प्रस्ताव गरिएको छ। यी नयाँ सडकहरूले प्रमुख बजार, सरकारी कार्यालय र अन्य महत्वपूर्ण स्थानहरूलाई जोड्ने छन्, जसले गाउँका बासिन्दालाई दैनिक आवागमनमा सजिलो र सस्तो विकल्प प्रदान गर्नेछन्।

ख वर्ग सडक

ख वर्गका सडकहरू १० मिटर चौडाइका माध्यमिक सडकहरू हुनेछन्। यी सडकहरूले वडाका केन्द्रहरू, गाउँहरू, स्कूल र स्वास्थ्य संस्थानहरूलाई आपसमा जोड्ने कार्य गर्नेछन्। यसमा ४४.६७ किमी ख वर्गका सडकहरू निर्माण भइसकेका छन्, र थप ८८.११ किमी सडकहरूको प्रस्ताव गरिएको छ।

ख वर्गका सडकहरूको निर्माणले शिक्षा र स्वास्थ्य सेवा पहुँचमा सुधार ल्याउनेछ। यी सडकहरूले विद्यार्थीलाई विद्यालय, शिक्षक र अन्य शैक्षिक संस्थाहरूमा सरलता र शीघ्रता साथ पुग्न मद्दत गर्नेछन्। साथै, गाउँका स्वास्थ्य केन्द्रहरू र अस्पतालसम्मको पहुँच सुधार गर्नका लागि पनि यी सडकहरूको महत्त्वपूर्ण भूमिका हुनेछ।

ग वर्ग सडक

ग वर्गका सडकहरू ८ मिटर चौडाइका स्थानीय सडकहरू हुनेछन्, जसले स्थानीय बस्तीहरू, कृषि क्षेत्रहरू र दुर्गम बस्तीहरूलाई जोड्ने कार्य गर्नेछन्। यो वर्गका सडकहरू बृहत् सञ्जालको हिस्सा हुनेछन् जसले गाउँका दूरदराज क्षेत्रहरूमा रहेका बासिन्दाहरूलाई सेवा पुर्याउने काम गर्नेछन्।

हालसम्म ३४.८४ किमी ग वर्गका सडकहरू निर्माण भइसकेका छन्, र आगामी चरणमा ११३.३० किमी ग वर्गका सडकहरूको निर्माण प्रस्ताव गरिएको छ। यी सडकहरूले स्थानीय बासिन्दाहरूको दैनिक जीवनमा सस्तो र सुरक्षित यातायातको सुविधा पुर्याउनेछन्, जसले उनीहरूको जीवनस्तरमा सकारात्मक परिवर्तन ल्याउने छ।

घ वर्ग सडक

घ वर्गका सडकहरू फिडर सडकका रूपमा चिनिन्छन् जसको चौडाइ ६ मिटर हुनेछन्। यस्ता सडकहरू स्थानीय कृषि क्षेत्र, साना बस्तिहरू र निजी भूमि विकासका लागि महत्त्वपूर्ण हुनेछन्। घ वर्गका सडकहरूले कृषि उत्पादनका लागि आवागमनलाई सहज बनाउनका साथै स्थानीय व्यवसाय र ग्रामीण आर्थिक क्रियाकलापलाई प्रोत्साहन गर्नेछन्। हालसम्म ७.८३ किमी घ वर्गका सडकहरू निर्माण भइसकेका छन्, र आगामी चरणमा ६३. ६९ किमी घ वर्गका सडकहरूको निर्माण प्रस्ताव गरिएको छ।

समग्र सडक सञ्जालको विस्तार

सुनछहरी गाउँपालिकामा समग्र ५४३.५६०२ किलोमिटर सडक सञ्जालको विकासले गाउँका सबै वडाहरूलाई आपसमा जोड्ने कार्य गर्नेछ। यसले गाउँका बासिन्दाहरूलाई राज्यको मूलधारमा सामेल गराउने काम गर्नेछ। समग्र यातायात सञ्जालको विस्तारले गाउँपालिका भित्रका प्रत्येक बस्तीलाई एकदमै सस्तो र द्रुत यातायात सेवा उपलब्ध गराउनेछ।

यातायातको समय, लागत र श्रम घटाउने मात्र होइन, यसले गाउँका बासिन्दाहरूसम्म सरकारी सेवा र विकास गतिविधिहरूको सुलभ पहुँच सुनिश्चित गर्नेछ। यसका साथै, ग्रामीण क्षेत्रका बासिन्दालाई मुख्य सञ्जालसँग जोड्ने कार्यले आर्थिक विकासमा योगदान पुर्याउनेछ।

समग्र प्रभाव

यस योजनाले ग्रामीण क्षेत्रका बासिन्दाको जीवनस्तरमा महत्वपूर्ण सुधार ल्याउनेछ। यातायात सञ्जालको विस्तारसँगै कृषि उत्पादनको आपूर्ति, औद्योगिकीकरण, रोजगारीको अवसरहरू र सामाजिक समावेशीकरणमा ठूलो योगदान पुग्नेछ। यसले शिक्षा र स्वास्थ्य क्षेत्रमा पनि सकारात्मक असर पार्नेछ।

सडक सञ्जालको विस्तारसँगै व्यावसायिक र सरकारी गतिविधिहरू पनि तीव्र र प्रभावकारी बन्नेछन्। यसले कृषि, व्यापार, उद्योग र अन्य क्षेत्रहरूमा विकासको गति बढाउनेछ, जसले गाउँपालिकालाई समृद्ध र स्वावलम्बी बनाउन मद्दत गर्नेछ।

निष्कर्ष

सुनछहरी गाउँपालिकाको यो ग्रामीण यातायात मास्टर योजना (RMTMP) विकास र विस्तारको दृष्टिकोणले आगामी वर्षहरूमा गाउँपालिकामा यातायात क्षेत्रको क्रान्ति ल्याउने विश्वास व्यक्त गरिएको छ। यस योजनाले ग्रामीण क्षेत्रका जीवनस्तरमा सुधार ल्याउनेछ र गाउँलाई समृद्ध र विकासशील बनाउने मुख्य आधार बन्नेछ।

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ग्रामीण नगरपालिकामा सडक विकासका फाइदाहरू

कृषि उत्पादनको बजार पहुँच

ग्रामीण किसानहरूले आफ्नो उत्पादन (धान, मकै, तरकारी, फलफूल आदि) समयमै बजारमा लैजान सक्नेछन्। यसले कृषिमा वृद्धि र ग्रामीण आम्दानीमा उल्लेखनीय सुधार ल्याउनेछ।

स्वास्थ्य सेवा पहुँच

सडक सञ्जाल राम्रो हुँदा बिरामीलाई अस्पताल वा स्वास्थ्य केन्द्र पुर्याउन सहज हुनेछ। विशेषगरी आकस्मिक सेवाहरू (ambulance सेवा) सुलभ हुनेछ।

शिक्षा सुविधामा सुधार

विद्यार्थीहरू विद्यालय तथा क्याम्पस जान सजिलो हुनेछ। शिक्षामा पहुँच बढ्दा दीर्घकालीन मानव विकास सम्भव हुन्छ।

पर्यटन तथा सांस्कृतिक प्रवर्धन

रोल्पा जस्तो ऐतिहासिक तथा प्राकृतिक सम्पदाले भरिएको ठाउँमा पर्यटकहरूको आगमन बढाउन सडकले भूमिका खेल्नेछ।
जस्तैः थवाङ क्षेत्र, मावाङ क्षेत्र आदिमा आन्तरिक तथा बाह्य पर्यटन बढाउन मद्दत गर्नेछ।

रोजगारी तथा आयआर्जन

सडक निर्माण तथा मर्मतका क्रममा निर्माण मजदुरीमा स्थानीयलाई रोजगारी मिल्नेछ। साथै, साना व्यवसाय (hotel, grocery, transport) खुल्ने सम्भावना पनि बढ्नेछ।

आपतकालीन व्यवस्थापन

बाढी, पहिरो वा अन्य प्राकृतिक प्रकोपमा उद्धार तथा राहत वितरण सरल र छिटो हुनेछ।

सामाजिक समावेशीकरण

टाढा-टाढाका दलित, आदिवासी जनजाति समुदाय मुख्य विकास प्रवाहमा समावेश हुनेछन्। यातायातले उनीहरूलाई रोजगारी, शिक्षा, स्वास्थ्य पहुँचमा सशक्त बनाउनेछ।

किन ग्रामीण सडकहरू अत्यन्त आवश्यक छन्?

- नेपालको ग्रामीण संरचना ज्यादै फैलिएको छ। पहुँचयोग्य सडक बिना विकास सम्भव छैन।
- बजार, शिक्षा, स्वास्थ्य, प्रशासन, सबै सेवाहरू सडकमा निर्भर छन्।

- "समृद्ध गाउँ, समृद्ध राष्ट्र" नारालाई सार्थक बनाउन ग्रामीण सडक अवश्य निर्माण गर्नु जरुरी छ।
- सडक विना ग्रामीण क्षेत्रको उत्पादन तथा श्रम बजारमा अनुकूल पहुँच हुँदैन।

सडकले मात्र गाउँलाई शहरसित जोड्दैन, विकास र समृद्धिसँग पनि गाँस्छ।

Letter of Submission

Sunchhahari Rural Municipality.

Office of the Rural Municipal Executive

Pobang Rolpa, Lumbini province Nepal

Final Report

This document (Volume-I Preparation of Rural Municipal Transportation Master Plan (R-MTMP) of Sunchhahari Rural Municipality) is the Final report prepared for the project, "Consulting Services for Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality Surveying**.** Undertaken by Sunchhahari Rural Municipality, the opinions, findings, and conclusions expressed herein are those of the consultant and do not necessarily reflect those of the client. The report is submitted in volume and the content follows in subsequent pages.

Data Sources and Credits

Datasets, field photographs, GIS map, Satellite image acquisition, and other miscellaneous data are produced & developed by Shubha bihani Engineering Consultancy pvt.Ltd (2025) for the project during 2025. These data are owned by the Sunchhahari Rural Municipality, Authorization from the owner is required for the usage and/or publication of the data in part or whole.

Shubha bihani Engineering Consultancy pvt.Ltd

Ghorahi 15-Dang

NEC Registration Council Number E.r Gokul Bhandari 415 "Geomatics"

Project Information

"The comprehensive study, analysis, and planning of the R- MTMP for Sunchhahari Rural Municipality are compiled into two volumes, inclusive of GIS maps. This report constitutes Volume One, which encapsulates the entire study's findings through detailed data, in-depth analysis, and proposed plans and recommendations. The complete compilation, including the project description, is presented as follows:"

Project Information	
Name of Project	Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality
Project Executing and Implementing Agency	Sunchhahari Rural Municipality, Rolpa, Lumbini Province
Project Commencement Date	2081
Date of Project Completion	2082
Name of the Consultant	Shubha bihani Engineering Consultancy pvt.Ltd

Submission Information

Name of the Report	Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality	
No. of Volumes	*Two* *Volume I: Main Report* *Volume II: GIS Maps*	
Version No	*1.0*	
Date of Submission	*2082 B. S*	
Submission Type	*Hard Copy*	
Copies Produced	*For Client: 3 (Three)*	*For Consultant: 1 (One)*
Prepared By	*Shubha bihani Engineering Consultancy pvt.Ltd*	
Checked By	*Sunchhahari Rural Rural Municipality*	
Reviewed By	*Shubha bihani Engineering Consultancy pvt.Ltd*	
Official Stamp	Shubha Bihani Engineering Consultancy Pvt. Ltd. Estd.2076 Ghorahi-15, Dang	

NEC Registration Council Number E.r Gokul Bhandari 415 "Geomatics"

Shubha Bihani Engineering Consultancy Pvt. Ltd. Estd.2076 Ghorahi-15, Dang

Acknowledgment

The (Volume-I Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality) has been prepared under the contract agreement between Sunchhahari Rural Municipality and Shubha bihani Engineering Consultancy pvt.Ltd . We would like to convey our indebtedness to Sunchhahari Rural Municipality for entrusting us with the responsibility to conduct the task of preparing Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality.

The R- MTMP report has been developed on the basis of an extensive field study and study of relevant documents guidelines such as DoLIDAR Guideline and Manual 2014 A.D., Nepal Road Standards 2070 B.S, Nepal Urban Road Standards-2076 (NURS-2076 BS), Urban Planning Norm and Standard 2015 A.D., interactions with the local government, people representatives, stakeholders in the Rural Rural Municipality and ward levels and as per the ToR provided along with the contract agreement with the Sunchhahari Rural Municipality.

We would like to express gratitude to the Sunchhahari Rural Municipality team and experts, Representatives of the Sunchhahari Rural Municipality for their valuable suggestion and motivation.

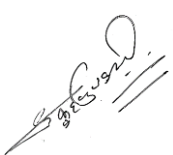
We would like to thank all the citizens for their patience and friendly environment who were directly and indirectly involved in the data collection process. We are greatly thankful to everyone who helped in facilitating us for data collection. We thank the volunteers who helped with traffic vehicle count on the major road linkages.

Shubha bihani Engineering Consultancy pvt.Ltd

Bjaktapur, Nepal

2080/81 BS

NEC Registration Council Number E.r Gokul Bhandari 415 “Geomatics”



Synopsis

This study was conducted with the technical and financial support of Sunchhahari Rural Municipality. It is submitted as the Final report in accordance with the provided Terms of Reference (ToR). The report is structured into several chapters, each detailing different aspects of the study.

A multidisciplinary team of experts was engaged to conduct desk, field, and office studies, analyzing both primary and secondary data across various disciplines, including topography, geomorphology, geology, geotechnics, hydrology, sociology, demography, economy, traffic, agriculture, forestry, ecology, GPS surveys, and traffic surveys of the proposed road alignment. The study focused on the characteristics of the area directly influenced by the preparation of the R- MTMP, aiming to reduce traffic congestion and control the haphazard growth of settlements in the future. These comprehensive studies provided a thorough understanding of the project area, ensuring that the proposed road alignment fits optimally within the physical and environmental context without causing adverse impacts.

Chapter 1: Introduction

Chapter 2 :Literature Reviews and Guidelines

Chapter 3 :Study Methodology

Chapter 4 :Review of Existing Situation

Chapter 5 : Indicative Development Potential Map

Chapter 6 :Municipal Inventory Map of Road Network

Chapter 7 :Forecast and Planning

Chapter 8 :Formulation of Road Network Hierarchy

Chapter 9 :Perspective Plan of Municipal Transport Plan

Chapter 10 : First Five Year Municipal Transport Master Plan

Appendix I: Minutes

Appendix II: Field Photographs

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Salient Features of the Project

Name of Project: I Preparation of Rural Municipal Transportation Master Plan (R- MTMP) of Sunchhahari Rural Municipality

Rural Municipality	**Sunchhahari Rural Municipality**
Geographic Location	**28.361°, 82.796°**
Total Length of Road	**543.56 km**
Road Class	**A, B, C and D Class**
Right of Way of A class Road	**15m**
Right of Way of B class Road	**10 m**
Right of Way of C class Road	**8 m**
Right of Way of D class Road	**6 m**
Road Surface Type	**Earthen**
Road Density	**0.67**
Total Number of Wards	**7**
Total Area	**277.54 km2**
Physiographic Region	**Mid-Hill Physiographic Region**
Terrian	**Hilly Landscape, Valleys and Terraced Field**
Population	**17,241**
Population Increase Rate	**0.49 % Per Year**

Acronyms

AOI	*Area of Interest*
R- MTMP	*Municipal Transport Master Plan*
R- MTMP	*Rural Municipality Transport Master Plan*
BT	*Black Topped*
CBS	*Central Bureau of Statistics*
DoLIDAR	*Department of Local Infrastructure Development and Agricultural Roads*
DoR	*Department of Road*
DRCN	*District Road Core Network*
DTMP	*District Transport Master Plan*
DUDBC	*Department of Development of Building Construction*
ER	*Earthen Road*
FR	*Feeder Road*
GR	*Graveled Road*
IAP	*Integrated Accessibility Planning*
IDP	*Integrated Development Plan*
IDPM	*Indicative Developmental Potential Map*
INGO	*International Non-Governmental Organization*
IRC	*Indian Road Congress*
KM	*Kilometer*
LGOA	*Local Government operation Act*
MIM	*Municipal Inventory Map*
MoFALD	*Ministry of Federal Affair and Local Development*
MoUD	*Ministry of Urban Development*
MRCC	*Municipal Roads Coordination Committee*
MRCN	*Municipal Road Core Network*
MTPP	*Municipal Transport Perspective Plan*
NGO	*Non-Governmental Organization*
NH	*National Highway*
NMT	*Non- Motorized Transport*
NPC	*National Planning Commission*
NRS	*Nepal Road Standard*
NTPCO	*New Town Project Co-ordination Committee*
NUDS	*National Urban Development Strategic*
NURS	*Nepal Urban Road standard*
OD	*Origin and Destination*
PCU	*Passenger Car Unit*

RCUP	*Resource Conservation Utilization Project*
RoW	*Right of Way*
RTO	*Regional Transport Organization*
SOR	*Socially Oriented and Responsibility*
TIMP	*Transport Infrastructure Master Plan*
TDF	*Town Development Fund*
ToR	*Term of Reference*
VDC	*Village Development Committee*
GIS	*Geographic Information System*
DEM	*Digital Elevation Model*
GPS	*Global Positioning System*
ToR	*Term of Reference*
DUDBC	*Department of Urban Development and Building Construction*
DBF	*Data base File*
ESRI	*Environmental Systems Research Institute*
SQL	*Standard Query Language*
CSV	*Comma Separated Values*
KVTDC	*Kathmandu Valley Town Development Committee*
DHUD	*Department of Housing and urban Development*
DWSS	*Department of Water Supply and sewage*
AMSL	*Above Mean Sea Level*
BOOT	*Built Operate Own & Transfer*
CBO	*Community Based Organization*
CBS	*Central Bureau of Statistics*
DCSI	*Department of Cottage and Small Industries*
DFO	*Division Forest Office*
DHO	*District Public Health Office*
DOLS	*Department of Livestock Services*
DOR	*Department of Road*
DOWRI	*Department of Water Resources and Irrigation*
DPR	*Detailed Project Report*
DPTC	*Disaster Prevention Technical Centre*
DRM	*Disaster Risk Management*
DRR	*Disaster Risk Reduction*
DUDBC	*Department of Urban Development and Building Construction*

EDP	*Economic Development Plan*
EIA	*Environmental Impact Assessment*
EPR	*Environment Protection Rules*
FAR	*Floor Area Ratio*
FGD	*Focal Group Discussion*
FNCCI	*Federation of Nepalese Chamber of Commerce and Industries*
GESI	*Gender Equality and Social Inclusive*
GLD	*Guided Land Development*
GON	*Government of Nepal*
GPS	*Global Positioning System*
HALT	*House And Land Tax*
HH	*Household*
IAP	*Integrated Action Plan*
ICT	*Information and Communication Technology*
IDP	*Integrated Development Plan*
IEE	*Initial Environmental Examination*
INGO	*International Non-Governmental Organization*
ISP	*Internet Service Provider*
IUDP	*Integrated Urban Development Plan*
IT	*Information Technology*
KMC	*Kathmandu Metropolitan City*
LAPA	*Local Adaptation Plans for Action*
LFA	*Logical Framework Approach*
LGOA	*Local Government Operation Act*
LR	*Land Revenue*
LS	*Lump Sum*
MIS	*Management of Information System*
MLD	*Million Litre Per Day*
MOCACT	*Ministry of Civil Aviation, Culture and Tourism*
MOE	*Ministry of Education*
MoFALD	*Ministry of Federal Affairs and Local Development*
MOHA	*Ministry of Home Affairs*
MOI	*Ministry of Industry*
MOPH	*Ministry of Population and Health*

MoUD	*Ministry of Urban Development*
MOYS	*Ministry of Youth and Sports*
MSIP	*Multi Sectorial Investment Plan*
MSUD	*Management Support of Urban Development*
R- MTMP	*Municipal Transport Master Plan*
NAPA	*National Adaptation Programme of Action*
NEA	*Nepal Electricity Authority*
NGO	*Non-Governmental Organization*
NPC	*National Planning Commission*
NT	*New Town*
NTB	*Nepal Tourism Board*
NTC	*Nepal Telecommunication Corporation*
NTFP	*Non-Timber Forest Product*
NTO	*National Tourism Organization*
NTPCO	*New Town Project Coordination Office*
NUDS	*National Urban Development Strategy*
NUP	*National Urban Policy*
OWOP	*One Ward One Product*
PDP	*Physical Development Plan*
PRM	*Sunchhahari Rural Municipality*
PPP	*Public Private Partnership*
PS	*Private Sector*
RET	*Renewable Energy Technologies*
ROW	*Right of Way*
SWM	*Solid Waste Management*
SWOT	*Strength Weakness Opportunity & Threat*
TDC	*Town Development Committee*
TDF	*Town Development Fund*
TOR	*Terms of Reference*
UDLE	*Urban Development through Local Effort*
UNDP	*United Nation Development Project*
USAID	*U.S Agency for International Development*
VDC	*Village Development Committee*
WHO	*World Health Organization*

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Chapter 1 Introduction

1.1 Background

The Constitution of Nepal has envisioned Federal Democratic Republicanism as the essence of its governance system. The rights of the local government have been enlisted in Annex -8 of the constitution. Local Government Operation Act 2074 elaborates and specifies those rights to be exercised by the local government. Article 11, Sub-Articles 2(G) and (K) specify the rights of the local government to devise and implement policies and plans regarding roads, transportation and other relevant development projects directly concerned with the local level.

As a local government, Sunchhahari Rural Municipality had allocated fund, endorsed by the Village Assembly, for the preparation of Rural Municipality Transport Master Plan (R- MTMP). Therefore, this report is the product of an extensive field study and study of relevant documents, interactions with the villagers, people representatives and stakeholders in the Rural Municipality and ward levels for the preparation of Rural Municipality Transport Master Plan (R- MTMP).

Development of transportation infrastructure is one of the most essential groundworks for initiating other avenues of development. Proper development of transportation systems opens accessibility of the people to larger markets, service centers and overall economic sectors. Development of roads also leads to the development of urban centers with amenities like hospitals, schools, markets, services etc.

Roads establish significant linkages with the large neighboring cities with vibrancy of economy, human activities, and transactions. This sort of linkage is a key for the development of rural areas. Therefore, development of transportation basically through the development of road linkages is a fundamental necessity of this Rural Municipality. It has prioritized the development of sustainable Rural Municipality Transport Master Plan which requires inception of avenues of all kinds of development in general through easy access to people's mobility.

Chiefly this R- MTMP aims to assess the present status of roads and transportation within the Rural Municipality through extensive field surveys making an inventory of the details of existing roads and transport situations. The study has also unfolded the problems and genuine necessities on road and transportation along with the recommendation of key interventions to be made for the sustainable development of road and transportation network. The planning approach adopted by the consultant is fundamentally bottom up and participatory. Study and analysis of existing road status and need assessment have been the basis for this overall planning.

(R- MTMP) is a long-term visionary plan which aims to systematize the road and transport development processes within the Rural Municipality. It identifies the roads and creates a complete inventory of the roads. It categorizes the roads into four classes A, B, C, and D according to their importance. It prioritizes the interventions and allocates the estimated budget for the necessary interventions. Above all, it systematizes the process of road and transportation development according to the need of the Rural Municipality. The consultant has followed all the prevailing norms and standards for the planning. It is based on the Approach Manual prepared by DOLIDAR and (R) R- MTMP guidelines prepared by MoFAGA. It has determined the Municipal Road Core Network as practical in the planning process of DTMP and has identified the key linkages with another road network. A complete road network has been identified to make a basis for future development of roads which primarily helps to develop the transport access to all the settlements in the Rural Municipality meeting the national standard of nominal duration to reach the core road network or all-weather roads.

A broader perspective on urban transportation is proposed in the National Urban Development Strategy 2015. The strategies include the integration of land use and transportation in urban areas as well as regional planning and development of related institutional mechanisms and capacity. The provision of hierarchically balanced urban road infrastructure; promotion of sustainable urban public transport, and preparation and implementation of comprehensive transport management standards and plans for urban areas are the boarder perspective that has focused on the strategy. In prioritized regions the provision of high- speed inter-urban transport infrastructure is also proposed.

Nepal Government, Ministry of Federal Affairs and Local Development stepped up to bring forward proposal to create New Municipalities including Municipalities from those urban and semi-urban settlements by combining prevalent Village Development Committees approved the proposal leading to creation of 753 local bodies with new municipalities in various steps. There are altogether 6 Metropolitan,11 Sub-Metropolitan, 276 Municipalities and 460 Rural Municipalities, October 2017. Since this Rural Municipality is at an early stage of infrastructure development, they require an appropriate long-term plan so that organized and beautiful cities shall be developed. R- MTMP has been considered as an objective tool for prioritizing projects and it will partially fulfil the lacking part of LGOA. 2074. Therefore, the Sunchhahari Rural Municipality is intended to prepare R- MTMP for sustainable transport development in the city.

1.2 Objectives

The overall objective of the consulting services is to prepare the Rural Municipality Transport Master Plan (R- MTMP) of the Rural Municipality. The R- MTMP has been prepared as per the Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR)"s Approach Manual and Tor provided by the client. The specific objectives, but not necessarily limited to the following, are:

- To collect of demands for new/rehabilitation transport linkages from Rural Municipality/ Settlements based on city development plan.
- Analyse the accessibility situation.
- Identify and priorities the interventions based on the accessibility situation.
- Prepare Indicative Developmental Potential Map (IDPM).
- Prepare the Municipal Inventory Map (MIM) of Road networks.
- Prepare the Perspective Plan of transport services and facilities.
- Develop scoring criteria and its approval from Rural Municipality.
- Prepare the five years Rural Municipality Transport Master Plan (R- MTMP)
- Prepare a realistic physical and financial implementation plan of prioritized roads for the R-MTMP period; and
- Prepare Municipal Transport Perspective Plan (MTPP).

1.3 Scope & Limitation of R- MTMP

The consulting services has provided high quality professional services for the preparation of the Rural Municipality Transport Master Plan (R- MTMP), harmonized with the approach Manual of Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR). The scope of services carried out by the consultant shall broadly include, but not be limited to, the following:

- Assist in the formulation of the Municipal Roads Coordination Committee (MRCC).
- Secondary Sources of Information and Review of the existing R- MTMP.
- Accessibility data collection and analysis.
- Developing Scoring Criteria and its approval from Rural Municipality.
- Road classification and nomenclature.
- Analyse fund availability for Roads.
- Preparation of Perspective Plan of interventions of services and facilities.
- Preparation of the Municipal Transport Master Plan (R- MTMP).

- Prepare a realistic Physical and Financial Implementation Plan of prioritized roads for the R-MTMP implementation period.

1.4 Limitation

This transport master plan is limited within the territory of the Rural Municipality. Since the data collected for the planning has been based on the information provided by the local people in the ward levels, they may have supplied limited information. Although enumerators have attempted their best to reach all the roads for the necessary data, there are chances of missing the data to some extent. Misnaming of the road may occur due to 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. Though such limitation and errors are obvious, attempts have been made to minimize such errors taking precautions in the error prone areas. Though such limitations and errors are obvious, attempts have been made to minimize such errors by taking precautions in the error prone areas.

1.1 Expected Output

Rural Municipality Transport Master Plan has been prepared with a complete picture of Rural Municipal Road Core Network (R-MRCN). Plan supports municipal development and well-managed urban prospective. The complete in-depth analysis of development potentials of the study areas will include following outputs as:

- Study of existing road networks and mobility situations.
- Analysis additional and potential road networks.
- Prepare existing road network inventory maps and develop location maps.
- Road grading, coding, prioritization with nomenclature of each road network.
- Develop 5- Year horizon road inventory development plan.
- Develop 5-Year horizon budget development plan.
- Development of Final GIS Road inventory plan maps.

Chapter 2 Literature Reviews and Guidelines

2.1 Background

We, Consultant studied of the proposed project and collection of information through internet, planning norms, government policies, planning policies, guidebooks, articles etc. Moreover, other relevant information was also collected from MoUD, NPC, DOR, MoFALD, DUDBC, DoLIDAR and other libraries. Case study of similar projects and best examples of proper R-MTMP were carried out. The urban linkage between the vicinity settlements, inter-relationship with neighboring towns, regional context was analyzed and the probable economical potentialities helping road networks be ascertained.

2.2 Historical Sketch of Road Transport in Nepal

The historical evidence shows that the Rolpa rulers had devised several arrangements for maintaining lines of transport and communications from Kathmandu to different districts. As mentioned by Regmi (1987) these arrangements could be described under two main headings: An east-west track through the hill region and postal service for the transportation of official mail and supplies. However, Rana rulers (until 1950), according to Regmi (1987), refrained from constructing large-scale transportation infrastructure because they were afraid that economic development should provide a motive for the British to annex the Kingdom. Road construction initiative took place after the fall of Rana Regime. The major emphasis on the construction of astrategic road network during the period of 1950 – 1975 gradually changed and the country started to focus on constructing roads of regional importance.

Nepal's first highway Tribhuwan Rajpath connecting Birgunj and Kathmandu was constructed in the help of Government of India, completed in 1956. The agreement among the Governments of India, United States of America and Nepal in 1958 to establish the Regional Transportation Organization (RTO) for construction of roads is an organized and planned way on a long-term basis, was the first effort in the history of Nepalese motorized road construction in Nepal (Zimmermann and Rajbhandari, 1995). The RTO formulated a 20-year program to build north-south roads connecting with Indian cities and railheads along the border. After the collapse of RTO in 1962, Nepal continued its effort to invite donors and build roads. Second highway Siddhartha Rajmarga connecting Sunauli and Pokhara was constructed in the help of Government of India. The earlier policy of emphasizing north-south roads was replaced by the east-west roads like the East-West Highway (1026 km) and Prithivi Raj Marg (Kathmandu - Pokhara, 176 km). With the internal resources of Nepal and contributions received from the major donor countries

and agencies like India, China, USSR, UK, USA, Switzerland, Japan, World Bank (WB) and Asian Development Bank (ADB), Nepal developed the present strategic road networks. *(Source: International Conference on Sustainable Development of Transport System 20 -22 October 2011)*

2.3 District Transport Planning Initiatives in Nepal

The main national focus since 1990 was the development of district level roads through mobilizing the local governments and maintenance of the strategic road networks. Regional and district level projects were implemented in various districts e.g., Rapti Integrated Project, Koshi Hill Integrated Development Project, RCUP, Palpa Development Project (PDP), Dhading Development Project (DDP/GTZ) etc.

2.4 Early Initiatives in District Transport Planning

The first DTMP was prepared for Dhading District in 1993 by DDP/GTZ. It was named as Transport Infrastructure Master Plan (TIMP). The idea of preparing TIMP was first conceived by DDP/GTZ IN 1987. As part of the policy of supporting the construction of district road that 'the road program should be executed in line with the overall infrastructure master plan of the district to be prepared and approved by the district'. The basic strategy adopted was to cover the district by a combination of roads, road bridges, trails and trail bridges networks as to reach most of the (80%) area from the nearest road or mule trail within two hours of walking distance, (Five kilometer of aerial distance was taken as two hours walking distance). Following basic concepts were utilized in proposing the networks and priorities of the master plan:

- Alignment is to pass through maximum of village settlements lying along the ridges or mid hill slopes rather than valley bottom.
- Avoid as much as rivers and streams so that construction cost can be kept low.
- Alignment to pass through geologically stable area.
- Preference to alignment, where peoples' participation and resource conservation approach could be adopted.
- Open economically active areas to better market access.
- Selection of routes that make possible for local people to extend the proposed alignment to other villages through local resources mobilization.
- Roads and trails so planned that are possible to interconnect with other road networks within the district or neighbouring districts to achieve an inter district road networks.

TIMP was produced as part of DDP/GTZ support to the two rural road projects in Dhading district. TIMP made the plan in two categories – medium term and long term. Medium term plan

was assumed to be completed within 25 years and long term after completion of medium-term plan. Later, during 1994 – 1998, Pilot Labour Based District Road Rehabilitation and Maintenance Project (PLRP) prepared DTMPs of 4 project districts – Syangja, Kapilvastu, Rupandehi and Nawalparasi in a systematic process of rural transport planning. With the objective of strengthening local governments, the PLRP (Shrestha, 1997a), initiated the concept of the "District Transport Master Plan (DTMP)". After a successful implementation of the master plan in four pilot districts, GoN circulated the national policy to prepare a master plan for each district of the country. Realizing its significance, the GoN established the Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) under the MOLD in 1998 (DOLIDAR, 1998). (Source: International Conference on Sustainable Development of Transport System 20 - 22 October 2011).

Note: Later, annexing of the VDC into Rural Municipality (2073 B.S), the DTMP has been replaced by R- MTMP/R-MTMP to make planning of urban roads in municipal level.

2.5 Do LIDAR R- MTMP Guidelines and Manual

The guideline and Manual of Municipal Transport Master Plan (R- MTMP)/(R- MTMP) has been prepared by Do LIDAR (2014 A.D.). The main objective of the manual is to guide the preparation and formulation of the R- MTMP Final Report. The guideline defines the R- MTMP process and overall planning overviews in detail. The shortlist of the guidelines and steps has been given here as.

- R- MTMP Definition and overviews.
- Objectives and scopes.
- Expected output and limitation in R- MTMP Implementation.
- Formulation of Rural Municipality Road Coordination Committee (MRCC).
- Road inventory data collection sheets, demand analysis and map preparation.
- Requirements of transport linkages between wards and settlements, upgradation/Rehabilitation of urban roads etc.
- Develop Scoring Criteria and Approval from Rural Municipality.
- Road Classification (A, B, C, D, Municipal Ring Road (if any) and Nomenclature.
- Transport services and facilities intervention and accessibility.
- Analysis fund availability for urban roads and perspective budget planning by developing 5-years horizon.
- Preparation of R- MTMP with GIS Maps colour code, legends etc.

2.6 Nepal Road Standard-2070 BS

Nepal Road Standards -2027 (Second Revision 2070), in short called NRS-2070, shall apply to all Strategic Roads in rural areas being constructed within Nepal. For non-strategic (Local Roads) and urban roads separate standards shall be considered.

With the objectives of achieving consistency in road design and construction, NRS was first introduced by DOR in B.S. 2027 and was revised in B. S 2045. Minor revisions were made in.B.S 2051 and in 2054 B.S to incorporate certain changes, which were relevant at the time of revisions. But those revisions were treated separately, not as an official version of the NRS-2027.

The NRS 2070 is the main guideline for the design of any types of roads in Nepal. NRS defines road types (Administration Roads: National Highway, Feeder Roads, District Roads and Urban Roads and Technical Classification), vehicles dimensions, vehicle types and equivalency factors level of service (LOS), terrain classification, design speed etc. The standard provides design criteria of cross-section of roads such as carriage way, shoulder, medians, curbs, formation width, Row, horizontal and vertical curves, gradient, vertical and horizontal clearance, road drainage, camber, super elevation, sight distances, intersections, grade separation, road humps, traffic signs and safety consideration, bicycles tracks, footpaths, pedestrian crossing, road markings, hair pin bends, road tunnels and fly over pass etc. In addition, standard has also considered of road aesthetics, lighting, roadside arboriculture, and environmental aspect etc. The manual has developed some typical section of roads which has been given below as,

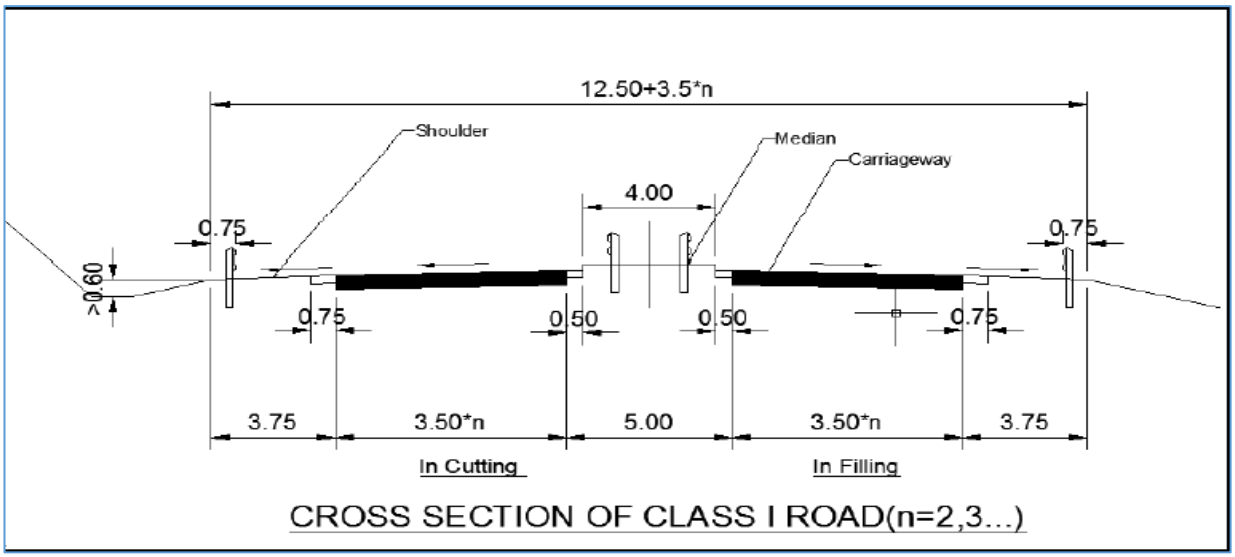

Figure 2-1 : Typical Cross Section of Road

2.7 Nepal Urban Road Standard- 2076

Nepal Urban Road Standards-2076 (NURS-2076) can apply to all urban roads being constructed within the urban areas of Nepal. These standards may be relaxed by Government of Nepal to meet special circumstances. Road network is the major urban infrastructure in terms of its required financial resources, land consumption and land-use planning in the urban area. Furthermore, the aesthetic appearance of the city is mainly dependent on the urban road pattern. The growth of the urban area is mainly guided by the urban road hierarchy and their alignment.

In this context, growing urbanization in Nepal is major challenge for the urban planner as well as municipal authorities. Such a situation has created a challenging situation for safe movement of vulnerable road users, especially the pedestrians and non-motorized vehicles leading to poor road safety situation. The recent situation demands safer travel and accessibility to all while considering the urban mobility. Urban mobility and accessibility mainly depend upon the urban road network planning and their technical parameters. With the objectives of achieving consistency in road design and construction, Nepal Road Standard, (NRS) had been introduced. According to four administrative classifications given in Nepal Road Standard-2070, urban road is one of them but, these standards were applicable only for the design of strategic roads and are not applicable to address all the urban needs. Therefore, it became very essential to develop the 'Nepal Urban Road Standard'. The standard incorporates major technical as well as planning aspects for urban roads. Classifications of urban roads, design criteria, elements of cross section, clearance etc., are major parts of this standard.

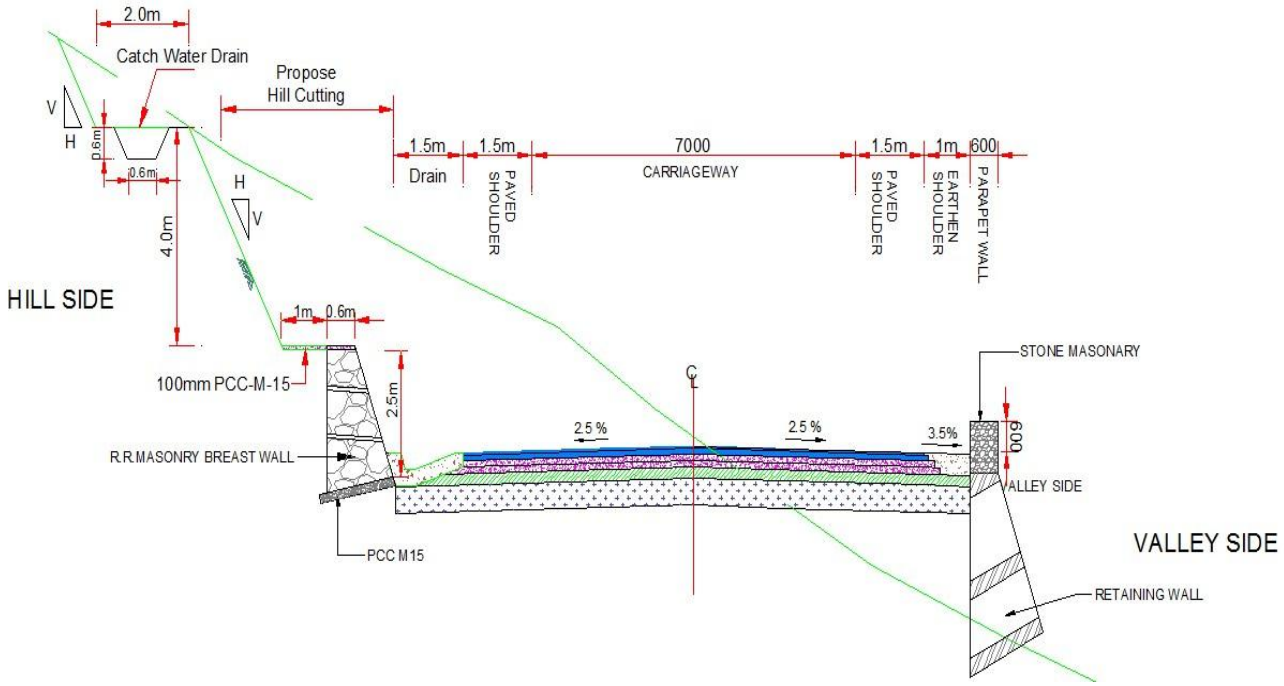

Figure 2-2 : Typical Cross Section of A Class Urban Road Hill Road

2.8 Public Road Act 2031

(Public Road Act, 2031) has been enacted to ensure the construction and operation of the road projects smoothly. Section 3 of the Act empowers GON to prohibit the construction of permanent

structures (buildings) in the prescribed distance from the road, i.e., the Department of Roads (DoR) has the authority over everything within the boundaries of the road. The DoR may acquire temporarily the land and other property adopting compensatory measures during the construction, rehabilitation, and maintenance of the public road (Sections 14 and 15). The Act obliges the DoR to plant trees on both sides of the road and handover it to the local bodies (VDC or Rural Municipality) for their management (Section 16). The Act also empowers the DoR to operate quarries and borrow pits and other facilities during road construction (Section 17). In sum, the Act facilitates the construction of this road by even acquiring land and property including for the execution of construction materials and development of other facilities during road construction through compensation as negotiated and as well as to maintain greenery along the roadside.

2.9 National Transport Policy 2058

(NTP, 2058) The policy aims to the development of a sustainable urban transport system to improve the social and economic development of the country. At the broad national level, the Policy emphasizes on North-South connectivity linking China and India which may also serve as an important trade and transit corridor between China and India in the future. The Policy

prioritizes connectivity to all districts of the country despite the low density and lagging economic justification of connectivity investment in many hinterland districts. The policy conceives central and local road systems. The central road system includes national highways and strategic roads consisting primarily of feeder roads—linking district headquarters, towns, and cities including its hinterland with the national highways. This falls under the ambit of the government. On the other hand, the local road system, which falls under the ambit of local bodies, includes district or arterial roads along with collector and neighborhood roads.

2.10 Land Acquisition Act 1977 and Related New Policy

(LAA, 1977) (BS 2034) empowers the Government to acquire any land on the payment of compensation for public purposes or the operation of any development project by the government or other institutions

Salient Features

- Preliminary actions, conditions, and decision provision for acquiring land
- Provision of land acquisition in emergency condition
- Provision of compensation of land, property, and other losses
- Allocates authority to officers for different acquisition procedures
- Provision of land ownership transfer
- Provision of information and notices
- Ensures the right to complain file.

Land Acquisition, Resettlement, and Rehabilitation Policy 2014

It is not easy to acquire private lands for large projects and even if landowners are ready to provide lands the compensation demanded is often exorbitant.

The Government is planning to enact a new law for land acquisition replacing the existing Land Acquisition Act 1977 in line with the Land Acquisition, Resettlement, and Rehabilitation Policy 2014. The new act is expected to ensure easy, simple, and effective procedures for land acquisition. It would also ensure the right amount of compensation for which there is no provision in the existing act. According to the 1977 Act, the government can acquire private land even forcefully by providing compensation as per the criteria set by the Land Reforms Office. However the government has not been able to enforce the law due to protests by affected landowners.

The Policy has, among other things, envisaged ensuring the timely acquisition of land for development projects, resettlement and rehabilitation of the project-affected families, preparing a scientific mechanism for land valuation, and providing compensation (or land in suitable areas) to the families for the land acquired at par with the minimum market price. In this regard, the policy has stressed the need to first assess the economic and social impact of development projects. Based on the risk levels, projects will be categorized as:

- **High-risk projects:** those that displace 50 or more households in the mountainous region, 75 or more households in the hilly region, and 100 or more households in the Terai.
- **Medium-risk projects:** which force the relocation of fewer than 50 households in the mountainous region, less than 75 households in the hilly region, and less than 100 households in the Terai.
- **Low-risk projects:** which cause productive property to shrink by up to 10 percent.

For low-risk projects, the policy necessitates a strategy for land acquisition and compensation. But in the case of high- and medium-risk projects, a detailed resettlement and rehabilitation plan must be designed.

The Policy also has a provision that allows the government to take action against those who try to disrupt the land acquisition process or create hurdles for project developers that have acquired land by following the due process. This is expected to aid the timely completion of projects.

2.11 Environment Protection Act, 2076 (2019)

The Environment Protection Act seeks to uphold and advance Nepalese citizens' fundamental right to a clean and healthy environment. It places particular emphasis on the preliminary environmental assessment of minor projects and evaluation of the environmental impact of larger projects. It places a strong emphasis on addressing the issues raised by climate change, preserving a healthy balance between the environment and development, and reducing harmful environmental effects on biodiversity and the environment. It centers on the management of pollution and establishes the requirements for reducing pollution from automobiles, restaurants, hotels, and other locations or activities, as well as the consequences of disposing of or emitting any hazardous material.

2.12 Land Use Policy 2015

(DUDBC, 2015) It is a policy document relating to limits and protection of land and land resources by developing a system of optimum utilization of lands upon a scientific classification for a hygienic, beautiful, well-facilitated, and safe human settlement as to enhance a planned and

sustainable, social, economic and ecological development and prosperity of the country. The objective of Land Use Policy 2015 is to classify the entire land of the country into various land use zones and also assess and apply minimum property valuation and progressive tax system on lands based on specific use. The entire lands of the country would be classified into 11 land use zones, namely: (1) agricultural, (2) residential, (3) commercial, (4) industrial, (5) mines, and minerals, (6) cultural and archaeological, (7) river and lake- reservoir, (8) forest, (9) public use and open space, (10) building materials (stone, sand, concrete) excavation and (11) other zones. The policy encourages incentive-oriented programs to motivate people the use land by land use zones and discourages non-use or under-use, misuse, and excessive use. The policy also addresses the development of an information system of Land Use Plans based on modern technology and easy access to the updated system and distribution that would be made available to the stakeholders.

2.13 Local Government Operation Act 2074

(GoN, 2074) The Local Government Operation Act, of 2074 has provisioned broad-based organizational structure, devolution of authorities, special provision to promote disadvantaged communities, planned development process, and judicial authorities to local bodies where whether the Act has provided enough legal bases for the development of a capable, responsive and accountable local governance system is itself an issue. However, looking at the experience of the past 15 years in general it seems that more and more party-political rivalry and unhealthy competition among all development players have created confusion and the chaotic situation at the local level.

The Act elaborates the rights and responsibilities of the local-level governments which include formulation and implementation of laws related to city planning, revenue collection, public services, infrastructure planning and development, social development, security, local economy, communication, land ownership, informal settlements, transportation, and environment protection, among others. The Act also outlines requirements for building permits following the National Building Code. Local-level governments can define the right-of-way in their areas

following the rules of national and provincial-level roads. The Act also addresses compensation issues regarding land acquisition in case of future increments of the right of way.

2.14 National Agricultural Policy 2004

The Policy seeks to achieve sustainable agricultural development by transforming the current subsistence agriculture system to a commercial and competitive agriculture system. The policy emphasis is on increasing agriculture productivity and conservation of natural resources. Apart from prioritizing technological input, research, institution building, and the policy discourages non-agricultural activities in fertile agricultural land and aims to promote high-value agriculture development pockets along the feasible locations of the North-South Highway and Feeder roads and in the remote areas. To develop such pockets, it seeks to promote integrated agriculture infrastructure services through private sector participation. Well-equipped modern wholesale market facilities are envisaged in and near the cities where a large number of consumers reside. Fragmentation of agricultural land is also discouraged. Special programs are envisaged for marginal farmers having land less than half a hectare. The Policy also seeks the establishment of an agricultural land bank. It further aims for leasing marginal public land for community farming. These policies are expected to have positive implications on preserving agricultural land as well as promoting agriculture.

Chapter 3 Study Methodology

3.1 General Approach

Rural Municipality Transport Master Plan has been prepared using participatory bottom-up approach from the settlement level. We experts incorporate in the planning process, where active participation from representatives of Chief of Rural Municipality, Ward Member, political parties, line agencies, Rural Municipality officials is crucial. The Rural Municipality Road Coordination Committee (MRCC) has been constituted as an authorized legislative body of Rural Municipality.

The Consultant studied thoroughly the objective and Tor for preparation of the Rural Municipality Transport Master Plan (R- MTMP).

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 a measurement of accessibility.

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

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

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

The phases proposed in the technical approach have been further broken down into task series and specific tasks according to the intended content of the task, to help ease in comprehending the methodology planned for carrying out the task. Analysis will be carried out for the input requirements of discipline experts and the output expected for each task. Since the methodology

has been developed in the form of phases formulated in the Technical Approach, their compatibility has been assured. The problems that normally come up in such projects will be identified. Phase included in the approach and methodology address them adequately. Task and sub tasks is organized in sequence, to run in series or in parallel process.

Field survey and data collection were done to study the existing accessibility condition of the villagers and analyze the necessary interventions to be made in the future. A demand survey was done to assess the existing condition and future necessity of road extension and transport infrastructure. A participatory bottom-up approach was ensured in the overall planning process. Integrated Rural Accessibility Planning (IRAP) has been the foundational concept of overall planning which emphasizes improving the accessibility condition of all the settlements in the Rural Municipality.

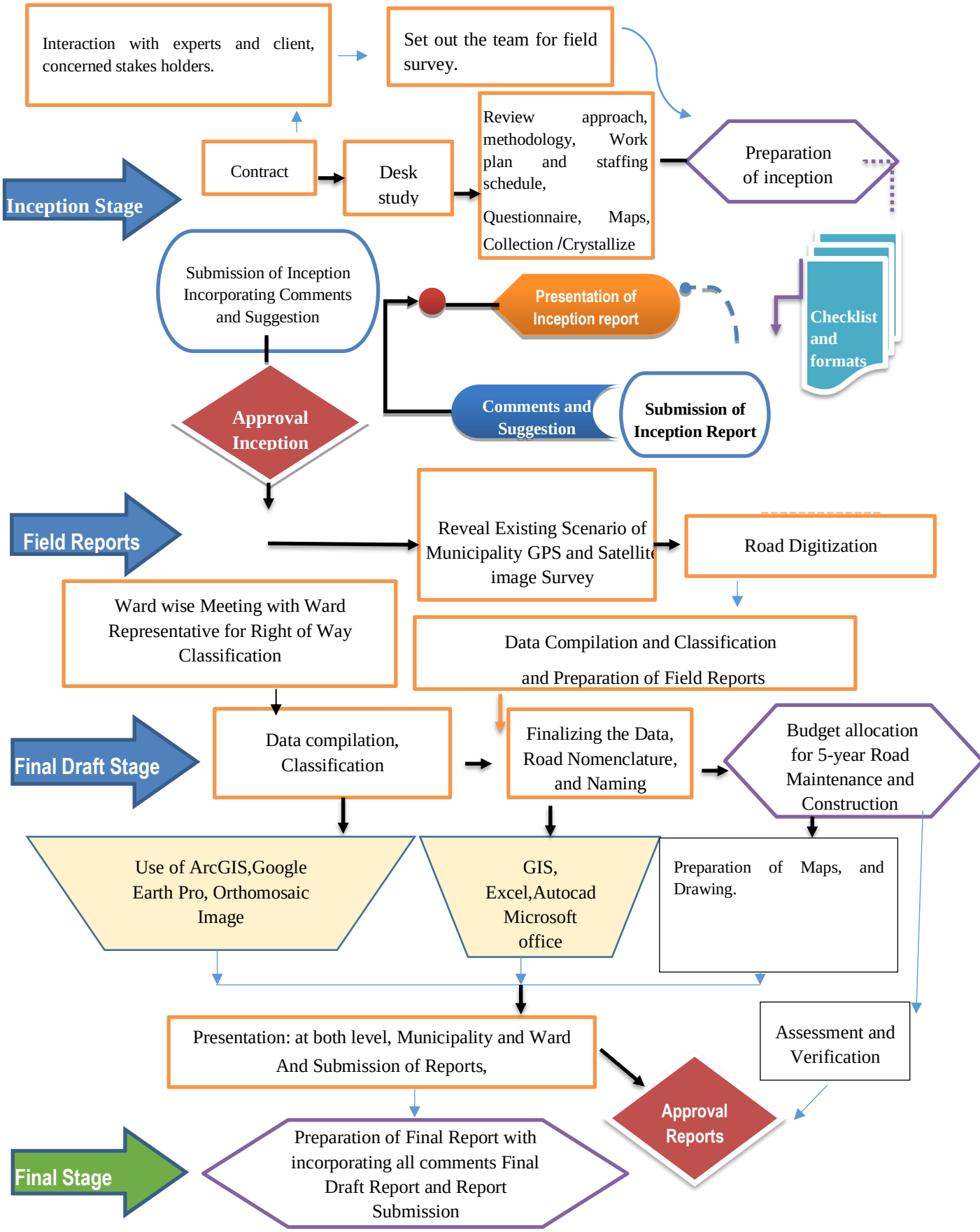

Figure 3-1 : Flow Chart of Project Methodology

Table 1 : Methodology Involved during R- MTMP Preparation

S.N.	Task Description	Activities	Outcomes
1.	Preliminary Presentation on Sunchhahari Rural Municipality	Expert team conducted initial presentation among the village executive members and all related stakeholders	Stakeholders sensitized
2.	Study of secondary resources on roads and transportation related to the Rural Municipality	Study and review of all relevant laws, by-laws, best practices, norms and standard of planning Review of previous R- MTMP (if any)	Expert team got familiarized with existing information regarding (Rural Municipality Transport Infrastructures and previous efforts for the development
3.	Ward level meeting	Participatory Rural Appraisal method adopted during ward level meetings in all wards for data collection demand survey; O-D survey, traffic count-survey and all other necessary information	Primary data collected from the ward level formed strong ground for the necessary interventions to be made in the future
4.	Data Management and analysis	Data obtained from the field were tabulated; GIS work done to develop base map, IDPM, inventory map and other maps; and nomenclature, coding and grading of roads completed	Data organized and maps prepared
5	IDPM and RMRIM Preparation	As the part and product of data management, Indicative Development potential Map (IDPM) and a complete Rural Municipality Road Inventory Map (RMRIM) was prepared	IDPM and RMRIM developed

6	Perspective Plan	After identification and preparation of the existing status of all the roads IDPM and RMRIM were prepared, and prioritization of key interventions Finalized	Perspective plan helped to prioritize and systematize the planning process
7	R- MTMP Preparation	After analysis of all the existing infrastructures 5 years' R- MTMP was prepared, Implementation plan prepared. Fund availability and access to funds recommended	Perspective plan helped to prioritize and systematize the planning process
8	R- MTMP Preparation	After analysis of all the existing infrastructures 5 years' R- MTMP was prepared, Implementation plan prepared. Fund availability and access to funds recommended	R- MTMP was prepared
9	Approval	After all necessary correction and feedbacks, Final report of the R-MTMP was submitted to Municipal Councilfor the approval and implementation	R- MTMP was approved from the village assembly ensuring the ownership of the villagers

3.2 Comprehensive Task Description

3.2.1 Municipal Level Initial Presentation

The expert team conducted a day-long workshop to clarify the Municipal and Ward level executive members and stakeholders about the holistic process of preparing R- MTMP.

3.2.2 Ward Level Meeting for Primary Data Collection

Enumerators and surveyors were deployed in each ward for the required interactions with the villagers and for the collection of all necessary data on the existing condition of roads from the ground level at respective wards.

3.3 Data Collection

3.3.1 Primary Data

Primary information of present household and trip characteristics, traffic characteristics, existing accessibility and mobility level of settlements, prioritized road network required for each ward has been collected via various reliable methods such as land use calculation, questionnaire survey, ward level meetings, workshops etc. Tracking of the existing road network along with detailed information of its width, surface type and possible intervention required for the effectiveness of services have also been carried out.

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

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

The questionnaire method was used to conduct an Origin and Destination Survey which gives a number of information reflecting personal, household and trip making characteristics. This survey has also helped to visualize the accessibility and mobility scenario of road network and to public transportation from the settlement/wards.

The Road Inventory Survey was conducted to collect data on its condition of road networks, road linkage, road safety status and issues that need to be highlighted. It helps in field validation

of base maps and assists in the preparation of road inventory maps, nomenclature and coding/grading of the road linkages and proposed various interventions.

Road Demand Survey comprises of interaction session with the members of ward representative, local peoples followed by ward level workshop to fill up demand survey form, which will include demand of new facility or interventions to improve existing roads based on priority.

Classified Vehicle Count was conducted to reflect the usage of various vehicles in the certain route, especially where maximum volume occurs. Twelve-hour count has been done at specified location and the vehicles have been classified to different types and Finally traffic volume has been converted to passenger car unit (PCU) to visualize the exact condition.

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

3.3.2 Secondary Data

The following documents and sources were reviewed for the important data as the secondary data and information.

- The constitution of Nepal.
- Local Government Operation Act 2074.
- DOLIDAR's Approach Manual
- Nepal Rural Road Standard
- Nepal Urban Road Standard
- Municipal Profile
- Demographic Data from CBS
- Previous (R)R- MTMP (if any)
- Relevant Plans and policies (Federal Provincial, Local)
- SDGs
- Yearly Plans, Policies and Programs of the Rural Municipality
- R- MTMP/R- MTMP of adjoining Municipalities or Rural Municipalities
- Annual reports and policies of line agencies
- Land use plan and policy
- Agricultural Plan and Policy
- Traffic data (if available)
- All other relevant documents

Maps:

- Topographical maps of 1:25,000 scale
- Rural Municipality administrative map
- Aerial Photographs
- Rural Municipality trail map
- National Highways, SRN maps
- Land use map
- Other thematic maps Data Sources

Data Sources

- Office of the Sunchhahari Rural Municipality
- District Coordination Committee
- Government Line Agencies
- All related Sect oral Offices (Agriculture, Education, Irrigation, Forest, etc.)
- Chamber of Commerce
- Road Division Office
- Local and National NGOs and INGOs
- Department of Survey
- National Planning Commission
- Provincial Planning Commission

3.4 Satellite Image Collection and Data Preparation

The first step in the development of the Rural Municipality Transport Master Plan (R- MTMP) for Sunchhahari Rural Municipality involved acquiring high-resolution satellite imagery covering the entire municipal boundary. These images served as the base for mapping and analyzing the road network. The selection of satellite imagery was based on resolution, recency, and clarity to ensure accurate representation of the existing transport infrastructure.

Once the satellite imagery was obtained, it underwent preprocessing, including georeferencing, enhancement, and layer extraction. This ensured that all spatial data aligned accurately with the municipal boundary and other geographical features. The prepared imagery was then used as a foundational layer for digitization.

3.5 Road Network Digitization and Field Verification

After obtaining the satellite images, the next crucial step was to digitize the road network of Sunchhahari Rural Municipality. Using Geographic Information System (GIS) tools, each road was manually traced to create a comprehensive road network dataset. The digitization process included marking key road attributes such as width, connectivity, intersections, and hierarchy within the transport system.

To validate the digitized data, field verification was carried out. Each ward was visited to assess the **Right of Way (RoW)**, ensuring that the mapped roads accurately reflected real-world conditions. During this process, existing encroachments, deviations, and road boundary inconsistencies were documented. The field verification process played a vital role in enhancing the accuracy and reliability of the transport dataset.

3.6 Ward Level Meeting for Fixing Row of Existing Road Network

Ward-Level Meetings

Introduction and Objectives: Begin each meeting by introducing the project team and outlining the objectives of the meeting. Explain the importance of fixing the ROW for the transport master plan and how it will benefit the community.


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Figure 4 : Right of Way Verification in Ward level


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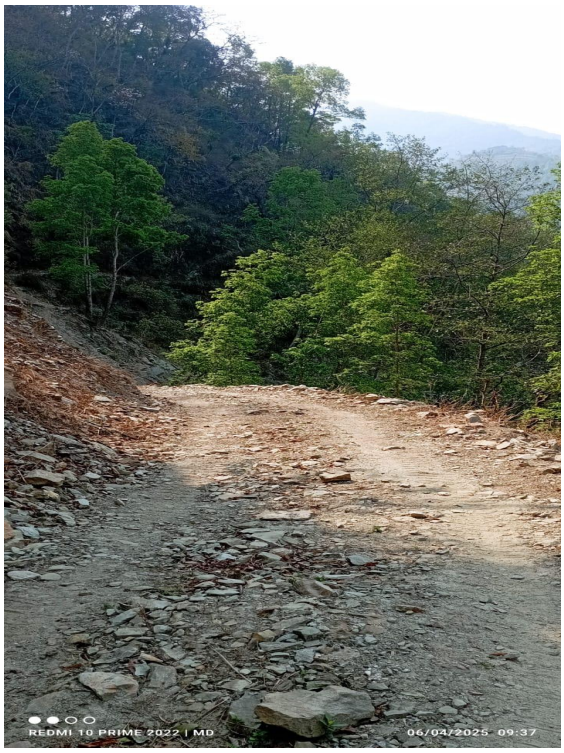

Field Verification

On-Site Visits: Conduct on-site visits to each road segment within the ward to physically verify and mark the proposed ROW.

Measurement and Marking through Satellite Image : Measure the width of the existing roads and mark the proposed ROW boundaries using temporary markers. Ensure these measurements align with the agreed-upon dimensions from the ward meetings.

Documentation: Document the verification process with photographs, GPS coordinates, and detailed notes. This documentation will serve as a reference for future planning and implementation.

3.7 Road Surface Type Verification

Following the verification of road alignments, a detailed assessment of road surface types was conducted. This involved traveling across all the municipal roads to classify them based on their surface conditions, such as:

- **Paved roads** (Asphalt, concrete)
- Gravel roads
- Earthen roads
- Under-construction or proposed roads

The data collected in this phase was crucial for determining road maintenance and improvement priorities. It provided insights into the existing condition of roads and helped in planning future infrastructure improvements.

3.8 Traffic Survey and Analysis

A comprehensive traffic survey was conducted to assess the current transport demand and identify congestion points. The survey covered:

- Traffic volume count
- Vehicle classification (two-wheelers, four-wheelers, public transport, etc.)
- Peak-hour congestion patterns
- Road capacity analysis

The findings from the traffic survey were integrated into the transport planning framework to optimize road network efficiency and mobility solutions for the Rural Municipality.

3.9 Data Compilation and Geodatabase Development

Once field data collection was completed, all datasets were compiled and structured into a **geodatabase**. A well-structured geodatabase ensured the proper organization, storage, and management of all road-related information. The compiled data underwent multiple validation checks to rectify inconsistencies and errors.

The geodatabase contained the following essential attributes:

- Road classifications
- Right of Way details
- Road surface conditions
- Road hierarchy and connectivity
- Traffic density information
- Proposed road network improvements

The Final database served as the backbone for all subsequent analysis, mapping, and planning efforts.

3.10 Road Classification and Coding

To systematically categorize the road network, roads were classified into four major categories:

- **Class A:** Major arterial roads
- **Class B:** Secondary arterial roads
- **Class C:** Collector roads
- **Class D:** Local streets and internal roads

Each classified road was assigned a unique **road code** to facilitate easy identification and tracking in future planning and construction projects. The classification helped in defining traffic priorities, maintenance needs, and investment focus areas.

3.1 Preparation of Rural Municipality Transport Master Plan (R- MTMP)

After Finalization of fundamental components like base-map, IDPM and perspective plan R-MTMP was prepared based on these components. The R- MTMP rests on the following intervention types in one way or another. They are:

- • New construction
- • Upgrading
- • Rehabilitation
- • Recurrent Maintenance
- • Periodic Maintenance

The consultant has prioritized the above interventions based on interaction with the villagers and the necessity of the place and time. Availability of funds for the execution of the projects have been analyzed and five years projected financial plan devised. Target for the year and types of interventions have been Finalized accordingly. The report will have legitimacy along with approval from the village assembly.

3.1 Perspective Plan

Perspective plan covers the nature of the key interventions to be made upon the roads in the future in accordance with their importance and necessity. This plan is based on the data collected from the grassroot level. As a local government, Rural Municipality itself determines the requirements and demands from the ward levels and necessary interventions are recommended in accordance with the demands and necessity of the local people. Such required interventions are based on criteria 'B' of the approach Manual. This perspective plan will be Finalized after being approved by the Rural Municipality.

3.1 Indicative Municipal Development Potential Map (IDPM)

The Municipal Indicative Development Potential has been prepared based on visionary city as development plan of Rural Municipality. Further, the visionary city Development plan will help to prepare based the characteristics of the location along with the consultation with the people and MRCC. The Final potential map is validated through the MRCC and Rural Municipality. The development potential of the Rural Municipality in agriculture, horticulture, livestock, cottage and small industries, markets center's etc. have been compiled and prepared on the **map 1:25000 scale.** The maps have been prepared showing:

- Location Maps/Administrative/Political Boundaries of Rural Municipality/Ward.
- Large/ Major settlements and Market Centres.
- National Strategic Roads, Urban Roads, Trails, Bridges etc.
- Important historical, cultural, religious and preserved places.
- Important water bodies, forest, cultivable land and other lands.
- Institutions, Line agencies, commercial, economic development areas, Industries, Tourism and Urban Linkages etc.

3.1 Municipal Road Inventory Map (MRIM)

Municipal Road Inventory Map (MIM) has been prepared based on field inventory survey. The field survey has been carried out by mobilizing enumerators via walkover surveys. The Inventory includes the roadway length, width, surface type, carriageway width, drainage condition, number of served population, administrative buildings, educational offices, and hospitals/health posts. The consultant then carries out reconnaissance surveys on the trails, bridges and roads with the help of a checklist and updates the maps.

Figure 5 : Rural Municipal Road

All roads are plotted under separate legends category by intervention type in MIM. Information regarding inter urban road /trails will also be included and used drawing planning process.

3.2 Map Preparation and Ward-Level Verification

Using the compiled geodatabase, a series of **thematic maps** were created. These included:

- Road network maps
- Road classification maps
- Right of Way maps
- Surface condition maps
- 5-year implementation plan maps

To ensure the accuracy and legitimacy of the data, ward-level verification was conducted. Maps were presented to local ward representatives, and on-site verifications were carried out. Each ward's transport infrastructure was validated with the involvement of local stakeholders. Upon approval, official **signatures and stamps** from ward authorities were obtained to authenticate the accuracy of road network data.

3.3 Development of 5-Year Road Construction and Implementation Plan

Based on the classified road network and existing conditions, a **5-year development plan** was formulated. The plan outlined:

- Road improvement and upgrading priorities
- Phased construction timelines
- Estimated costs for each road development project
- Maintenance and rehabilitation strategies

Additionally, an **implementation roadmap** was created, defining specific actions to be taken each year. This phased approach ensured efficient resource allocation and systematic infrastructure development within the Rural Municipality.

3.4 Perspective Road Interventions of Services and Facilities

The study and planning team has prepared perspective plan of interventions of services and facilities, which are identified from the accessibility analysis and municipal level workshops. All the identified interventions have been screened and rated based on approved criteria. The team discussed with the R-municipal Technical Team and the R-MRCC relating to interventions of services and facilities for the improvement of the access situation and forwarded to Rural Municipal Council meeting with recommendation.

In the transportation sector, a list of roads, bridges and required interventions for respective roads along with bridges have been identified to improve accessibility to goods and services. The perspective plan of road has been prepared for 20-25 years. All the identified interventions are screened and graded based on criteria of the approach manual. Accordingly, the Final perspective plan of urban roads is developed. The perspective plan has been shown in GIS maps also.

3.1 Finalization and Reporting

Data Compilation: Compile the feedback from the ward meetings and the results of the field verification into a comprehensive report.

Final ROW Maps: Create Final maps showing the fixed ROW for each road within the Rural Municipality. Ensure these maps are detailed and accurately reflect the consensus reached with local stakeholders.

Submission and Approval: Submit the Final report and maps to the municipal authorities for review and approval. Ensure that all necessary documentation and approvals are in place for future implementation.

The ward-level meetings and subsequent field verification were critical steps in fixing the Right of Way for the existing road network in Sunchhahari Rural Municipality. This collaborative approach ensured that the ROW was determined accurately and in consideration of local needs and constraints. The detailed documentation and Final maps provide a solid foundation for the Sunchhahari Rural Municipality Transport Master Plan, facilitating effective planning and development of the transport infrastructure.

By engaging with local stakeholders and incorporating their feedback, we ensured that the proposed ROW aligns with the community's needs and expectations, paving the way for sustainable and inclusive development.

Chapter 4 Review of Existing Situation

The municipal and ward level surveys conducted within Sunchhahari Rural Municipality have revealed that the overall transport infrastructure, particularly the road network, appears to be in a weak condition. Sunchhahari Rural Municipality spans 277.53 square kilometers, primarily covering hilly areas. Due to its geographically less accessible region, this Rural Municipality faces significant challenges in road infrastructure, mainly due to poor road quality characterized by muddy and dusty conditions. Despite the reports indicating that Sunchhahari lags far behind in terms of road infrastructure, it is important to note that the existing road infrastructure is actually quite good but suffers from a lack of proper management.

The transportation infrastructure within Sunchharai Rural Municipality was assessed to understand the current state of the road network. The total length of existing roads recorded during the review was approximately **186.07 kilometers**. This network played a vital role in ensuring local mobility, supporting economic activities, and connecting scattered settlements across the municipality's diverse terrain.

Out of the total road network, around **47.77 kilometers** were identified as **District Roads**, which served as the primary connectors between Sunchharai and neighboring municipalities or urban centers. These roads had relatively better conditions and were essential for regional connectivity and the movement of goods and services. They often formed the backbone of the transport system and were generally maintained at the district level.

The remaining **138.30 kilometers** fell under the category of **Rural Municipality Roads**. These roads primarily provided internal connectivity among wards, villages, agricultural areas, and local facilities. However, many of them were found to be either earthen or semi-engineered, indicating a need for upgrading and regular maintenance. The rural roads were more vulnerable to seasonal weather conditions, especially during the monsoon, which hindered year-round accessibility in several areas.

4.1 Agriculture

Agriculture had been the primary livelihood source for the majority of the population in Sunchharai Rural Municipality. The region's economy was predominantly agrarian, with a large portion of the households engaged in farming activities for both subsistence and commercial

purposes. The topography and climatic conditions of the municipality supported the cultivation of various crops such as paddy, maize, millet, wheat, and seasonal vegetables.

Most of the agricultural land was scattered across the middle hills and valleys, often requiring reliable transportation access to markets and collection centers. However, due to limited road connectivity in several remote areas, farmers faced challenges in transporting their produce, especially during peak harvest seasons. Perishable items like vegetables and dairy products were particularly affected by poor road conditions and lack of timely transportation services.

The lack of farm-to-market road infrastructure had significantly impacted agricultural productivity and income generation. It was observed that farmers in areas with better road access were more likely to adopt modern farming techniques and diversify their crops. Improving transport connectivity was therefore considered essential to enhance agricultural output, reduce post-harvest losses, and ensure better integration of rural farmers into the local and regional markets.

4.2 Live Stock.

Livestock farming had been an integral part of the rural economy in Sunchharai Rural Municipality. Most households were involved in rearing cattle, buffaloes, goats, poultry, and pigs, primarily for household consumption and supplementary income. The livestock sector played a crucial role in supporting agricultural activities through the provision of manure and draught power, while also serving as a reliable source of protein and livelihood security.

Despite its significance, the livestock sector had faced several challenges, particularly due to inadequate veterinary services, poor access to animal feed, and limited transportation facilities. Farmers often had to walk long distances to access veterinary care, livestock markets, and service centers. This lack of road connectivity not only restricted the timely delivery of services but also discouraged the commercialization of livestock production.

It was also observed that areas with better road access were more likely to practice semi-commercial or commercial livestock farming. Transportation infrastructure was essential for enabling the movement of livestock and livestock-based products such as milk, meat, and wool to nearby towns and markets. Enhancing road connectivity and supporting infrastructure was therefore identified as a key strategy to boost livestock productivity and improve rural incomes.

4.3 Sunchhahari, a Major Education Center

Sunchhahari Rural Municipality had emerged as a significant educational hub in the region, attracting students from surrounding rural areas and neighboring municipalities. The presence of secondary and higher secondary schools, along with community-based colleges, played a pivotal role in enhancing access to education for the local population. The municipality had shown steady improvement in literacy rates and school enrollment over the past few years.

Educational institutions in Sunchhahari were primarily concentrated in accessible settlements, making them focal points for daily commuting by students and teachers. However, limited transport facilities and poor road conditions in remote wards had posed difficulties for students, particularly during the monsoon season. In many cases, students had to walk long distances on footpaths or unpaved roads, which affected attendance and academic performance, especially among younger children.

The development of road infrastructure was considered crucial to support the municipality's educational growth. Improved transport access to schools and colleges was expected to reduce dropout rates, enhance safety, and encourage more regular attendance. Additionally, better connectivity was seen as a means to facilitate educational outreach programs, teacher mobility, and the supply of learning materials to remote areas.

4.4 Sunchhahari, a Tourist Destination

Sunchhahari Rural Municipality had gradually gained recognition as a growing tourist destination, owing to its natural beauty, cultural richness, and panoramic hilltop views. The region was known for its serene environment, traditional settlements, and scenic trekking trails, which attracted both domestic and international visitors. Cultural festivals, local homestays, and unique heritage sites had contributed to the municipality's appeal as an emerging spot for eco-tourism and cultural tourism.

Despite its tourism potential, the development of this sector had been limited by inadequate transportation infrastructure. Many of the key tourist sites were accessible only by foot or through poorly maintained rural roads, which discouraged longer stays and restricted the flow of visitors. The lack of organized signage, rest stops, and tourism facilities further hindered the promotion of the area as a mainstream destination.

Improving road connectivity was identified as a key strategy for promoting tourism in Sunchhahari. With better access to remote attractions, local communities would be able to benefit more directly from tourism-related income. Additionally, enhancing the transport network would facilitate the development of allied services such as accommodations, guiding services, and cultural showcases, ultimately supporting the rural economy and preserving local traditions.

4.5 Industries (Agro based, forest resource based, and tourism based)

The industrial landscape of Sunchhahari Rural Municipality had been largely characterized by small-scale, locally rooted industries. Agro-based industries, such as rice mills, oil mills, and dairy processing units, were prominent in areas with better road access. These industries had contributed significantly to value addition in the agricultural sector and provided seasonal employment to the local population. However, their growth was limited in remote regions due to transportation challenges and inadequate market linkages.

Forest resource-based industries had also existed in the form of timber processing, handmade furniture production, and herbal product preparation. Community-managed forests served as a key source of raw materials, supporting both livelihoods and local entrepreneurship. Despite the availability of raw resources, these industries remained underdeveloped due to the lack of access roads, insufficient storage and processing facilities, and limited investment in equipment.

Tourism-based industries, such as homestays, local craft production, and guiding services, had begun to take shape in areas with scenic and cultural significance. However, their potential had not been fully realized due to poor road connectivity and the absence of structured tourism planning. The development of rural transport infrastructure was seen as a critical factor in enabling industrial growth, improving access to markets, and fostering rural employment opportunities.

Tourism-Based Industries:

Tourism had emerged as a promising sector in Sunchhahari Rural Municipality, offering opportunities for local businesses to tap into the growing interest in rural and eco-tourism. The municipality's natural landscapes, including forests, rivers, and hills, along with its cultural heritage, had provided a strong foundation for tourism-based industries. Local homestays, small-

scale guesthouses, and traditional lodging services had been the main forms of accommodation offered to visitors, enabling tourists to experience the region's rich culture and lifestyle.

Additionally, local artisans and craftspersons had leveraged tourism to promote handicrafts and traditional products. Hand-woven textiles, woodcrafts, and handmade pottery were popular among tourists, and these crafts provided an important source of income for local communities. Despite the sector's potential, tourism-based industries had struggled due to inadequate road infrastructure and lack of proper marketing and promotion, which limited the flow of tourists and restricted the expansion of the industry.

The development of better transportation infrastructure, including improved roads to key tourist sites, had been identified as a crucial factor for unlocking the full potential of tourism-based industries. With enhanced connectivity, it was expected that more visitors would be able to access remote attractions, thereby stimulating demand for local services and products. This would not only help local businesses but also create employment opportunities in areas such as hospitality, tour guiding, and handicraft production, further boosting the municipality's economic growth.

4.6 Visionary Rural Municipality Transport Master Plan

The development of a comprehensive **Rural Municipality Transport Master Plan (RMTMP)** for Sunchhahari had been envisioned to address the pressing transportation challenges and promote sustainable growth within the municipality. The plan sought to improve connectivity, enhance mobility, and foster socio-economic development by upgrading existing infrastructure and providing reliable transportation services. It had been designed to align with the municipality's broader development goals, including better access to markets, improved agricultural productivity, enhanced educational opportunities, and the promotion of tourism-based industries.

Key objectives of the RMTMP included the integration of various transportation modes, the improvement of road safety, and the reduction of travel times between key areas of the municipality. The plan emphasized the need for infrastructure improvements such as all-weather roads, bridges, and enhanced access to remote areas, ensuring that even the most isolated communities could benefit from improved connectivity. Additionally, it had prioritized the development of roads to key economic zones, agricultural hubs, educational institutions, and tourist destinations, supporting both local livelihoods and regional development.

The RMTMP had also included provisions for the adoption of environmentally sustainable practices in road construction and maintenance. This forward-thinking approach was expected to minimize the environmental footprint of the transport network while promoting the efficient use of resources. The plan proposed a phased implementation strategy, with immediate focus on high-priority road corridors and long-term considerations for expanding the municipality's transport network to support its evolving needs.

Objectives:

- Improve Road Infrastructure: Enhance the quality and connectivity of roads within the Rural Municipality.
- Promote Sustainable Transport: Integrate environmentally friendly practices in road construction and maintenance.
- Enhance Safety and Accessibility: Ensure roads are safe and accessible for all users, including pedestrians, cyclists, and vehicles.
- Facilitate Economic Growth: Support the economic development of the Rural Municipality by improving transport links.
- Protect the Environment: Minimize the environmental impact of transport infrastructure development.

Road Infrastructure Development:

- Upgrading Existing Roads: Repair and upgrade existing roads to all-weather standards, focusing on key routes that connect different parts of the Rural Municipality.
- New Road Construction: Identify and construct new roads to improve connectivity, especially in remote and underserved areas.
- Basic Road Furniture: Install essential road furniture, including signage, guardrails, and pedestrian crossings, to enhance safety.
- Structural Components: Incorporate culverts, cross structures, check dams, chutes, and side drains in road designs to manage water flow and prevent soil erosion.

Environmentally Friendly Practices:

- Slope Management: Implement proper slope management techniques to prevent landslides and soil erosion, using methods such as terracing and retaining walls.
- Bioengineering: Use bioengineering solutions like planting grass and shrubs to stabilize slopes and control erosion.

- Green Road Technology: Adopt green road technology practices, including using local materials and minimizing environmental disturbance during construction.

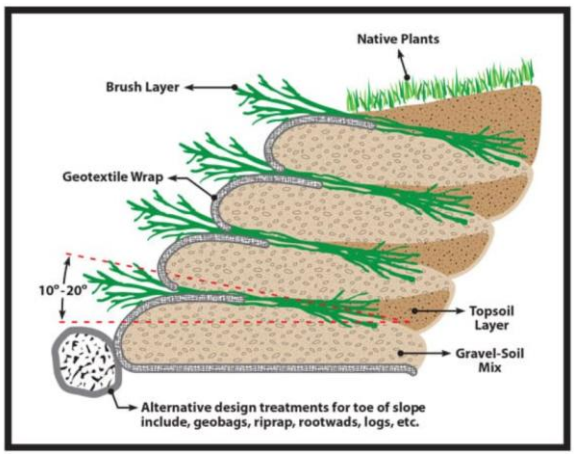

Figure 6 : Soil Bio Engineering

Figure 7 : Plant Slope Protection

(a)

(b)

(c)

(d)

Soil bioengineering techniques carried out two sites on Cloudy Hill, Hong Kong, China, show that (a and b) vegetation was absent on the landslide scar and bare soil and loose debris

accumulated down slope before construction of branchpacking, cribwalls, brushlayers and bender fences and (c and d) 1 year after installation, vegetation was abundant. (Photographs courtesy of Manusell AECOM, Hong Kong.)

DataSource:https://www.researchgate.net/publication/229399168_Soil_bio-_and_eco engineering_in_China_Past_experience_and_future_priorities_Preface

Figure 8 : Proposed Green Road Technology in Hill Road

Sustainable Transport Solutions:

- Non-Motorized Transport: Develop infrastructure for non-motorized transport, such as pedestrian paths and bicycle lanes, to promote sustainable and healthy transportation options.
- Public Transport: Enhance the public transport network by introducing reliable and affordable bus services that connect major points within the Rural Municipality and to neighboring regions.

Figure 9 : Mandatory Signs Board in Road

Safety and Accessibility:

- Road Safety Measures: Implement road safety measures such as speed limits, traffic calming devices, and road safety education programs.
- Inclusive Design: Ensure road designs are inclusive, providing accessibility for people with disabilities and the elderly.

Economic and Social Development:

- Market Access: Improve transport links to markets, helping farmers and local businesses to transport their goods more efficiently.
- Tourism Development: Develop Road infrastructure that supports tourism, providing better access to tourist attractions and accommodations.

Implementation Plan:

- Phased Approach: Implement the master plan in phases, prioritizing critical areas and gradually expanding the scope.
- Stakeholder Engagement: Engage with local communities, businesses, and other stakeholders to ensure the transport plan meets their needs and garners their support.
- Funding and Investment: Secure funding through government grants, public-private partnerships, and international aid to finance the transport infrastructure projects.

Monitoring and Evaluation:

- Regular Assessments: Conduct regular assessments to monitor the progress of transport infrastructure projects and make adjustments as needed.
- Performance Indicators: Develop performance indicators to measure the effectiveness of the transport plan in achieving its objectives.

४०. सडक/परिवहन: शहरी यातायात संबन्धमा एउटा फराकिलो दृष्टिकोण राखिएको छ । यस अन्तर्गत प्रमुख रुपमा भूउपयोग र यातायात/परिवहनलाई शहरी तथा क्षेत्रीय योजना तर्जुमा प्रकृयामा एकीकृत गर्दै तत्सम्बन्धी संस्थागत संयन्त्र र क्षमताको विकास गर्ने, तहगत र सन्तुलित शहरी सडक पूर्वाधारको प्राबधान गर्ने, दिगो शहरी सार्वजनिक परिवहनको प्रबन्ध गर्ने, शहरी यातायात व्यवस्थापनका लागि मानकहरुका साथै बिस्तृत योजना तयार/कार्यान्वयन गर्ने, र प्राथमिकता प्राप्त प्रदेशहरुमा उच्च-गति अन्तर-शहरी यातायात पूर्वाधारको प्रावधान गर्ने जस्ता रणनीतिहरु रहेका छन् ।

Source: Nepal Urban Development Strategy, 2015

4.7 Limitation in the Implementation of R- MTMP

Road networks are believed to be the lifeline of infrastructure. The doors of other physical, social, economic, institutions, environmental infrastructures development possibilities are unlocked through the proper development of roads and transportation. Since the existing condition of roads in the Rural Municipality is poor stage and less in length which requires huge portion of budget is to address the problem of road upgradation and maintenance and to open new track. This

budgetary problem is purely a major obstacle for the timely implementation of the R- MTMP. Besides this other possible limitation are:

- Finalization of standard Row from the base level is problematic.
- Lack of technology and information.
- Lengthy procurement process for construction work.
- Lack of qualified manpower and labour force.
- Lack of smooth and reliable availability of construction materials.
- Lack of stable and favorable working environment.
- Social issues and believes.
- Lack of financial supports.

Chapter 5 Indicative Development Potential map

5.1 Introduction of Study Area

Sunchhahari Rural Municipality is one of the ten local levels in Rolpa District, within Province No. 5 of the Federal Democratic Republic of Nepal. The municipality is named after the famous and picturesque Sunchhahari Waterfall. Its administrative center is located in Powang. This rural municipality, shaped like a drum, is situated 48 km northeast of the district headquarters, Liwang. It consists of seven wards (Seram, Bhitri Gaam, Bahiri Gaam, Syuari, Jaima Kasla, Phagam, and Jelwaang). The total area of this municipality is 277.62 square kilometers, with a population of 16,034 according to the National Census of 2011, and 19,054 according to the new survey of 2018.

This Sunchhahari Rural Municipality was formed by merging six former Village Development Committees. It borders Baglung in the east, Suwarna Varti Rural Municipality and Rolpa Municipality in the west, Rukum and Baglung in the north, and Lungri Rural Municipality and Suwarna Varti Rural Municipality in the south.

The study area of Sunchhahari Rural Municipality, located in the Rolpa District of Province No. 5, had been selected for detailed analysis as part of the Rural Municipality Transport Master Plan (RMTMP). Known for its natural beauty, including the renowned Sunchhahari Waterfall, the municipality had emerged as an important rural region with diverse geographical features, including hills, forests, and agricultural land. Situated 48 km northeast of the district headquarters, Liwang, Sunchhahari was accessible by road but faced challenges due to its mountainous terrain and limited infrastructure.

Sunchhahari Rural Municipality was comprised of seven wards, each with its unique topography and socio-economic characteristics. The municipality's economy had been primarily agrarian, with a significant reliance on agriculture and livestock farming, but it had also started seeing growth in tourism and small-scale industries. The local population had been dispersed across villages and remote settlements, creating a need for better connectivity to enhance access to education, health services, markets, and other essential services.

The geographic location, population distribution, and socio-economic context of the area made it an ideal subject for the study, as it faced transportation challenges that hindered its development. By focusing on Sunchhahari, the study aimed to identify transport infrastructure

gaps, propose improvements, and develop a comprehensive transport strategy that would support the municipality's growth while considering its environmental, economic, and social needs.

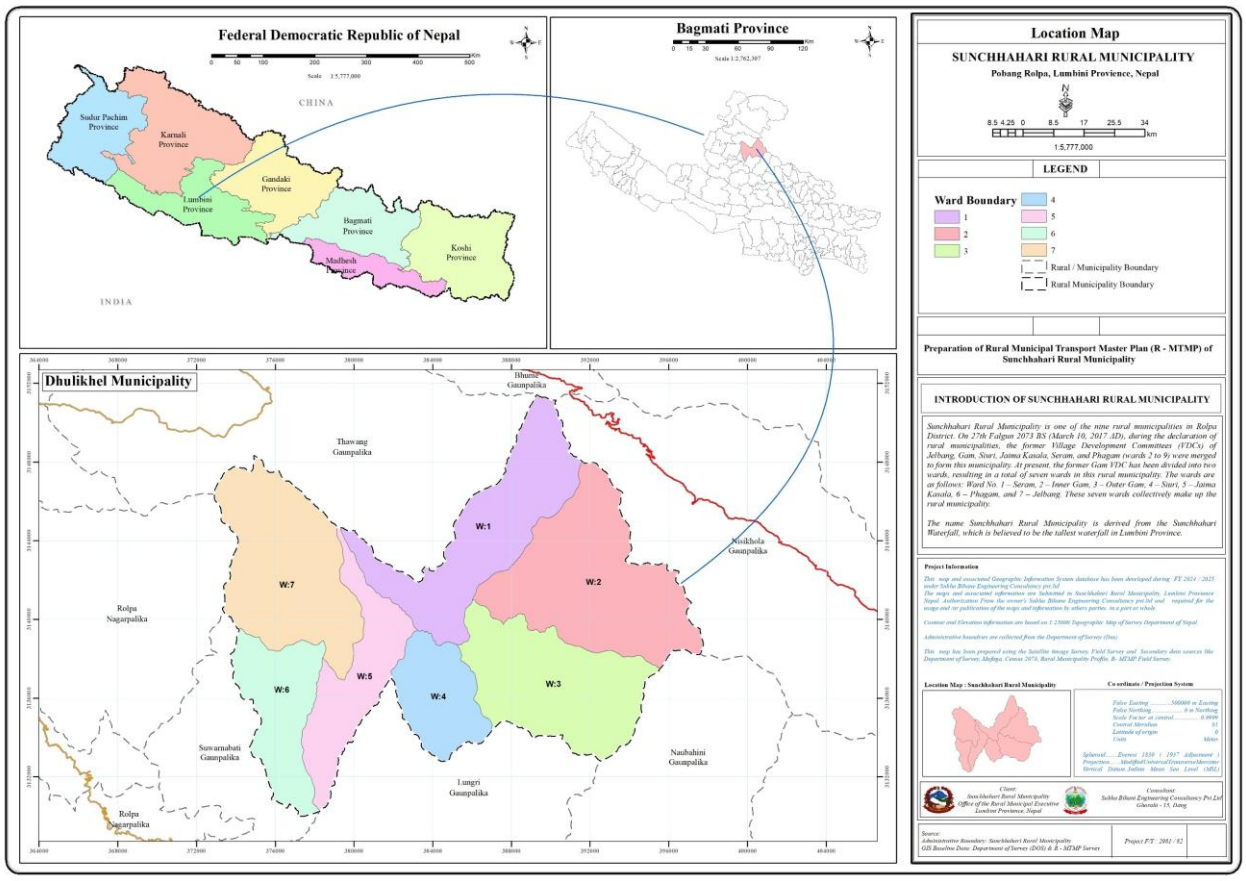

Figure 10 : location Map of Sunchhahari Rural Municipality

Etymology and History of Sunchhahari

The name "Sunchhahari" had its origins from the famous Sunchhahari Waterfall, a breathtaking natural feature that had been a key landmark and cultural symbol of the area. The term "Sunchhahari" is derived from the Nepali words "Suncha," meaning "clear," and "Hahari," meaning "waterfall." This reflected the clear, cascading waters of the waterfall, which had been a focal point for both locals and visitors. Over time, the waterfall's name became synonymous with the entire rural municipality, leading to the adoption of "Sunchhahari" as the official name.

Historically, Sunchhahari had been part of a region rich in cultural heritage and ancient traditions. The area had been inhabited for centuries by various indigenous communities, with a long-standing relationship with nature and the land. Early settlers had relied on agriculture, forestry, and trade, which shaped the social and economic structure of the community. The development

of the municipality had been influenced by its strategic location along traditional trade routes, which connected it to other parts of Rolpa and the neighboring districts of Baglung and Rukum.

The formation of Sunchhahari Rural Municipality had occurred through the merging of six former Village Development Committees (VDCs), each with its distinct history and local governance. These VDCs, namely Seram, Bhitri Gaam, Bahiri Gaam, Syuari, Jaima Kasla, Phagam, and Jelwaang, had contributed to the unique cultural and social fabric of the region. The consolidation of these areas into one municipality in recent years had facilitated a more coordinated approach to local governance and development, leading to improved infrastructure, enhanced service delivery, and greater community participation in decision-making processes.

Structure of Sunchhahari During Its Formation

The formation of Sunchhahari Rural Municipality was a strategic move that aimed to streamline governance and development in the region. Prior to its establishment as a municipality, the area had been composed of six separate Village Development Committees (VDCs) – Seram, Bhitri Gaam, Bahiri Gaam, Syuari, Jaima Kasla, Phagam, and Jelwaang. These VDCs had functioned as individual administrative units, each managing local issues, resources, and infrastructure. While they had worked relatively independently, the lack of cohesive planning and coordination across these areas had often led to inefficiencies in resource distribution and service delivery.

The consolidation of these VDCs into a single rural municipality had been part of a broader effort by the government to decentralize governance and ensure more effective delivery of services to rural communities. The newly formed Sunchhahari Rural Municipality was structured to include seven wards, each representing a distinct community within the former VDCs. This restructuring allowed for a more unified approach to local governance and development, with each ward having representation in the municipal council.

The central administrative office of the municipality was located in Powang, a central area accessible to most of the population. Powang, being geographically located in the heart of the municipality, had served as a key administrative and service hub for the region. The municipality was governed by a municipal council, consisting of elected representatives from each of the seven wards, who were tasked with decision-making, budgeting, and the implementation of development projects. The formation of the municipality also marked the establishment of a local administrative structure that would handle key areas such as education, health, infrastructure,

and rural development, ensuring that Sunchhahari could better address the needs of its growing population.

Scientific and Systematic Construction

The construction of infrastructure in Sunchhahari Rural Municipality had been carried out using scientific and systematic approaches, ensuring that the region's development was both sustainable and efficient. Recognizing the challenges posed by the mountainous terrain and diverse geographical features, the planning and execution of infrastructure projects had followed a methodical approach that incorporated modern engineering practices, environmental considerations, and local needs.

The design of roads, bridges, and other essential infrastructure had been based on careful site assessments, topographic surveys, and geological studies. This scientific approach had ensured that the construction was well-suited to the local terrain and climate conditions. Additionally, the municipality had made use of advanced construction materials and techniques to guarantee the longevity and stability of the infrastructure, especially in areas prone to landslides and other natural hazards.

Systematic planning had been central to the development process. Projects had been prioritized based on their impact on local communities, with an emphasis on improving connectivity between remote areas and key urban centers. The construction had been phased over several years, allowing for proper budgeting, resource allocation, and community involvement in decision-making. Each project had been designed to enhance the municipality's overall infrastructure network while considering the environmental impact, ensuring that development occurred in harmony with the natural surroundings.

Historical Significance

Sunchhahari Rural Municipality held significant historical importance, both culturally and strategically, within the Rolpa District. Its history had been shaped by its geographical location, its role in traditional trade routes, and the rich cultural heritage of its indigenous communities. The municipality's formation from the merger of six Village Development Committees (VDCs) had brought together centuries of history, local traditions, and social practices that had evolved over time, creating a unique blend of cultural and historical significance.

Historically, Sunchhahari had been a center for agriculture and livestock farming, with early settlers relying on the fertile land and natural resources for their livelihoods. The community had

been deeply connected to the land, with generations of families practicing sustainable agricultural techniques and maintaining a harmonious relationship with nature. The region's historical significance was also reflected in its local festivals, traditional practices, and the deep-rooted values of its people, which had been passed down through generations.

In addition to its cultural heritage, Sunchhahari's historical significance was marked by its role in the broader socio-political landscape of the region. The area had been part of important historical movements, particularly during the political changes that reshaped Nepal in the 20th and 21st centuries. The consolidation of the VDCs into the rural municipality had been a crucial step in ensuring that Sunchhahari could meet the modern challenges of governance, development, and regional cooperation, while also preserving its rich historical identity and traditions.

ADMINISTRATIVE UNIT MAP OF SUNCHHAHARI RURAL MUNICIPALITY

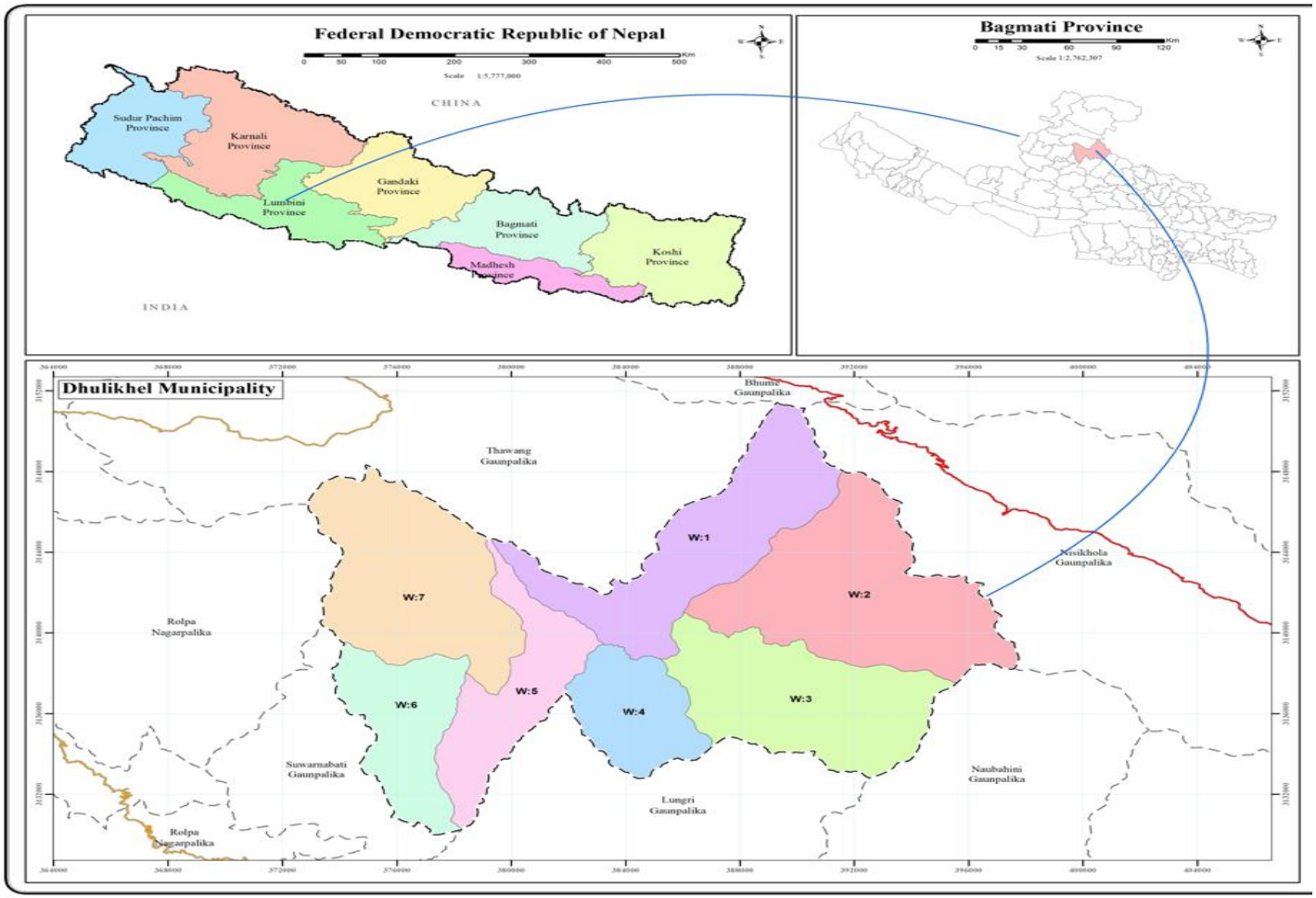

Figure 5-11 : Administrative Ma

5.2 Present Land Use

The present land use in Sunchhahari Rural Municipality had been characterized by a combination of agricultural, forest, residential, and some commercial areas. The municipality's land had been predominantly used for agricultural purposes, with vast stretches of farmland dedicated to the cultivation of crops such as maize, millet, and vegetables. The fertile soil and favorable climate conditions had made agriculture the mainstay of the local economy, providing sustenance for the majority of the population. Smallholder farming had been the norm, with most families relying on subsistence farming, while some also engaged in cash crop cultivation for trade.

In addition to agricultural land, significant portions of the municipality had been covered by forested areas, which had played a crucial role in providing resources for local communities. The forests had been a source of timber, firewood, medicinal plants, and fodder for livestock. These forest resources had been utilized sustainably by local households, although there had been concerns about deforestation and the depletion of resources due to increased population pressure and growing demand for wood and fuel.

The residential areas had been scattered across the municipality, with settlements located primarily in the valley floors and along the main roads. The population had been spread out over seven wards, and many of the villages had been located in remote areas, which had posed challenges to infrastructure development and service delivery. In recent years, some areas had started to experience an increase in commercial activities, especially in relation to small businesses, local markets, and tourism-related ventures, as Sunchhahari had slowly emerged as a potential tourist destination due to its natural beauty and historical significance.

5.3 Socio Economic and Demographic Status

Sunchhahari Rural Municipality is following the way of urbanization, modernization, and development as a city. Local people are involved in economic activities and services. Local government is expecting to change the socio-economic development process with guaranteed rights, economic decentralization, and shifting resources to pooper geographic. Sunchhahari Rural Municipality has tried to address the skills, knowledge, and expertise of the local people in the process of socio-economic development. Local government has provided training, skills, knowledge, and expertise to backward groups, women, and youth as well as poverty reduction,

employment generation, and gender equality with technical assistance, monitoring, and evaluation.

Change in population impacts its future population and requirement of infrastructures like physical, social, economic, environmental, etc. The demography of the city helps to forecast the population change pattern and its proper management. Total Population, population density, household structure, literacy rate status, health, education., economic status, existing infrastructures, topography, climate changes, environment conditions, natural resources, and their characteristics are some of the major pillars for better understanding of the locality.

5.3.1 Population and Density

As per the figures of Central Bureau 2078, Statistics Total population of Sunchhahari Rural Municipality is 3586. The population density is 763.076 per km^2. with an average growth rate of 0.75 % per year According to the census, 2078: the demographic data of the Rural Municipality is as below.

Table 5-1 CBS,2078

Name of Rural Municipality	Household	Preliminary Population, 2078		
		Total	Male	Female
Sunchhahari Rural Municipality	3586	17241	8290	8951

Table 5-2 : Ward Wise Demography, CBS 2078

Ward	Male	Female	Total	Percentage	Area (Sqkm)	Density
1	1,025	1,041	2,066	11.98%	6.131	336.986
2	1,082	1,088	2,170	12.59%	8.508	255.053
3	1,112	1,132	2,244	13.02%	2.742	818.238
4	821	1,025	1,846	10.71%	1.552	1189.227

Ward	Male	Female	Total	Percentage	Area (Sqkm)	Density
5	1,653	1,725	3,378	19.59%	0.672	5026.554
6	1,134	1,366	2,500	14.50%	1.007	2482.992
7	1,463	1,574	3,037	17.61%	1.982	1532.622
Total	8,290	8,951	17,241	100.00%	22.594	763.076

Data Source: CBS 2078

The population distribution across the seven wards of Sunchhahari Rural Municipality had shown a diverse range of figures, with Ward 5 having the highest population, consisting of 3,378 individuals, making up 19.59% of the total population. It had been followed by Ward 7 with 3,037 people, or 17.61% of the population. Wards 1, 2, and 3 had smaller populations, with Ward 1 having 2,066 people, Ward 2 with 2,170, and Ward 3 housing 2,244 people. Ward 4 had the smallest population, totaling 1,846 individuals, contributing to 10.71% of the overall population of the rural municipality.

The gender distribution in each ward had reflected a relatively balanced ratio between males and females. Ward 5 had seen a slightly higher female population (1,725) compared to the male population (1,653), while other wards such as Ward 6 and Ward 7 had exhibited similar trends with a higher female population as well. In total, the rural municipality had a population of 17,241 people, with 8,290 males and 8,951 females. The total gender ratio had indicated that females outnumbered males, accounting for approximately 52% of the population.

The land area and population density varied significantly across the wards. Ward 1, despite having a moderate population of 2,066 people, had a relatively large area of 6.131 square kilometers, resulting in a density of 336.99 people per square kilometer. On the other hand, Ward 5, though densely populated with 3,378 people, had a very small land area of just 0.672 square kilometers, resulting in an extremely high population density of 5,026.55 people per square kilometer. The overall municipality covered an area of 22.594 square kilometers, with a total population density of 763.08 people per square kilometer, highlighting varying levels of urbanization and rural spread across the wards.

5.4 Indicative Development Potential Data

S. n	IDPM	Type	Latitude	Longitude
1	Gc church kasala	Church	28° 18' 56.655" N	82° 45' 40.070" E
2	Susamachar mandali	Church	28° 21' 13.937" N	82° 48' 41.740" E
3	Balidan ag church maulaban rolpa	Church	28° 21' 8.933" N	82° 51' 27.037" E
4	Baldehang orc	Clinic	28° 21' 20.237" N	82° 49' 36.823" E
5	Bhalabang orc clinic	Clinic	28° 20' 39.394" N	82° 48' 29.405" E
6	Gaughar clinic	Clinic	28° 23' 5.927" N	82° 51' 55.618" E
7	Gau ghar clinic	Clinic	28° 24' 19.631" N	82° 49' 33.520" E
8	Gau ghar clinic	Clinic	28° 22' 55.416" N	82° 48' 3.493" E
9	Shree namuna mabi school	Education institute	28° 18' 49.507" N	82° 45' 30.240" E
10	Nera prabi	Education institute	28° 23' 18.700" N	82° 43' 24.380" E
11	Shree janata reform primary school	Education institute	28° 20' 30.267" N	82° 44' 47.409" E
12	Nera mabi	Education institute	28° 18' 46.923" N	82° 43' 58.987" E
13	Nabha jiban mandali	Education institute	28° 18' 50.336" N	82° 44' 8.098" E
14	Ripukot adharbhut school	Education institute	28° 18' 7.266" N	82° 44' 23.700" E
15	Shree nera mabi	Education institute	28° 20' 57.856" N	82° 48' 57.017" E
16	Shree sunchhari adharbhut school	Education institute	28° 21' 20.240" N	82° 49' 38.786" E
17	Sundar sunchhari bal bikash kendra bhalabang	Education institute	28° 20' 38.401" N	82° 48' 29.816" E
18	Chaubari kuipa dhara prabi	Education institute	28° 21' 13.390" N	82° 50' 53.452" E
19	Shree saroswati mabi school	Education institute	28° 24' 21.980" N	82° 49' 32.812" E
20	Shree jana sewa mabi school	Education institute	28° 23' 10.012" N	82° 49' 4.551" E
21	Shree sakha adharbhut school	Education institute	28° 23' 12.004" N	82° 47' 50.959" E
22	Dharam sala adharbhut school	Education institute	28° 17' 54.618" N	82° 45' 10.344" E
23	Bal sikhha adharbhut school	Education institute	28° 21' 43.781" N	82° 42' 43.474" E
24	Shree rolbang mabi jelbang	Education institute	28° 22' 49.813" N	82° 44' 37.946" E
25	Shree siddha adharbhut school	Education institute	28° 19' 10.668" N	82° 49' 33.216" E

S. n	IDPM	Type	Latitude	Longitude
26	Janata ma bi school bahiri gam	Education institute	28° 21' 47.465" N	82° 51' 28.727" E
27	Bal jyoti adharbhut school	Education institute	28° 22' 4.547" N	82° 50' 37.531" E
28	Baraha prabi school,dahabang	Education institute	28° 20' 58.006" N	82° 52' 51.548" E
29	Shree janata adharbhut school	Education institute	28° 22' 58.602" N	82° 52' 41.376" E
30	Dangadhara abhi gichey school	Education institute	28° 23' 8.557" N	82° 51' 49.098" E
31	Bishnu smiriti prabi school, dangadhara	Education institute	28° 23' 23.623" N	82° 51' 17.669" E
32	Pariwartan abhi school, chyana dhara	Education institute	28° 22' 23.367" N	82° 53' 18.081" E
33	Jana aawas prabi school	Education institute	28° 22' 31.098" N	82° 53' 6.115" E
34	Maulaban khel maidan	Ground	28° 21' 16.814" N	82° 50' 53.230" E
35	Syuri health post	Health post	28° 21' 30.776" N	82° 48' 39.630" E
36	Maulaban gaunghar clinic	Health post	28° 21' 14.716" N	82° 50' 50.191" E
37	Health post	Health post	28° 23' 11.064" N	82° 49' 3.462" E
38	Pobang health post rolpa	Health post	28° 21' 36.832" N	82° 47' 51.772" E
39	Health post jelbang	Health post	28° 22' 48.202" N	82° 44' 45.825" E
40	Jhinja samudayak sosthya ekai kandra	Health post	28° 19' 25.710" N	82° 49' 13.156" E
41	Gam health post	Health post	28° 21' 50.558" N	82° 51' 30.435" E
42	Rijaban gau ghar clinic	Health post	28° 20' 54.863" N	82° 52' 52.776" E
43	Bhuluchung adharbhut ekai kendra, health post	Health post	28° 22' 51.975" N	82° 52' 31.867" E
44	Gaughar clinic, gohakhola	Health post	28° 22' 14.879" N	82° 53' 39.223" E
45	Samudayak ekai kendra, health post	Health post	28° 22' 32.025" N	82° 53' 9.991" E
46	Larmi balbikash	Health post	28° 22' 42.305" N	82° 51' 21.615" E
47	Posilo pitho factory	Industry	28° 21' 30.794" N	82° 49' 41.051" E
48	Balidan ag church pobang	Place name	28° 21' 48.531" N	82° 47' 41.453" E
49	Police station	Place name	28° 22' 38.507" N	82° 44' 41.739" E
50	Jelbang village	Place name	28° 22' 39.086" N	82° 44' 38.206" E
51	Siuri gau	Place name	28° 21' 20.769" N	82° 48' 44.179" E

S. n	IDPM	Type	Latitude	Longitude
52	Kharka	Place name	28° 21' 53.499" N	82° 48' 1.917" E
53	Chaitythan tol	Place name	28° 21' 8.256" N	82° 48' 49.614" E
54	Chautari tol	Place name	28° 21' 21.679" N	82° 48' 43.737" E
55	Sakina gau	Place name	28° 20' 50.294" N	82° 48' 42.905" E
56	Sandhi gau	Place name	28° 20' 12.689" N	82° 48' 25.986" E
57	Rangri gau	Place name	28° 20' 36.794" N	82° 48' 7.002" E
58	Sikung gau	Place name	28° 20' 59.745" N	82° 49' 37.257" E
59	Narbang gau	Place name	28° 21' 32.614" N	82° 49' 38.551" E
60	Bhumethan sabik gabis office	Place name	28° 21' 17.410" N	82° 48' 52.848" E
61	Lashabang	Place name	28° 21' 15.122" N	82° 48' 37.943" E
62	Malangdhara	Place name	28° 21' 12.156" N	82° 48' 47.214" E
63	Mukhyadera	Place name	28° 21' 11.830" N	82° 48' 50.825" E
64	Sunardera	Place name	28° 21' 0.766" N	82° 48' 49.422" E
65	Rotey dhara	Place name	28° 20' 50.400" N	82° 49' 5.220" E
66	Nadgha	Place name	28° 20' 36.770" N	82° 49' 13.773" E
67	Jethansi than	Place name	28° 21' 5.564" N	82° 48' 46.396" E
68	Baldehang gau	Place name	28° 21' 16.451" N	82° 49' 36.260" E
69	Bobang gau	Place name	28° 20' 48.208" N	82° 50' 12.138" E
70	Kanchha khothi	Place name	28° 20' 51.546" N	82° 55' 36.214" E
71	Juri khola	Place name	28° 20' 34.247" N	82° 50' 23.548" E
72	Makraki khola	Place name	28° 20' 33.808" N	82° 51' 28.477" E
73	Bikli dhara	Place name	28° 21' 6.679" N	82° 51' 45.219" E
74	Maulaban	Place name	28° 21' 7.086" N	82° 51' 14.134" E
75	Kuipa dhara gau	Place name	28° 21' 15.090" N	82° 50' 32.870" E
76	Kuipa chheda	Place name	28° 21' 8.874" N	82° 50' 33.960" E
77	Sodo gau	Place name	28° 21' 23.527" N	82° 51' 9.954" E

S. n	IDPM	Type	Latitude	Longitude
78	Sarbari dhuri	Place name	28° 19' 37.882" N	82° 51' 37.479" E
79	Jhamkhang dhuri	Place name	28° 19' 20.156" N	82° 52' 9.906" E
80	Jhulabang tupi	Place name	28° 19' 34.278" N	82° 53' 1.097" E
81	Jhulabang kharka	Place name	28° 19' 44.175" N	82° 53' 17.672" E
82	Tinpure dhuri	Place name	28° 18' 39.982" N	82° 54' 14.709" E
83	Jitukung khola	Place name	28° 20' 2.016" N	82° 51' 26.699" E
84	Gope kharka	Place name	28° 20' 55.825" N	82° 51' 52.399" E
85	Khonchyang kharka	Place name	28° 20' 55.853" N	82° 52' 7.262" E
86	Khonchyang khola	Place name	28° 21' 2.115" N	82° 52' 15.449" E
87	Gurgure khola	Place name	28° 20' 0.105" N	82° 51' 58.818" E
88	Khipu kharka	Place name	28° 20' 53.359" N	82° 52' 28.891" E
89	Dharmu kharka	Place name	28° 20' 37.873" N	82° 52' 23.089" E
90	Ruri dada	Place name	28° 19' 33.694" N	82° 54' 42.981" E
91	Bhangri khola	Place name	28° 19' 58.081" N	82° 54' 28.009" E
92	Lingkho khola	Place name	28° 19' 36.971" N	82° 54' 8.305" E
93	Bhangri dada	Place name	28° 19' 32.706" N	82° 54' 17.354" E
94	Tinpure khola	Place name	28° 19' 26.191" N	82° 54' 23.031" E
95	Nunthala chheda	Place name	28° 19' 5.652" N	82° 54' 52.135" E
96	Bhumebhakar kharka	Place name	28° 19' 28.817" N	82° 55' 3.951" E
97	Sopal dada	Place name	28° 19' 52.552" N	82° 54' 52.846" E
98	Ruri khola	Place name	28° 19' 42.224" N	82° 54' 50.583" E
99	Paki dada	Place name	28° 19' 44.362" N	82° 54' 59.894" E
100	Totkya dada	Place name	28° 19' 56.126" N	82° 54' 57.003" E
101	Khaliru khola	Place name	28° 20' 16.291" N	82° 54' 30.605" E
102	Gharimwau kharka	Place name	28° 20' 15.156" N	82° 55' 4.069" E
103	Kukhi jara	Place name	28° 20' 45.941" N	82° 55' 5.863" E

S. n	IDPM	Type	Latitude	Longitude
104	Galdhum chheda	Place name	28° 20' 45.668" N	82° 54' 37.694" E
105	Pitambare kharka	Place name	28° 21' 5.222" N	82° 54' 21.607" E
106	Totkya khola	Place name	28° 20' 57.925" N	82° 54' 28.391" E
107	Kachhar khola	Place name	28° 20' 53.418" N	82° 54' 21.318" E
108	Dafere kharka	Place name	28° 21' 13.414" N	82° 54' 0.918" E
109	Dhada kharka	Place name	28° 21' 6.381" N	82° 53' 47.637" E
110	Romai kharka	Place name	28° 20' 53.122" N	82° 53' 45.513" E
111	Tang romai	Place name	28° 20' 58.957" N	82° 53' 53.290" E
112	Lungkri thapla kharka	Place name	28° 20' 36.415" N	82° 53' 54.196" E
113	Kamlya dada	Place name	28° 20' 45.818" N	82° 53' 58.997" E
114	Hingjure dada	Place name	28° 20' 58.165" N	82° 54' 11.392" E
115	Kuri gho	Place name	28° 20' 38.653" N	82° 53' 44.248" E
116	Langho kharka	Place name	28° 20' 45.673" N	82° 53' 41.467" E
117	Juge pani	Place name	28° 20' 48.489" N	82° 53' 39.179" E
118	Romai khola	Place name	28° 20' 49.490" N	82° 53' 44.767" E
119	Dhau khani	Place name	28° 20' 56.346" N	82° 53' 42.540" E
120	Baigha kharka	Place name	28° 20' 53.446" N	82° 53' 20.495" E
121	Kasiru kharka	Place name	28° 21' 1.346" N	82° 53' 34.517" E
122	Syakpa dhara	Place name	28° 21' 10.595" N	82° 53' 37.929" E
123	Nari kharka	Place name	28° 21' 17.735" N	82° 53' 42.685" E
124	Jantare thapla	Place name	28° 21' 24.705" N	82° 54' 1.910" E
125	Batapu dhuri	Place name	28° 21' 15.741" N	82° 54' 32.318" E
126	Tallo takhwang buki	Place name	28° 21' 4.312" N	82° 54' 51.474" E
127	Upallo takhwang buki	Place name	28° 21' 4.489" N	82° 55' 4.523" E
128	Thagya odar	Place name	28° 20' 59.368" N	82° 55' 21.282" E
129	Ghoha khola gau	Place name	28° 22' 15.334" N	82° 53' 32.634" E

S. n	IDPM	Type	Latitude	Longitude
130	Jelbung gau	Place name	28° 22' 34.349" N	82° 53' 5.884" E
131	Salkabang gau	Place name	28° 23' 40.655" N	82° 53' 24.220" E
132	Dangadhara gau	Place name	28° 23' 18.456" N	82° 51' 20.687" E
133	Gichey gau	Place name	28° 23' 11.878" N	82° 51' 55.735" E
134	Harpakha gau	Place name	28° 22' 57.625" N	82° 52' 13.314" E
135	Falabang gau	Place name	28° 22' 19.080" N	82° 53' 3.370" E
136	Falabang khola	Place name	28° 22' 14.242" N	82° 53' 12.085" E
137	Jaking khola	Place name	28° 22' 5.659" N	82° 53' 30.336" E
138	Barje gau	Place name	28° 22' 13.409" N	82° 53' 50.048" E
139	Urla gau	Place name	28° 22' 15.795" N	82° 54' 10.218" E
140	Ghusawang gau	Place name	28° 24' 24.258" N	82° 49' 34.300" E
141	Mansherey dada	Place name	28° 24' 13.875" N	82° 49' 54.366" E
142	Pokhara gau	Place name	28° 24' 6.232" N	82° 50' 10.539" E
143	Danggung gau	Place name	28° 23' 41.656" N	82° 49' 56.400" E
144	Chainmang gau	Place name	28° 24' 26.723" N	82° 50' 2.153" E
145	Tangnang gau	Place name	28° 24' 28.465" N	82° 49' 54.881" E
146	Jaljala dharmik tatha tourism area	Place name	28° 26' 46.294" N	82° 43' 27.212" E
147	Jelbang	Place name	28° 23' 47.886" N	82° 44' 44.455" E
148	Kharka	Place name	28° 21' 53.499" N	82° 48' 1.917" E
149	Kharka	Place name	28° 21' 53.499" N	82° 48' 1.917" E
150	Jhinhja gau	Place name	28° 19' 28.395" N	82° 49' 12.082" E
151	Tharkhari gau	Place name	28° 19' 22.362" N	82° 49' 0.212" E
152	Ghogha gau	Place name	28° 19' 26.654" N	82° 49' 42.155" E
153	Bhangli gau	Place name	28° 19' 54.816" N	82° 49' 46.985" E
154	Pokhara,syuri	Place name	28° 21' 49.870" N	82° 48' 44.897" E
155	Ghogha nauruk chheda	Place name	28° 19' 2.249" N	82° 49' 51.217" E

S. n	IDPM	Type	Latitude	Longitude
156	Pokhara,syuri	Place name	28° 21' 49.870" N	82° 48' 44.897" E
157	Pokhara,syuri	Place name	28° 21' 49.870" N	82° 48' 44.897" E
158	Chahare jharana	Place name	28° 19' 32.145" N	82° 49' 3.526" E
159	Tallo sene	Place name	28° 21' 7.154" N	82° 51' 29.555" E
160	Mathillo sene	Place name	28° 21' 4.566" N	82° 51' 27.631" E
161	Banghar gau	Place name	28° 21' 1.721" N	82° 51' 26.519" E
162	Bang kona gau	Place name	28° 21' 3.883" N	82° 51' 17.422" E
163	Bangkona dada	Place name	28° 21' 3.066" N	82° 51' 20.681" E
164	Kutkeng gau	Place name	28° 21' 4.533" N	82° 51' 12.855" E
165	Tangklyang gau	Place name	28° 20' 59.238" N	82° 51' 10.405" E
166	Deughar gau	Place name	28° 20' 58.345" N	82° 51' 6.873" E
167	Chanang khang gau	Place name	28° 20' 54.195" N	82° 51' 16.853" E
168	Dhada gau	Place name	28° 21' 11.576" N	82° 50' 54.754" E
169	Dharamchala gau	Place name	28° 21' 9.860" N	82° 50' 52.362" E
170	Bughri kholsa	Place name	28° 20' 59.681" N	82° 50' 43.855" E
171	Bughri dada	Place name	28° 21' 0.517" N	82° 50' 31.722" E
172	Jigung dhara gau	Place name	28° 21' 27.564" N	82° 50' 2.592" E
173	Chhungbang	Place name	28° 21' 26.111" N	82° 50' 17.018" E
174	Pokhara gau	Place name	28° 21' 4.959" N	82° 50' 54.224" E
175	Byangsi kharka	Place name	28° 21' 31.725" N	82° 50' 52.972" E
176	Ghurunge dada	Place name	28° 21' 44.495" N	82° 50' 26.046" E
177	Kwegheng dhara	Place name	28° 21' 52.773" N	82° 50' 51.141" E
178	Dhomai	Place name	28° 21' 40.926" N	82° 50' 46.892" E
179	Bhutar khola	Place name	28° 22' 3.528" N	82° 50' 8.697" E
180	Gathe dhuri	Place name	28° 21' 29.232" N	82° 53' 33.239" E
181	Singkyal ghaira	Place name	28° 21' 21.927" N	82° 53' 29.292" E

S. n	IDPM	Type	Latitude	Longitude
182	Khara gotho kharka	Place name	28° 21' 19.996" N	82° 53' 20.153" E
183	Gauda kharka	Place name	28° 21' 29.638" N	82° 53' 22.990" E
184	Tallo nganpo	Place name	28° 21' 32.890" N	82° 53' 7.223" E
185	Upallo nganpo	Place name	28° 21' 31.816" N	82° 53' 16.563" E
186	Churbang kharka	Place name	28° 21' 32.922" N	82° 52' 55.662" E
187	Sara khola kharka	Place name	28° 21' 20.557" N	82° 52' 52.363" E
188	Nganpo khola	Place name	28° 21' 22.802" N	82° 53' 2.726" E
189	Upallo dangje	Place name	28° 21' 25.116" N	82° 52' 27.259" E
190	Syablya bhir	Place name	28° 21' 34.676" N	82° 52' 23.732" E
191	Gabra kona	Place name	28° 21' 46.126" N	82° 51' 51.478" E
192	Pariyar tol	Place name	28° 21' 34.493" N	82° 51' 33.600" E
193	Bahirigam khola	Place name	28° 21' 22.136" N	82° 51' 48.112" E
194	Thulo gaam	Place name	28° 21' 39.840" N	82° 51' 44.522" E
195	Jarbang	Place name	28° 21' 48.941" N	82° 51' 30.668" E
196	Bargo village	Place name	28° 22' 9.337" N	82° 50' 30.497" E
197	Bahundada	Place name	28° 21' 59.032" N	82° 50' 36.827" E
198	Maligung village	Place name	28° 22' 26.372" N	82° 50' 18.971" E
199	Gaja khola	Place name	28° 22' 7.983" N	82° 51' 0.458" E
200	Gaja dhara	Place name	28° 21' 48.189" N	82° 51' 3.689" E
201	Muigha dhara masanghat	Place name	28° 21' 55.892" N	82° 51' 15.989" E
202	Chamar dhuri	Place name	28° 22' 5.631" N	82° 51' 30.731" E
203	Gombang dada	Place name	28° 21' 50.963" N	82° 52' 10.397" E
204	Gomgang takura	Place name	28° 21' 42.838" N	82° 52' 27.361" E
205	Tamakhe dada	Place name	28° 21' 43.756" N	82° 52' 46.110" E
206	Kakitolo dada	Place name	28° 21' 38.229" N	82° 53' 8.705" E
207	Kiwasepo gau	Place name	28° 21' 32.542" N	82° 52' 6.624" E

S. n	IDPM	Type	Latitude	Longitude
208	Thulo bisauna	Place name	28° 21' 23.991" N	82° 52' 8.468" E
209	Jhakri kholsa	Place name	28° 21' 24.725" N	82° 52' 17.339" E
210	Danje	Place name	28° 21' 16.414" N	82° 52' 24.729" E
211	Chiuri khola	Place name	28° 21' 16.099" N	82° 52' 31.112" E
212	Pangbang gau	Place name	28° 21' 11.790" N	82° 52' 37.290" E
213	Bangnang kholsha	Place name	28° 21' 9.778" N	82° 52' 42.691" E
214	Bangnang village	Place name	28° 21' 2.583" N	82° 52' 45.565" E
215	Bibang khola	Place name	28° 21' 1.524" N	82° 52' 50.763" E
216	Bibang dada gau	Place name	28° 20' 56.430" N	82° 52' 59.899" E
217	Mabang gau	Place name	28° 20' 50.621" N	82° 53' 1.110" E
218	Mabang khola	Place name	28° 20' 54.382" N	82° 53' 5.849" E
219	Jharbang dalit basti	Place name	28° 20' 43.661" N	82° 53' 25.551" E
220	Mobang dhara	Place name	28° 20' 52.987" N	82° 53' 9.623" E
221	Mobang bhitta	Place name	28° 20' 53.274" N	82° 53' 2.092" E
222	Harembhai khola	Place name	28° 20' 38.708" N	82° 53' 31.429" E
223	Lunkri kharka	Place name	28° 20' 25.071" N	82° 53' 47.381" E
224	Bharepo khola	Place name	28° 20' 25.018" N	82° 53' 53.952" E
225	Sirja gau	Place name	28° 20' 21.301" N	82° 53' 53.504" E
226	Sirja khola	Place name	28° 20' 22.454" N	82° 53' 54.808" E
227	Fedi kharka	Place name	28° 20' 9.985" N	82° 54' 8.024" E
228	Khaliru pul	Place name	28° 20' 8.581" N	82° 54' 12.354" E
229	Bhaktane kharka	Place name	28° 20' 6.796" N	82° 54' 34.424" E
230	Bhaba deurali	Place name	28° 18' 50.197" N	82° 53' 49.746" E
231	Tangyabang	Place name	28° 19' 18.820" N	82° 53' 57.267" E
232	Sirja thapla	Place name	28° 19' 35.532" N	82° 53' 49.043" E
233	Asare bang	Place name	28° 19' 47.471" N	82° 53' 52.583" E

S. n	IDPM	Type	Latitude	Longitude
234	Bharepo kharka	Place name	28° 20' 27.259" N	82° 54' 23.697" E
235	Bahirigam khola	Place name	28° 21' 22.136" N	82° 51' 48.112" E
236	Bahirigam khola	Place name	28° 21' 22.136" N	82° 51' 48.112" E
237	Bahirigam khola	Place name	28° 21' 22.136" N	82° 51' 48.112" E
238	Nera abi ghoha khola school	Place name	28° 22' 18.000" N	82° 53' 31.880" E
239	Fuliban gau	Place name	28° 22' 51.429" N	82° 48' 5.085" E
240	Mughdhara gau	Place name	28° 22' 35.880" N	82° 48' 50.113" E
241	Gothabang gau	Place name	28° 22' 45.837" N	82° 49' 12.539" E
242	Serum gau	Place name	28° 23' 10.046" N	82° 48' 59.475" E
243	Tangnang gau	Place name	28° 24' 28.465" N	82° 49' 54.881" E
244	Syuri budhariga	Place name	28° 20' 59.684" N	82° 48' 58.326" E
245	Aaisalun kharka	Place name	28° 23' 21.420" N	82° 43' 29.666" E
246	Dhunsi	Place name	28° 20' 31.760" N	82° 44' 44.731" E
247	Fagam	Place name	28° 18' 43.891" N	82° 44' 8.159" E
248	Narebitalu	Place name	28° 20' 36.484" N	82° 48' 18.886" E
249	Salghari	Place Name	28° 17' 24.563" N	82° 45' 28.575" E
250	Police station syuri	Police station	28° 21' 16.407" N	82° 48' 46.091" E
251	Police sation gam	Police station	28° 21' 48.489" N	82° 51' 32.958" E
252	Dhamse samudayik bhawan	Public building	28° 21' 35.808" N	82° 52' 1.258" E
253	Sunchhahari rural municipility	Rural municipility office	28° 21' 38.735" N	82° 47' 43.272" E
254	Nepal telecom tower	Tele communication	28° 21' 45.715" N	82° 52' 39.392" E
255	Bhadaure than [temple]	Temple	28° 21' 39.142" N	82° 47' 17.623" E
256	Shiva ji than	Temple	28° 20' 50.175" N	82° 48' 50.629" E
257	Lungma dhuri mandir	Temple	28° 20' 14.648" N	82° 51' 1.937" E
258	Aashare siddha baba barahi mandir	Temple	28° 22' 43.675" N	82° 47' 14.852" E
259	Bista kul mandir	Temple	28° 22' 57.011" N	82° 47' 1.422" E

S. n	IDPM	Type	Latitude	Longitude
260	Baraha mandir	Temple	28° 26' 28.643" N	82° 43' 38.397" E
261	Mangsire than	Temple	28° 21' 31.708" N	82° 48' 40.489" E
262	Bibang baraha mandir	Temple	28° 24' 23.033" N	82° 53' 19.385" E
263	Ward no 6 phagam ward office	Ward office	28° 18' 34.274" N	82° 43' 59.880" E
264	Ward no 1 sunchhaheri	Ward office	28° 23' 10.666" N	82° 49' 3.096" E
265	Ward no 7 office jelbang	Ward office	28° 22' 47.781" N	82° 44' 36.196" E
266	Ward no 5 jaimakasala	Ward office	28° 19' 58.100" N	82° 46' 32.464" E
267	Ward no 3 office	Ward office	28° 21' 52.978" N	82° 51' 28.926" E
268	Ward no 4 office sunchhahari	Ward office	28° 21' 25.776" N	82° 48' 43.954" E
269	Ward no 2 office,bhulunchung	Ward office	28° 22' 25.554" N	82° 52' 33.986" E
270	Khane pani muhan	Water sources	28° 20' 37.909" N	82° 48' 20.507" E
271	Syuri khane pani muhan,dharampani	Water sources	28° 20' 57.849" N	82° 49' 2.305" E
272	Narbang khane pani muhan	Water sources	28° 20' 57.352" N	82° 49' 26.429" E
273	Narbang sano shichai muhan	Water sources	28° 21' 16.033" N	82° 49' 49.026" E
274	Syuri khane pani muhan	Water sources	28° 20' 7.523" N	82° 50' 16.342" E
275	Bobang sikung khane pani muhan	Water sources	28° 20' 11.803" N	82° 50' 16.949" E
276	Sakina khane pani muhan	Water sources	28° 20' 2.112" N	82° 50' 15.344" E
277	Ghogha khane pani muhan	Water sources	28° 19' 34.684" N	82° 50' 16.266" E
278	Jhinja khane pani muhan	Water sources	28° 18' 52.706" N	82° 49' 15.827" E
279	Sikung khane pani muhan	Water sources	28° 20' 45.739" N	82° 49' 34.885" E
280	Jhinja khane pani muhan	Water sources	28° 18' 52.706" N	82° 49' 15.827" E
281	Thakhari khane pani muhan	Water sources	28° 18' 51.442" N	82° 49' 15.037" E
282	Simsar khane pani muhan	Water sources	28° 18' 54.498" N	82° 49' 16.264" E
283	Lamokhorrey khane pani muhan	Water sources	28° 19' 12.949" N	82° 49' 32.002" E
284	Sani khane pani,thakna	Water sources	28° 19' 22.148" N	82° 48' 48.038" E
285	Sikung khane pani muhan	Water sources	28° 20' 45.739" N	82° 49' 34.885" E

S. n	IDPM	Type	Latitude	Longitude
286	Dahakhola khane pani muhan	Water sources	28° 22' 23.692" N	82° 50' 9.049" E
287	Sunchhahari natural waterfall	Waterfall	28° 20' 50.608" N	82° 47' 58.841" E

INDICATIVE DEVELOPMENT POTENTIAL MAP

Chapter 6 Municipal Inventory Map of Road Network

Road Inventory Survey has been done in the help of the earlier prepared GIS base map of the Rural Municipality and road inventory form. Field verification of the base map has been done in the help GPS survey and Satellite Image maps. Road inventory survey has been completed from one nodal point to another in each road sections, collecting information related to road surface, crossing structure, road condition, and linkages to the settlements, economically active spaces, existing service centres, potential growth centres, potential areas of development, areas of special considerations and direct link to another linkage. From data of the road inventory survey, MIM (Municipality Infrastructure Mapping) has been prepared. And based on the earlier study of potential areas and MIM, IDPM is developed.

6.1 Overview of Administrative Road Network

No any Administrative Road touches the sunchhahari rural municipality

6.2 Overview of District Road Distribution

Table 6-1 : Distribution of Ward Wise District Road Distribution

District Road	Length
District Road 53DR024	**14.81**
Ward 5	9.94
A006_Salghari - hamja - jelbang - sadak	9.94
Ward6	1.67
A006_Salghari - hamja - jelbang - sadak	1.67
Ward 7	3.21
A006_Salghari - hamja - jelbang - sadak	3.21
District Road 53DR025	**21.82**
Ward 1	3.20
A005_Sulichaur - kasala - pobang - uwa - thawang sadak	3.20
Ward 5	18.19
A005_Sulichaur - kasala - pobang - uwa - thawang sadak	18.19
Ward6	0.42
A005_Sulichaur - kasala - pobang - uwa - thawang sadak	0.42
District Road 53DR026	**11.14**
Ward 3	5.25
A002_Natgha - syuri - kimleghat sadhak	5.25
Ward 4	5.89
A002_Natgha - syuri - kimleghat sadhak	5.89

District Road	Length
Grand Total	47.77

During the assessment of the rural transport network under the R-MTMP of Sunchhahari Rural Municipality, a total of **47.77 kilometers** of district roads were recorded. These roads served as vital corridors for enhancing connectivity between the wards and facilitating easier access to services and markets. The road network extended through Wards 1 to 7, with the most extensive coverage found in Wards 5, 6, and 7.

District Road 53DR024, also known as **A006: Salghari – Hamja – Jelbang Road**, spanned a total of **14.81 kilometers**. This road passed through Wards **5, 6, and 7**, covering **9.94 km**, **1.67 km**, and **3.21 km** respectively. It significantly improved transportation in the northern and central areas of the municipality.

District Road 53DR025, identified as **A005: Sulichaur – Kasala – Pobang – Uwa – Thawang Road**, measured **21.82 kilometers** in total. It traversed through Wards **1**, **5**, and **6**, with segment lengths of **3.20 km**, **18.19 km**, and **0.42 km**, respectively. This road played a critical role in connecting major settlements to the municipal center and external road networks.

The third route, **District Road 53DR026**, labeled **A002: Natdha – Syuri – Kimleghat Road**, had a total length of **11.14 kilometers**. It passed through Wards **2 and 3**, with **5.25 km** and **5.89 km** of road, respectively. This road provided essential access to remote hilly areas and supported agricultural and social mobility in the region.

In summary, the district roads across Sunchhahari Rural Municipality accounted for a cumulative length of **47.77 kilometers**, serving all seven wards in varying extents. These roads formed the backbone of rural mobility, promoting local development and helping to bridge gaps in transportation across difficult terrains.

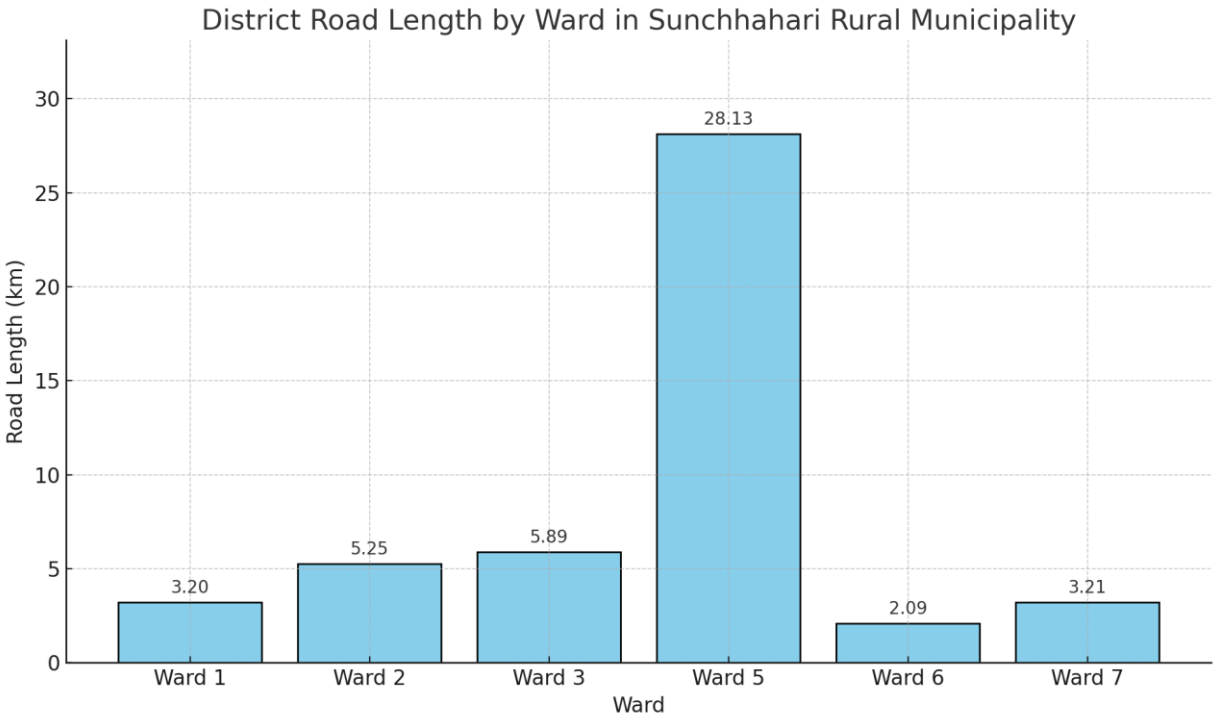

Figure 12 : District Road Length by Ward

DISTRICT ROAD NETWORK DISTRIBUTION

6.3 Over View of Rural Municipality Road Distribution

The total length of roads in kilometers within each ward of a Rural Municipality, along with the corresponding percentage that each ward's road length contributes to the total road network. The cumulative road length across all wards amounts to 210.66 kilometers. This comprehensive distribution offers significant insights into the infrastructure layout and development priorities within the Rural Municipality.

6.3.1 Ward-wise Road Network Analysis:

The Rural Municipality of Sunchhahari spans an area of approximately 277.54 square kilometers and currently hosts 210.66 km of existing roads, amounting to an average road density of 0.76 km/km². The proposed road network adds 332.90 km, bringing the grand total to 543.56 km, which increases the average road density to 1.958 km/km². Ward 5 currently has the highest share of existing roads (25%) but a relatively moderate road density (1.301 km/km²). Conversely, Ward 2, despite covering a smaller area (20.96 km²), exhibits the highest current road density at 1.69 km/km². Notably, Ward 7 has the largest share of proposed roads (27%)—significantly boosting its total road length and improving connectivity. These figures indicate an unbalanced road distribution, suggesting the need for strategic planning to ensure equitable infrastructure development across all wards

Table 2 : Ward Wise Road Network Distribution

Ward	Ward Area	Existing Road	%	ExistingRoad Density	Proposed Road	%	Grand Total	Road Density
1	47.1	24.92	11%	0.53	54.39	17%	79.30	1.68
2	20.96	37.03	16%	1.77	53.02	17%	90.05	4.30
3	27.42	37.79	17%	1.38	26.30	8%	64.09	2.34
4	25.88	27.85	12%	1.08	38.97	12%	66.82	2.58
5	59.13	51.76	23%	0.88	25.16	8%	76.91	1.30
6	46.16	26.79	12%	0.58	30.32	10%	57.11	1.24
7	50.89	19.74	9%	0.39	89.54	28%	109.28	2.15
Grand Total	**277.54**	**225.86**	**100%**	**0.81**	**317.70**	**100 %**	**543.56**	**1.96**

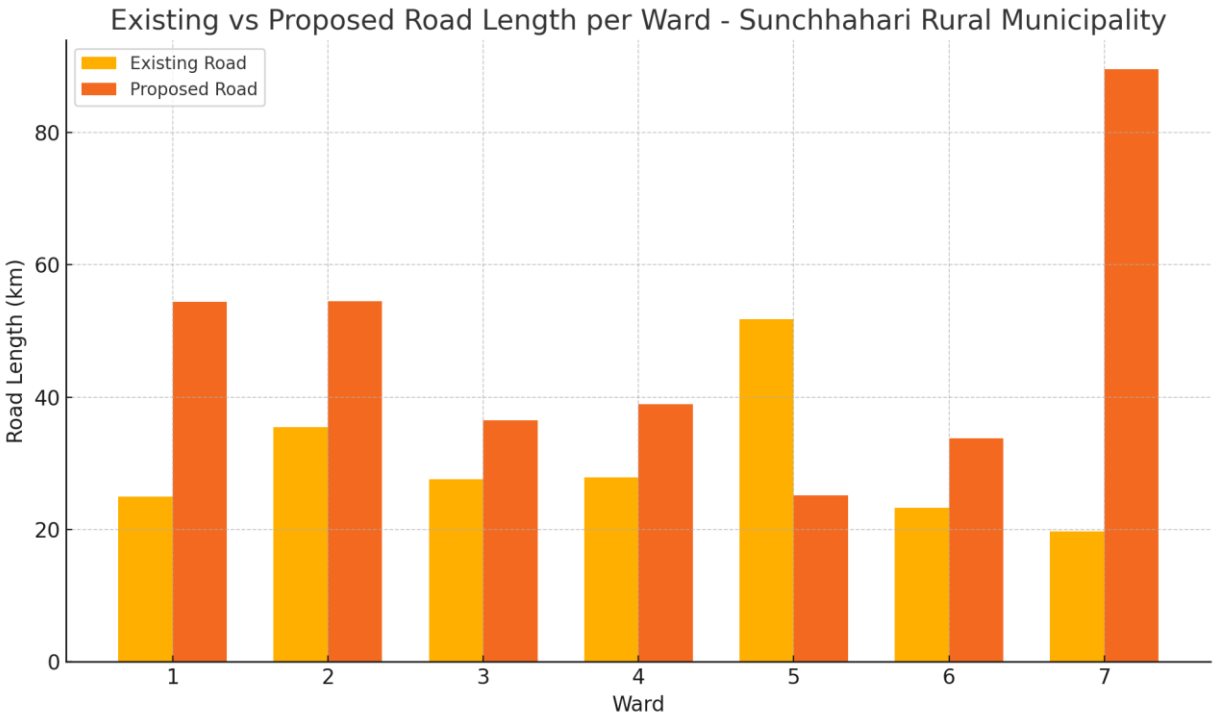

Figure 13 : Existing and Proposed Road distribution in Sunchhahari Rural Municipality

Sunchhahari Rural Municipality had developed a road network spanning 225.86 kilometers across its 277.54 km² area, as detailed in its R-MTMP. This network had been unevenly distributed across its seven wards, reflecting variations in geographic size, population, and economic priorities. Ward 5, the largest by area at 59.13 km², had the most extensive existing road network at 51.76 kilometers, accounting for 23% of the total. In contrast, Ward 7, with 50.89 km², had the smallest network at 19.74 kilometers, contributing only 9%. This disparity had underscored the need for targeted infrastructure investments to balance connectivity across the municipality.

Road density for existing roads had varied significantly by ward, highlighting differences in infrastructure coverage relative to area. Ward 2, the smallest by area at 20.96 km², had the highest existing road density at 1.77 km/km², driven by its 37.03 kilometers of roads, which supported tourism and agricultural activities. Ward 7, despite its large area, had the lowest density at 0.39 km/km², indicating underdevelopment in its transport infrastructure. The municipality's overall existing road density had been 0.81 km/km², reflecting a moderate level of coverage that lagged behind urban standards but was typical for rural, hilly regions like Rolpa.

The proposed road network, totaling 317.70 kilometers, had been a cornerstone of Sunchhahari's MTMP by 2024, aiming to nearly double the total road length to 543.56 kilometers. Ward 7 had been prioritized for the largest expansion, with 89.54 kilometers proposed, representing 28% of the total planned network. This focus had aimed to address its low existing density and improve access to remote settlements. Conversely, Ward 5, with an already extensive network, had the smallest proposed addition at 25.16 kilometers (8%), suggesting a shift in resources to less-developed wards. The proposed network had been designed to enhance connectivity to markets, schools, and health facilities, particularly in underserved areas.

Ward-level contributions to the proposed road network had revealed strategic priorities in Sunchhahari's R-MTMP. Ward 1, with 54.39 kilometers proposed (17%), had been a key focus, likely due to its moderate existing network (24.92 km) and large area (47.1 km²). Ward 2, with 53.02 kilometers (17%), had also been prioritized, leveraging its high existing density to further boost connectivity. Ward 3, with only 26.30 kilometers proposed (8%), had reflected its relatively developed existing network (37.79 km), requiring less expansion. These plans had been shaped by community needs and the potential for economic growth through tourism, particularly in wards with attractions like Sunchhahari Waterfall.

The total road density, combining existing and proposed roads, had been projected to reach 1.96 km/km² across Sunchhahari by 2024, a significant improvement from the existing 0.81 km/km². Ward 2 had been poised to achieve the highest total density at 4.30 km/km², driven by its compact area and substantial road network (90.05 km total). Ward 6, with a total of 57.11 kilometers, had the lowest projected density at 1.24 km/km², reflecting its large area (46.16 km²) and moderate road plans. This increase in density had been critical for improving access to essential services, though challenges like budget constraints and terrain had tempered expectations for full implementation.

Geographic and demographic factors had influenced the distribution of road infrastructure in Sunchhahari. Ward 5's large area and population (3,020) had justified its extensive existing network, but its low proposed additions suggested a focus on maintenance over expansion. Ward 7's large proposed network had aimed to overcome its isolation, where low existing density had limited economic opportunities. Ward 2's high density had been supported by its smaller area and proximity to tourist sites, making it a hub for connectivity. These patterns had highlighted the MTMP's goal of balancing development across diverse wards.

Challenges in achieving the proposed road network had been significant by 2025. The rugged terrain of Rolpa District, coupled with monsoon-related disruptions, had delayed construction, particularly in wards with steep gradients like Ward 6. Limited local expertise and funding had further constrained progress, as noted in regional infrastructure reports. Community contributions, such as labor for road maintenance, had been vital in sustaining existing roads, particularly foot trails in Ward 2. Despite these obstacles, the MTMP had laid a foundation for equitable growth, with proposed roads targeting underserved areas to reduce disparities.

The outcomes of Sunchhahari's R-MTMP had been transformative by 2025, with the existing network enhancing access to education, health, and markets, particularly in Ward 5. The proposed expansions, if realized, had promised to further integrate remote settlements, especially in Ward 7, fostering tourism and agriculture. The increase in total road density to 1.96 km/km² had positioned Sunchhahari as a model for rural connectivity in Lumbini Province, though sustained investment and community engagement had been essential for long-term success. The MTMP's focus on ward-specific needs had ensured a tailored approach to infrastructure development, addressing both immediate and future demands.

Table 3 : Distribution of Road Categories by Length in Sunchhahari Rural Municipality

Road Network	Existing Road	Proposed Road	Grand Total
District Road	47.77		47.77
Rural Municipality Road	178.09	317.70	495.79
Grand Total	**225.86**	**317.70**	**543.56**

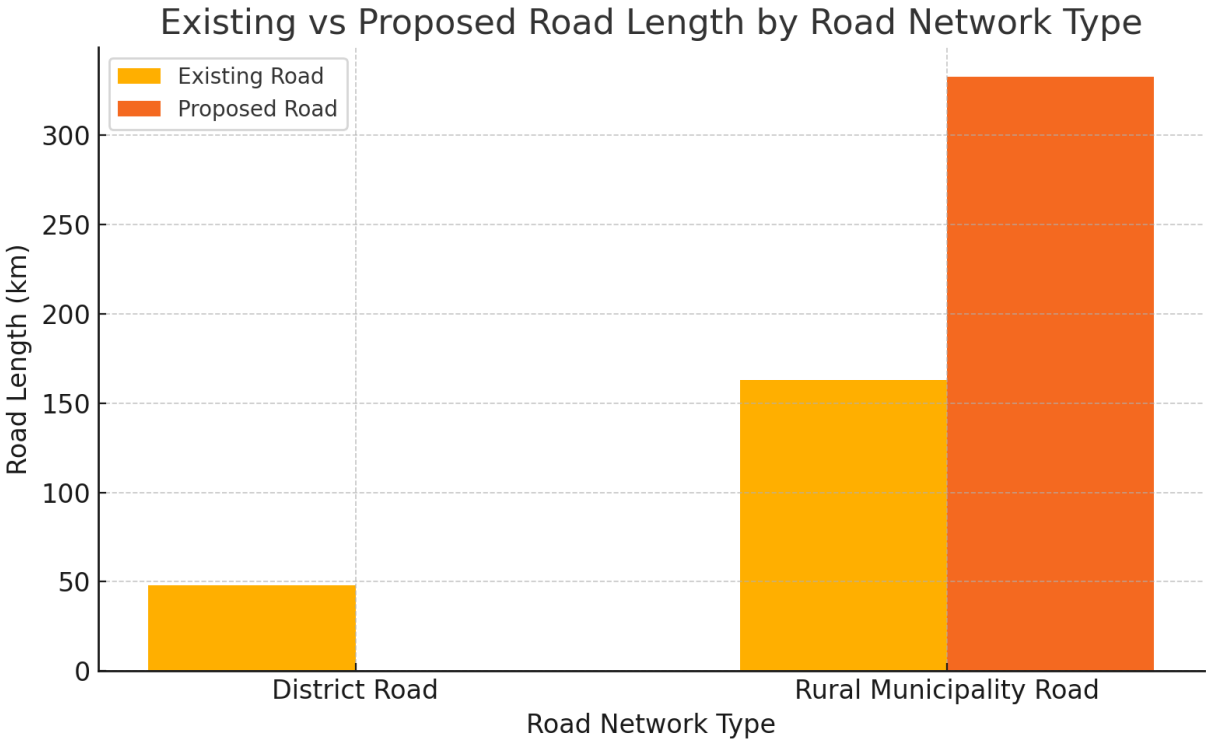

Figure 14 : Distribution of Road Categories by Length in Sunchhahari Rural Municipality

This chart categorizes the road network into District Roads and Rural Municipality Roads, giving a clear view of how road development is planned across different administrative levels. The focus is predominantly on the rural road network.

District Roads:

District roads account for 47.77 km of the existing road network. There are no proposed additions in this category, indicating that the district-level road network is either deemed sufficient or is outside the current project scope.

Rural Municipality Roads – Existing:

A major share of the current road infrastructure (178.09 km) falls under the Rural Municipality Roads. This underlines the municipality's responsibility in managing and maintaining intra-ward and local road connections.

Rural Municipality Roads – Proposed:

The most significant portion of the proposed development (317.70 km) is aimed at Rural Municipality Roads. This figure shows a strong commitment to improving local connectivity and addressing gaps in infrastructure within the community.

Total Contribution:

When combining both existing and proposed roads, Rural Municipality Roads will account for 495.79 km out of the 543.56 km total network — over 91% of the entire road infrastructure. This clearly reflects where the municipality is investing its resources.

Development Focus:

The lack of proposed work for District Roads suggests that the development strategy is localized, possibly due to budget constraints or jurisdictional boundaries. This aligns with the goals of decentralized planning.

Infrastructure Implications:

Once implemented, this road expansion will significantly improve accessibility to remote areas, support agricultural and economic activities, and enhance public service delivery within the municipality.

Planning Insight:

This also indicates that future maintenance responsibilities will predominantly lie with the local government, which will need appropriate planning for sustainability, budgeting, and manpower to support the newly expanded road infrastructure.

Implications for Urban and Transportation Planning:

The detailed assessment of existing and proposed road infrastructure in Sunchhahari Rural Municipality has several significant implications for urban and transportation planning. Firstly, the imbalance between existing and proposed roads—where over **63%** of the total planned network is still under proposal—highlights the urgent need for phased development strategies. This requires prioritizing areas with low road density such as **Wards 5 and 6**, where large geographical coverage is not yet adequately served by road infrastructure. Secondly, the dominance of Rural Municipality Roads (over 90% of the total network) underscores the importance of strengthening local-level road standards and maintenance capacity to ensure sustainability. Integrating transportation planning with settlement patterns and land use is also critical, especially in high-density wards like **Ward 2**, where infrastructure must support both current demand and future urban expansion. Moreover, the road development plan must be aligned with disaster resilience, climate adaptation, and environmental conservation, given the rural and hilly terrain of the municipality. Lastly, efficient road connectivity will directly influence access to education, health, and economic opportunities, making transportation

planning not just a technical concern but a key driver for inclusive development and improved quality of life in Sunchhahari.

6.3.2 Road Surface Type of Sunchhahari Rural Municipality

All Road are Earthen

6.3.3 Road Class Distribution

Table 4 : Road Classification Distribution

Road Class	Existing Road	%	Proposed Road	%	Grand Total
A Class Road Network	115.49	0.51	54.73	0.17	170.22
B Class ROad Network	44.67	0.20	70.84	0.22	115.51
C Class Road Network	34.85	0.15	113.30	0.36	148.15
D Class Road Network	7.83	0.03	63.69	0.20	71.52
Foot Trail	23.03	0.10	15.13	0.05	38.16
Grand Total	**225.86**	**1.00**	**317.70**	**1.00**	**543.56**

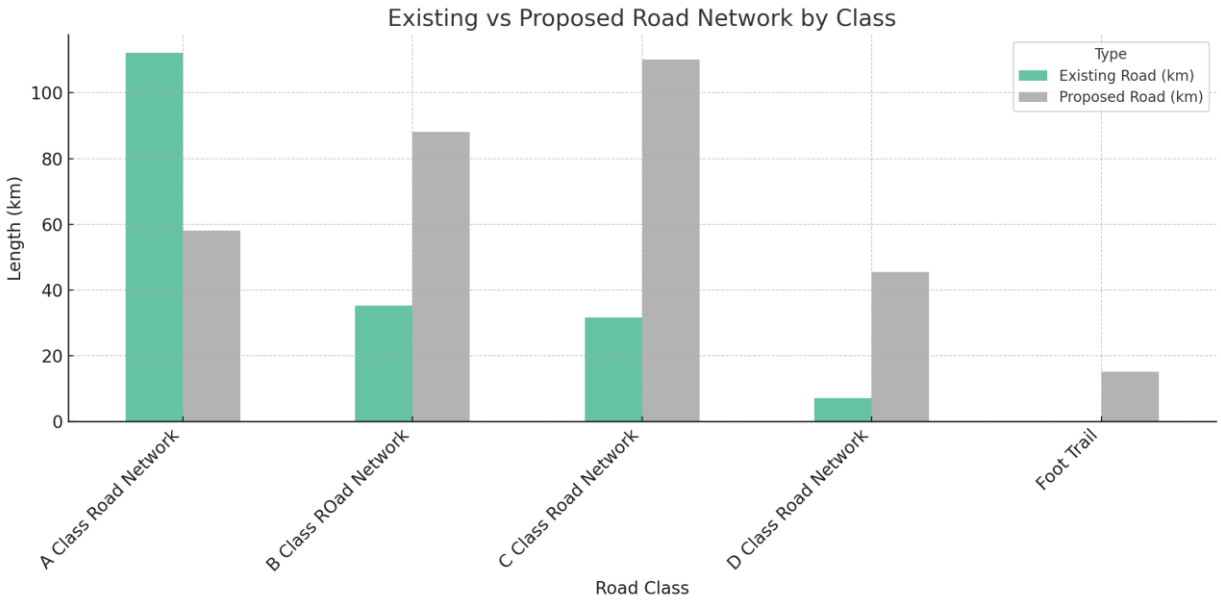

Figure 15 : Road Classification

The chart provides a comparative look at the various road classifications: A, B, C, and D class roads, along with Foot Trails. It helps visualize where the current infrastructure stands and where the proposed expansions are concentrated.

A Class Roads:

A Class Roads dominate the existing road network with 115.49 km, nearly half of the total. However, only 54.73 km is proposed for expansion, indicating this category is already well-developed and likely serves the primary transportation corridors in the municipality.

B Class Roads:

Currently at 44.67 km, B Class Roads have a more aggressive proposed extension of 70.84 km, nearly doubling the existing length. This indicates a significant effort to enhance mid-level connectivity within the municipality.

C Class Roads:

C Class Roads have one of the highest proposed expansions at 113.30 km, compared to the existing 34.85 km. This threefold increase highlights a major push to improve tertiary or neighborhood-level access, suggesting a focus on rural access and last-mile connectivity.

D Class Roads:

D Class Roads show a similar trend, increasing from 7.83 km existing to 63.69 km proposed. This massive rise indicates an underserved category where the municipality is actively trying to fill accessibility gaps in more remote or hilly areas.

Foot Trails:

Foot Trails, although not motorable, remain important for pedestrian connectivity in steep or forested regions. With 23.03 km existing and 15.13 km proposed, their continued inclusion in planning indicates the municipality's holistic approach to accessibility.

Development Focus:

The majority of proposed roads lie in the C and D classes, suggesting a bottom-up development approach. Rather than focusing only on major roads, the municipality is addressing fine-grained connectivity, which is vital for equitable development.

Infrastructure Planning Implications:

This diverse investment across all road classes — from A to Foot Trails — implies a strategic and inclusive road master plan. It aims to support mobility at all levels, from economic transport routes to basic pedestrian access, thereby enhancing overall resilience and reach of the road network.

6.3.4 Ward Wise Road Classification

Road Status	A Class Road Network	A Class Road Network Proposed	B Class ROad Network	B Class ROad Network Proposed	C Class Road Network	C Class Road Network Proposed	D Class Road Network	D Class Road Network Proposed	Foot Trail	Grand Total
Existing Road	**115.49**		**44.67**		**34.85**		**7.83**		**23.03**	**225.86**
1	8.46		7.33		3.86				5.27	24.92
2	15.98				3.28				17.76	37.03
3	17.26		17.15		1.70		1.67			37.79
4	17.32		5.31		3.46		1.75			27.85
5	28.13		5.25		14.69		3.68			51.76
6	13.20		5.01		7.86		0.73			26.79
7	15.12		4.61							19.74
Proposed Road		**54.73**		**70.84**		**113.30**		**63.69**	**15.13**	**317.70**
1		26.16		17.33		1.92		8.97		54.39
2		14.75		6.29		24.23		7.75		53.02
3		1.67		0.35		14.60		9.69		26.30
4				14.07		17.33		7.57		38.97
5						15.33		9.83		25.16
6		2.22		10.74		10.35		7.02		30.32
7		9.94		22.07		29.54		12.86	15.13	89.54
Grand Total	**115.49**	**54.73**	**44.67**	**70.84**	**34.85**	**113.30**	**7.83**	**63.69**	**38.16**	**543.56**

Sunchhahari Rural Municipality in Rolpa District, Lumbini Province, had established a comprehensive rural road network spanning 225.86 kilometers, as documented in its MTMP. This network had been critical for connecting the municipality's 17,241 residents across its 277.62 km² area, particularly in supporting agricultural and tourism activities. The existing infrastructure had included 115.49 kilometers of A-class roads, which served as primary routes linking major settlements and the administrative center in Jaimakasala. These roads had been complemented by 44.67 kilometers of B-class roads, 34.85 kilometers of C-class roads, 7.83 kilometers of D-class roads, and 38.16 kilometers of foot trails, ensuring connectivity to even the most remote areas.

The distribution of the existing road network across Sunchhahari's seven wards had reflected varying levels of infrastructure development by 2024. Ward 5 had the most extensive network, with 51.76 kilometers, including 28.13 kilometers of A-class roads and 14.69 kilometers of C-class roads, driven by its higher population of 3,020. Ward 3 followed with 37.79 kilometers, featuring a balanced mix of A-class (17.26 km) and B-class (17.15 km) roads. In contrast, Ward 7 had the smallest network at 19.74 kilometers, primarily A-class roads (15.12 km), indicating limited secondary infrastructure. Foot trails, critical for pedestrian access in hilly areas, had been most prominent in Ward 2 (17.76 km), supporting tourism to sites like Sunchhahari Waterfall.

A-class roads had dominated Sunchhahari's existing transport infrastructure by 2024, accounting for 51% of the total road length. These roads, totaling 115.49 kilometers, had been prioritized for their role in facilitating heavy traffic and connecting key economic hubs. Ward 5 had the largest share of A-class roads (28.13 km), reflecting its strategic importance, while Ward 1 had the smallest (8.46 km). The focus on A-class roads had been driven by the need to improve market access and reduce travel times, though maintenance challenges, particularly during monsoons, had persisted due to the region's rugged terrain.

B-class and C-class roads had played a secondary but vital role in Sunchhahari's transport network by 2024. B-class roads, spanning 44.67 kilometers, had been concentrated in Ward 3 (17.15 km) and Ward 5 (5.25 km), serving as feeder routes to A-class roads. C-class roads, totaling 34.85 kilometers, had been most extensive in Ward 5 (14.69 km) and Ward 6 (7.86 km), supporting local connectivity to smaller settlements. D-class roads, at just 7.83 kilometers, had been minimal, with Ward 5 (3.68 km) and Ward 3 (1.67 km) having the largest shares. These lower-class roads had often faced neglect in maintenance, impacting accessibility in remote wards.

Foot trails, extending 38.16 kilometers, had been a critical component of Sunchhahari's transport system by 2024, particularly for pedestrian and livestock movement in areas inaccessible by vehicles. Ward 2 had the longest foot trail network (17.76 km), followed by Ward 1 (5.27 km), reflecting their reliance on non-motorized transport for tourism and daily activities. These trails had been essential for connecting remote settlements to road networks, though their maintenance had been challenging due to erosion and limited funding. Community labor had often been mobilized to sustain these trails, highlighting local commitment to connectivity.

The MTMP had also outlined an ambitious plan for proposed roads, totaling 317.70 kilometers, to address gaps in connectivity by 2024. Proposed C-class roads had been the most extensive, at 113.30 kilometers, with Ward 7 (29.54 km) and Ward 2 (24.23 km) prioritized for expansion. B-class roads, proposed at 70.84 kilometers, had focused on Ward 7 (22.07 km) and Ward 1 (17.33 km), aiming to strengthen secondary routes. A-class roads (54.73 km) and D-class roads (63.69 km) had been planned to enhance primary and local connectivity, respectively, with Ward 1 leading in A-class proposals (26.16 km). Proposed foot trails (15.13 km) had been limited to Ward 7, indicating a shift toward motorized infrastructure.

Ward-level disparities in proposed road plans had been evident by 2024. Ward 7 had the largest proposed network (89.54 km), driven by extensive C-class (29.54 km) and B-class (22.07 km) plans, addressing its limited existing infrastructure. Ward 1 followed with 54.39 kilometers, focusing on A-class (26.16 km) and B-class (17.33 km) roads to bolster connectivity. Ward 5, despite its extensive existing network, had proposed only 25.16 kilometers, primarily C-class (15.33 km), suggesting a focus on local enhancements. Ward 3 had the smallest proposed network (26.30 km), reflecting its relatively developed existing infrastructure.

The proposed road network had aimed to transform Sunchhahari's transport landscape by addressing connectivity challenges and promoting economic growth. The emphasis on C-class and D-class roads had indicated a commitment to reaching underserved settlements, particularly in wards 4 and 7, where existing infrastructure was limited. However, challenges such as budget constraints, skilled labor shortages, and monsoon-related delays had posed risks to implementation, as noted in regional infrastructure reports. Community engagement and strategic budget allocations had been critical to advancing these plans, setting the stage for improved access to education, health services, and markets by 2025

6.4 Traffic Volume Study

Generally, traffic volume studies have been done for establishment of relative importance of road. It helps to decide the priority of improvement and expansion of roads and to allocate funds accordingly. It will also help in the analysis of traffic patterns. Inventory of road traffic, physical features has been done by use of GPS, GIS Maps and manual vehicle counting method. This method has identified traffic volume as well as vehicle classification.

Mostly, People from the area has made trip by walking. Besides this people are using motorbikes as a trip option due to less availability of public vehicles in urban areas.

6.4.1 Traffic Vehicle Count

The traffic vehicle count per hour has been done at the following stations, all these vehicle counting points, motorcycles have been recorded as the dominant vehicles among others. The summary of the survey is given through the figures mentioned below.

Table 6-5 : Location and Route for Vehicular Count

SN	Count station name	Location	Name of Road Linkage
1	Pobang Station	Ward no 5, Sunchhahari Rural Municipality	A005_Sulichaur - kasala - pobang - uwa - thawang sadak
2	Jelbang	Ward 7, Sunchhahari Rural Municipality	A006_Salghari - hamja - jelbang - sadak

Station	Motorcycle	Jeep	Tractor
Pobang Station	30	6	7
Jelbang Station	10	5	6

Pobang Station and Jelbang Station serve as important transport hubs within Sunchhahari Rural Municipality. Based on the data collected, Pobang Station supports a higher volume of vehicles compared to Jelbang. Specifically, Pobang has a notably higher number of motorcycles, indicating a heavier reliance on two-wheelers for mobility, likely due to affordability and terrain adaptability.

Jelbang Station, while smaller in vehicle count, still maintains a healthy number of utility vehicles. The difference in jeep and tractor numbers between the two stations is minimal, suggesting that both areas engage in similar logistical or agricultural activities that require such vehicles. However, Jelbang's lower motorcycle count may imply either lesser connectivity or a smaller commuting population.

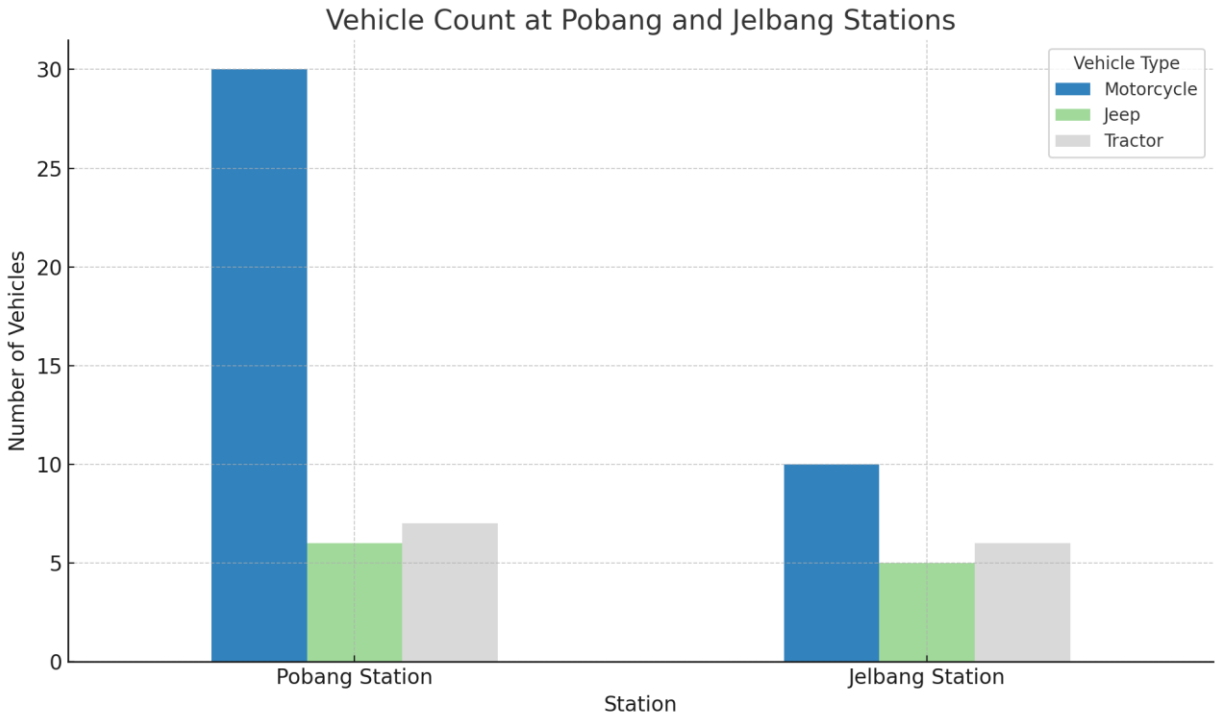

Figure 16 : Vehicle Count at Pobang and Jelbang Station

The chart clearly illustrates the disparity in motorcycle usage between the two stations. Pobang's 30 motorcycles compared to Jelbang's 10 marks a significant gap, which could be attributed to infrastructure development, population density, or economic factors. On the other hand, jeep and tractor usage is almost at par, reinforcing their role in transportation and farming regardless of the station size.

This vehicle data not only helps understand local mobility patterns but also offers a glimpse into the infrastructure needs of each station. Pobang may benefit from improved roads to support high motorcycle usage, while Jelbang's consistent numbers across all vehicle types point to a balanced but potentially underserved transportation network. These insights can help in targeted rural development planning and road network

6.4.2 Origin and Destination Survey

The main purpose of transportation is to connect farmland, market centers and other service centers. Among the total respondents of 40 respondents of Origin and Destination Survey, 11 (27.5%) reported agricultural chores as the primary reason of using roads followed by 7 (17.5%) respondents who mentioned that they chiefly travel for education purposes. Similarly, 5 (7.5%) respondents reported to have used roads to acquire health related services.Likewise, 8 (20%) respondents reported that they regularly travel to go to market for groceriesIn the same way

another 4(10%) respondents happened to use road for business and commerce, 2(5%) for tourism purpose and the remaining 3(7.5%) use roads for other purposes.

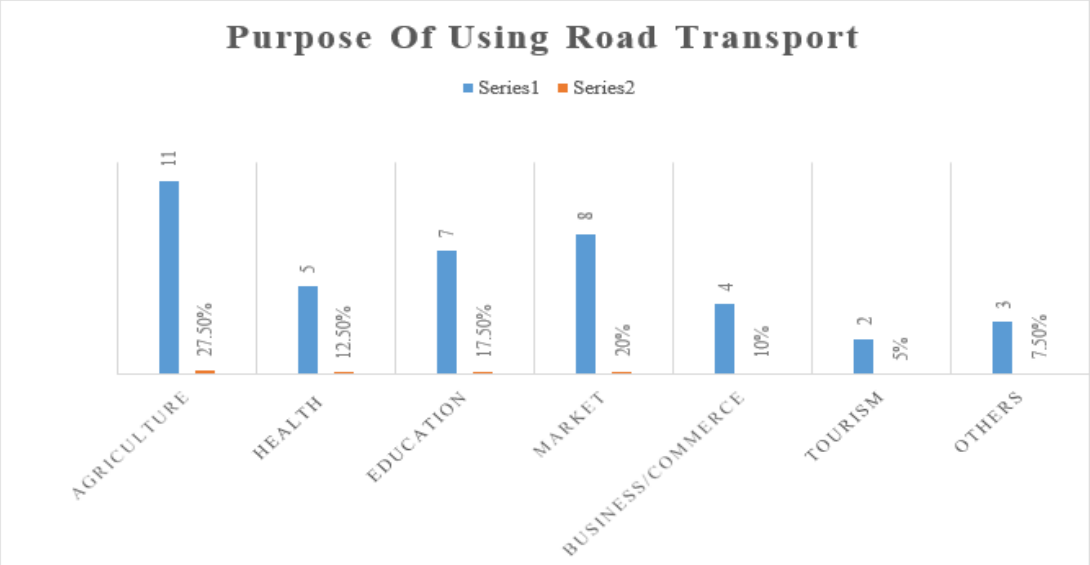

Figure 6-17 : Purpose of Using Transportation

6.4.3 Mode choice

People choose the mode of transportation as per their convenience and their requirement. Different factors like purpose and necessity affect the mode choice. In most of cases, people have preferred walking to reach to the market center within wards. Use of modes of public transport like bus and jeep have been used for shuttling purpose from one destination to the other. Trucks and some public/private jeeps are used for transferring day to day commodities including groceries, garments, construction materials etc from the adjoining cites and taking away locally produced agricultural and livestock related goods to other areas while jeeps are used to carry or transfer people as well for private purposes. Motorbikes are the dominant form of transportation in each of the road of this Rural Municipality. Significant number of tractors also facilitate transportation of construction and agricultural goods from the production area/quarries to the nearby market centers or settlements. Different factors affect the mode choice. Some of them are:

- Household characteristics
- Zone characteristics
- Residential density, rate of urbanization
- Accessibility
- Vehicle ownership

- Quality of local public transit
- Purpose of travel, nature of work
- Travel time, cost, and distance

6.4.4 Active and Passive Transport User

Active transport is also called Non-Motorized Transport, NMT and human powered transport It refers to walking, cycling, and variants such as wheelchair, scooter and handcart use. It includes both utilitarian and recreational travel activity, plus stationary uses of pedestrian environments such as standing on sidewalks and sitting at bus stops (Litman, 2015). The passive transport users refer to travel by buses, cars etc. The sample survey shows that nearly 40 % or above of the daily trips are done via active mode of transport. Active mode of transport is beneficial in many aspects: this mode can be used by people of any age group irrespective of gender and economic status, it consumes human energy and does not depend on fossil fuel, and it is environment friendly and provides many health benefits to the user.

6.4.5 Public Transportation

In Sunchhahari Rural Municipality, the presence of an extensive road network, including municipal roads, highways, and district roads, significantly enhances accessibility and connectivity within the region. Despite this well-developed infrastructure, the use of public transportation for daily trips remains largely confined to the Feeder Highway and district roads. The municipal roads, though numerous and crucial for intra-municipal connectivity, do not currently support a formal public transportation system.

The primary mode of mobility for residents along these municipal roads is either privately owned vehicles or walking. This is due to several factors, including the lack of defined public transportation routes, schedules, and the reliability of existing services. The absence of a comprehensive and structured public transportation system on these municipal roads means that many residents find it challenging to rely on public transit for their daily commutes.

To address these challenges and enhance the overall transportation system in Sunchhahari, several strategic interventions are necessary:

- Expanding Public Transport Routes: Introduce formal public transportation routes along municipal roads. This expansion would ensure that residents in various wards have access

to reliable and convenient public transport services, reducing the reliance on private vehicles.

- Establishing a Defined Schedule and Improving Reliability: Implement a clear timetable for public transportation services, ensuring that buses and other public transport vehicles operate on a predictable and reliable schedule. This would make public transport a more viable and attractive option for daily commuters.

- Improving Service Quality and Infrastructure: Invest in the quality of public transportation services, including the safety, cleanliness, and comfort of vehicles. Additionally, developing supporting infrastructure such as bus stops, shelters, and information systems would enhance the overall user experience.

- Sustainable Transportation Planning: Develop a long-term transportation master plan that incorporates sustainable practices, aiming to reduce traffic congestion, lower environmental impact, and promote public health. This plan should prioritize public transportation, walking, and cycling as key components of the Rural Municipality's mobility strategy.

- Public Awareness and Engagement: Conduct awareness campaigns to inform residents about the benefits of using public transportation and engage with the community to gather feedback and ensure that the transportation system meets their needs.

By implementing these measures, Sunchhahari Rural Municipality can establish a more sustainable and reliable public transportation system. This transformation would not only improve mobility for all residents but also help control the increasing number of private vehicles, thus contributing to a more livable and environmentally friendly urban environment. The success of such interventions would ultimately depend on careful planning, adequate investment, and continuous monitoring and improvement of the transportation services provided.

6.4.6 Safety Status and Issues

Road Safety:

Sunchhahari Rural Municipality has seen improvements in road infrastructure, with a significant network of highways, district roads, and municipal roads. However, several road safety issues persist:

Traffic Congestion: With an increasing number of private vehicles, particularly motorcycles and cars, traffic congestion is a growing concern. This congestion often leads to delays and increases the risk of accidents, especially during peak hours.

Lack of Pedestrian Facilities: Many roads in Sunchhahari lack adequate pedestrian facilities such as sidewalks, crosswalks, and pedestrian signals. This forces pedestrians to walk on the roads, increasing the risk of accidents.

Inadequate Road Markings and Signage: Many roads lack clear markings and adequate signage, which can lead to confusion and accidents. The absence of speed limit signs, warning signs, and directional signs are notable issues.

Poor Road Conditions: Some roads are in poor condition, with potholes, uneven surfaces, and inadequate drainage. These conditions are hazardous for all road users, particularly for two-wheelers.

Public Transportation Safety:

The limited public transportation options available in Sunchhahari have their own set of safety concerns:

Overcrowding: Buses and other public transportation vehicles often get overcrowded, especially during peak hours. This not only reduces comfort but also increases the risk of accidents and injuries.

Vehicle Maintenance: Many public transport vehicles are poorly maintained, leading to frequent breakdowns and accidents. Ensuring regular maintenance and inspections is crucial for safety.

Driver Behavior: The behavior and skill level of public transport drivers can be inconsistent. Issues such as speeding, reckless driving, and non-compliance with traffic rules are common and need to be addressed through better training and enforcement.

Emergency Response and Medical Facilities:

Effective emergency response is critical for addressing accidents and medical emergencies:

Emergency Services Accessibility: While there are some emergency services available, their accessibility and response times can be inconsistent. Enhancing the capacity and response time of these services is crucial.

Medical Facilities: The availability and quality of medical facilities and trauma care centers near accident-prone areas are vital for improving post-accident care. Ensuring that hospitals are well-equipped to handle emergency cases is necessary.

Safety of Vulnerable Road Users:

Vulnerable road users, including children, elderly people, and cyclists, require special attention:

School Zones: Safety around schools needs improvement, with better traffic management and pedestrian facilities to ensure the safety of children.

Cyclist Safety: Cyclists face significant risks due to the lack of dedicated cycling lanes and the general road conditions. Promoting cycling safety through dedicated lanes and awareness campaigns can help mitigate these risks.

Enforcement and Education:

Enforcing traffic laws and educating the public on road safety are essential components of a safe transportation system

Traffic Law Enforcement: Strengthening the enforcement of traffic laws, including penalties for violations such as speeding, drunk driving, and not wearing seat belts or helmets, is crucial.

Public Awareness Campaigns: Educating the public about road safety, safe driving practices, and the importance of following traffic rules can help reduce accidents. Public awareness campaigns can be conducted through schools, community centers, and media outlets.

Infrastructure Development and Maintenance:

Continuous development and maintenance of road infrastructure are necessary for ensuring long-term safety:

Road Expansion and Upgradation: Expanding and upgrading existing road networks to accommodate increasing traffic and improve safety features is essential.

Regular Maintenance: Implementing a regular maintenance schedule for all roads to address issues such as potholes, worn-out markings, and inadequate drainage can significantly enhance road safety.

By addressing these safety issues comprehensively, Sunchhahari Rural Municipality can create a safer and more efficient transportation environment for all its residents. Prioritizing infrastructure development, enforcement of traffic laws, and public education on road safety are key steps towards achieving this goal

6.5 Parking Space

Parking space is one of the major components of transport management. Unlike in urban areas human activities and traffic intensity is not that congested in this Rural Municipality. Therefore, parking space has yet not been a serious problem so far but some sorts of problemshave been faced during the major local feasts and festivals (Jatra). However systematicparking spaces and bus bays will be necessary for future expansion zones.

6.6 Bus parks and Bus terminals

As in the case of parking space there are no systematically planned bus terminal as well as proper bus parks in the Rural Municipality but at least necessity of systematic bus terminal has been felt strongly. Likewise, where there is possibility of road transport services some stop over, resting sheds, and public toilets need to be constructed. Similarly, following are the proposed bus stop (yatru pratikchyalaya) of various roads acrossSunchhahari Rural Municipality.

6.1 Helipad

At least one Helipad in each ward is required for the emergency cases. The main roads shouldbe accompanied by at least a cycle lane and foot path.

6.2 Drainage System

Good drainage system is an internal part of road management. Often hilly areas in the Rural Municipality provide natural drainage of water but if it is not installed and maintainedaccording to the standard specifications, chances of massive soil erosion and even landslides are extremely high. Similarly, lack of drainage triggers damages in the roads increasing the cost of maintenance. Such unsustainable development leads to environmental destruction and regular obstacles during vehicular movement. Almost all of the roads in the Rural Municipality except

in some quarters lack side drains. Therefore, construction and maintenance of drainage is equally important as the construction and maintenance of roads.

6.3 Road Furniture

Different sorts of objects which are installed in several places of a road to improve smoothness of travel and ensure safety are collectively called road furniture. They include objects like street light, lane signs, zebra crossing, all kinds of traffic signals, milestones, traffic barriers, bus stands, and passenger's lot etc. These objects enhance the aestheticdimension of the roads in one hand and improve the safety of travel on the other. Theyequally provide comfort to pedestrian and control and regulate the traffic. Even very basicroad furniture is seem to be missing in most of the roads in this Rural Municipality. Therefore, installing road furniture after the completion of major construction is essential.

Figure 6-18 : Road Furniture

Chapter 7 Forecast and Planning

This clause basically deals with future projection of population and vehicle along with allocation of potential development areas. It also formulates the hierarchy of urban roads with for proposed different class of roads. It has considered the relationship of land use and future transportation planning. It also deals with various infrastructure planning and how they will help to enhance the mobility and accessibility scenario. Finally, it covers the aspect of short term and long-term urban road network and transportation planning.

The **Rural Municipal Transport Master Plan (RMTMP)** for **Sunchhahari Rural Municipality** serves as a strategic framework aimed at guiding the development, maintenance, and sustainability of transportation infrastructure over the medium to long term. This plan is essential for improving connectivity, enhancing local economic development, and ensuring equitable access to services in the rural and often topographically challenging regions of Sunchhahari

Forecasting in the RMTMP involves predicting future transportation needs based on population growth, settlement expansion, economic activities (like agriculture and tourism), and vehicle ownership trends. For Sunchhahari, data suggests a gradual increase in mobility demands, with more residents relying on motorcycles and light vehicles such as jeeps. Tractor usage also reflects the area's agrarian economy. These trends are forecasted to rise, thus requiring roads that are not only expanded but also upgraded in quality to withstand usage across all seasons. Geographic Information System (GIS) mapping, vehicle registration data, and community consultations are typically used to forecast these needs accurately.

7.1 Population Distribution in 2011 AD

Table 7-1 : Ward Wise Population Distribution 2011

Ward	Male	Female	Total	Percentage	Area (Sqkm)	Density
1	921	1,051	1,972	12.30%	6.13	321.653
2	906	1,106	2,012	12.55%	8.51	236.482
3	937	1,057	1,994	12.44%	2.74	727.080
4	796	924	1,720	10.73%	1.55	1108.055

Ward	Male	Female	Total	Percentage	Area (Sqkm)	Density
5	1,418	1,602	3,020	18.83%	0.67	4493.840
6	1,075	1,345	2,420	15.09%	1.01	2403.536
7	1,381	1,515	2,896	18.06%	1.98	1461.466
Total	**7,434**	**8,600**	**16,034**	**100.00%**	**22.594065**	**709.655**

The 2011 population data for **Sunchhahari Rural Municipality** reveals a total population of **16,034**, with **7,434 males** and **8,600 females**, highlighting a gender ratio tilted slightly in favor of females. The municipality is divided into seven wards, each displaying unique demographic and spatial characteristics. The distribution of the population is relatively balanced, but with noticeable concentration in certain wards. This kind of distribution plays a crucial role in local planning, especially for infrastructure, public services, and transportation networks.

Ward 5 stands out with the highest population of **3,020 people**, accounting for **18.83%** of the total population, yet occupying the smallest area (**0.67 sq km**). This results in an exceptionally high population **density of 4,493.84 persons per sq km**, indicating significant crowding and a high demand for transport infrastructure, housing, water supply, and waste management services. **Ward 6** and **Ward 7** follow in population size, both exhibiting relatively high densities as well—**2,403.54** and **1,461.47 persons per sq km**, respectively—reflecting a similar need for robust road infrastructure and mobility solutions.

On the opposite end, **Ward 2 and Ward 1**, though among the largest in area (8.51 and 6.13 sq km respectively), have much lower population densities of **236.48** and **321.65 persons per sq km**. These sparsely populated areas likely contain dispersed settlements, making transportation access more challenging. The infrastructure planning here must focus on connectivity improvements through **feeder roads, rural tracks, or foot trails**, helping bridge the physical divide between homes, markets, schools, and health facilities.

Overall, the 2011 demographic and spatial data presents a foundational snapshot for infrastructure planning. It underlines the varying needs across wards—some demanding capacity upgrades due to urban-like density, others needing strategic road extensions to link isolated areas. These insights are key in shaping a **targeted, equitable Rural Municipal Transport Master**

Plan (RMTMP), ensuring that both densely populated centers and remote, low-density settlements are adequately connected for balanced rural development.

7.2 Demographic Distribution in 2021 AD

Table 7-2 : Ward Wise Population Distribution 2021

Ward	Male	Female	Total	Percentage	Area (Sqkm)	Density
1	1,025	1,041	2,066	11.98%	6.131	336.986
2	1,082	1,088	2,170	12.59%	8.508	255.053
3	1,112	1,132	2,244	13.02%	2.742	818.238
4	821	1,025	1,846	10.71%	1.552	1189.227
5	1,653	1,725	3,378	19.59%	0.672	5026.554
6	1,134	1,366	2,500	14.50%	1.007	2482.992
7	1,463	1,574	3,037	17.61%	1.982	1532.622
Total	8,290	8,951	17,241	100.00%	22.594	763.076

The 2021 population data of **Sunchhahari Rural Municipality** reveals a total population of **17,241**, showing a noticeable increase from 2011 (which recorded 16,034). This growth of over 1,200 people within a decade indicates a modest but steady population rise. Of this total, **8,951 are female** and **8,290 are male**, maintaining a slight gender imbalance similar to 2011. This updated demographic distribution provides critical input for planning services, especially education, healthcare, and transportation, under the framework of the **Rural Municipal Transport Master Plan (RMTMP).**

Among the seven wards, **Ward 5** continues to have the highest population, increasing to **3,378** residents (up from 3,020 in 2011), while still covering just **0.672 sq km** of land. As a result, the population **density has surged to 5,026 persons per sq km**, making it the most densely populated ward in the municipality. This kind of extreme density intensifies the demand for urban-style infrastructure, such as improved internal road networks, pedestrian walkways, and proper drainage systems. It also signals the need for decongestion strategies and potentially decentralized development to balance the load on services.

In contrast, **Ward 2 and Ward 1**, with larger land areas (8.508 and 6.131 sq km respectively), have lower population densities of **255.05** and **336.99 persons per sq km**. These figures imply scattered settlements and potentially difficult terrain, where transportation challenges include poor road access and long travel times. The RMTMP for these wards must emphasize road extension, upgrading existing rural roads, and possibly integrating alternative transport modes like foot trails or seasonal tractor routes to improve accessibility.

Wards such as **Ward 6** and **Ward 7**, which fall in between in terms of area but have large populations (**2,500 and 3,037 people**, respectively), exhibit high densities (2,482.99 and 1,532.62). These areas may be semi-urban in character, requiring both expansion and enhancement of existing roadways. The 2021 data overall suggests growing infrastructure pressure in densely populated wards and underscores the importance of data-driven, ward-specific strategies in the RMTMP. A balanced transport plan must address both high-density efficiency and low-density connectivity to ensure inclusive and sustainable rural development.

7.3 Change in Demographic (2011 – 2021)

Between **2011 and 2021**, Sunchhahari Rural Municipality experienced noticeable demographic shifts that have significant implications for local planning and development. The total population increased from **16,034 in 2011** to **17,241 in 2021**, representing a **growth of approximately 7.5%** over the decade. This growth, while moderate, reflects gradual urbanization, improved access to services, and possibly natural population increase in the region. The number of females increased from **8,600 to 8,951**, and males rose from **7,434 to 8,290**, maintaining a consistent gender structure with a slight female majority.

The population distribution across wards also saw meaningful changes. **Ward 5** remained the most populated ward, growing from **3,020 to 3,378**, which also led to a further rise in its already high population density—from **4,493.84 to 5,026.55 persons per sq km**. Such growth in a very small geographic area (only 0.672 sq km) suggests increasing pressure on infrastructure, housing, and public services. Similar population growth trends can be seen in **Ward 6 and Ward 7**, both of which crossed the 2,500 mark in total population by 2021, reflecting growing settlement concentration in these areas.

On the other hand, low-density wards like **Ward 1 and Ward 2** witnessed population increases, but their densities remained relatively low due to their larger land area. These wards experienced small but steady growth, with Ward 1 increasing from **1,972 to 2,066** and Ward 2 from **2,012 to**

2,170. This continued pattern of dispersed population highlights the need for improved road connectivity and public transportation to ensure that residents in sparsely populated areas can access central services with ease.

Overall, the demographic changes between 2011 and 2021 emphasize a shift toward higher densities in already populated zones, with slower growth in rural peripheries. These trends underscore the importance of tailoring the **Rural Municipal Transport Master Plan (RMTMP)** to both expanding and densifying areas—prioritizing road capacity upgrades and infrastructure reinforcement in densely populated wards, while focusing on connectivity and accessibility in low-density, remote zones.

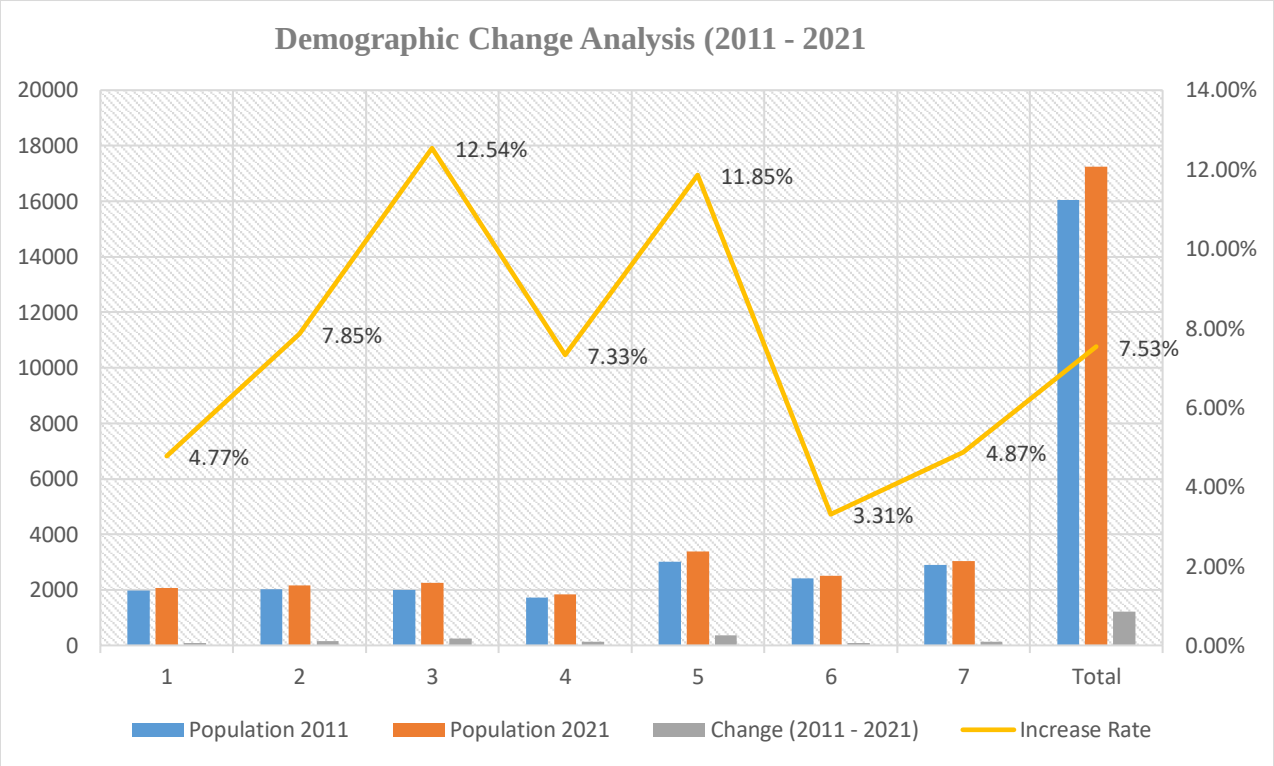

Figure 19 : Ward Wise Demographic Change From 2011 - 2021 AD

Table 3 : Change Analysis in Demographic (2011 - 2021)

Ward	Population 2011			Population 2021			Change (2011 -2021)			Change Rate	Change Rate Per Year	Forecast change Rate
	Male	Female	Total	Male	Female	Total	Male	Female	Total			
1	921	1051	1972	1025	1041	2066	104	-10	94	4.77%	0.48%	0.48%
2	906	1106	2012	1082	1088	2170	176	-18	158	7.85%	0.79%	0.79%
3	937	1057	1994	1112	1132	2244	175	75	250	12.54%	1.25%	1.25%
4	796	924	1720	821	1025	1846	25	101	126	7.33%	0.73%	0.73%
5	1,418	1602	3020	1653	1725	3378	235	123	358	11.85%	1.19%	1.19%
6	1,075	1345	2420	1134	1366	2500	59	21	80	3.31%	0.33%	0.33%
7	1,381	1515	2896	1463	1574	3037	82	59	141	4.87%	0.49%	0.49%
Total	7,434	8600	16,034	8290	8,951	17,241	856	351	1,207	7.53%	0.75%	0.75%

7.4 Population Projection

To project the population of Sunchhahari Rural Municipality over the next 20 years, we will utilize the geometric mean method, which accounts for the compound growth rate observed in the past decade. This method is particularly suitable for population projections as it smooths out annual variations and provides a more stable long-term growth estimate. Based on the observed average annual growth rate of 0.75 % per year from 2011 to 2021, we can apply this rate to forecast future population levels. The geometric mean method will help us calculate the population for each year, considering the compounded effect of growth, providing a realistic projection that can be used for strategic planning.

Using the geometric mean method, the population of Sunchhahari Rural Municipality is expected to continue its upward trajectory, influenced by ongoing urbanization and development trends. Given the average annual growth rate, the population could potentially double in approximately 32 years. However, focusing on a 20-year horizon, we anticipate that the population will increase significantly, impacting infrastructure, housing, and public services. This projection underscores the importance of proactive planning in the Rural Municipality Transportation Master Plan. It will ensure that the transportation infrastructure is scalable and capable of supporting the growing population, promoting sustainable development, and enhancing the quality of life for all residents. By forecasting population growth accurately, Sunchhahari Rural Municipality can better prepare for future demands, making informed decisions about investments in transportation, public services, and urban development initiatives.

By using this method, Assuming that ward wise average increase rate of population by 0.75 % each year which is shown in the table below :

$$\mathbf{P_n = P\ (1+ I_G/100)^{\wedge n}}$$

Where, I_G = geometric mean (%)

P = Present population

n = no. of year.

P_n=population at the end of nth year

7.4.1 Ward wise Demographic projections (Next 10 yrs.)

Table 7-4 : Ward Wise Population Forecast for Next 10 yrs.

					Projected Population									
Ward	**population 2011**	**Population 2021**	**Change Rate**	**Fore Cast Change Rate Per Year**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
1	1972	2066	4.77%	0.75%	2082	2097	2113	2129	2145	2161	2177	2193	2210	2227
2	2012	2170	7.85%	0.84%	2188	2206	2225	2243	2262	2281	2300	2319	2339	2358
3	1994	2244	12.54%	0.27%	2250	2256	2262	2268	2275	2281	2287	2293	2299	2305
4	1720	1846	7.33%	8.28%	1999	2164	2343	2537	2747	2974	3221	3487	3776	4088
5	3020	3378	11.85%	7.12%	3618	3876	4152	4447	4764	5103	5466	5855	6271	6717
6	2420	2500	3.31%	0.61%	2515	2531	2546	2562	2578	2594	2610	2626	2642	2658
7	2896	3037	4.87%	0.73%	3059	3082	3104	3127	3150	3173	3197	3220	3244	3268
Grand Total	**16,034**	**17241**	**7.53%**	**1.55%**	**17712**	**18212**	**18746**	**19314**	**19920**	**20567**	**21257**	**21993**	**22780**	**23622**

7.4.2 Traffic Forecast

Transportation forecasting is the process of estimating the number of people or vehicles that will use a specific transportation facility. Hence, it will provide benchmarks for developing overall transportation policy, planning, design and operation for efficient mass mobility and transportation system.

The transport infrastructure and facilities pave the path for the development of the area. Thus, the existing trend of the infrastructures development and land use are considered to plan the transport facilities requirements in the future. In the planning process of the transport infrastructures, projection of the traffic is the most crucial factor. Traffic forecasting for planning projects determines the required number of lanes and road width to meet the future anticipated traffic demands. Transportation demand will depend upon demographic and geographic factors, including population size and age, economic and employment growth, urban road network, operating conditions, and land use policy, including cost of travel.

Thus, the data collected during the study is used for forecasting the traffic in the Rural Municipality. Present day traffic can be interpreted based on OD survey. To forecast the traffic flow, it is assumed that about 50 to 60% of the population make the daily trips. The projected traffic is based on extreme case of population.

Table 7-5: Traffic Forecast

Projection			**Daily Trip, Mode Share**						
Year (B.S.)	Projected Population	Trip Maker	Auto Tempo	Bicycle	Motorcycle	Car/Jeep	Public Vehicle	Walking	Total
Assume	%	50	11	20	25	6	8	30	100
2082	19314	9,657	1062	1931	2414	579	773	2897	9657
Assume	%	54	9	21	26	7	9	28	100
2083	19,920	10,757	968	2259	2797	753	968	3012	10757
Assume	%	56	8	22	27	8	10	25	100
2084	20,567	11,517	921	2534	3110	921	1152	2879	11517
Assume	%	58	7	24	28	9	12	20	100
2085	21,257	12,329	863	2959	3452	1110	1479	2466	12329
Assume	%	59	6	25	30	10	14	15	100
2086	21,993	12,976	779	3244	3893	1298	1817	1946	12976
Assume	%	60	6	28	31	11	15	9	100
2087	22,780	13,668	820	3827	4237	1504	2050	1230	13668

Between the fiscal years **2082 to 2087 B.S.**, Sunchhahari Rural Municipality witnessed a significant transformation in transportation behavior and trip-making patterns, as reflected in the projected daily trip data. The population steadily increased from **19,314 in 2082** to **22,780 in 2087**, and as a result, the number of daily **trip makers grew from 9,657 to 13,668** within just five years. This growth not only reflected demographic expansion but also a rapid rise in mobility needs among residents, requiring a diverse and robust transportation system.

The **mode share** over this period showed a clear shift toward motorized and personal transport options. In **2082**, walking was the most common mode of travel, with **30% of trips made on foot**, followed by motorcycles at **25%**, and bicycles and auto tempos holding smaller shares. However, by **2087**, walking had dropped dramatically to just **9%**, while motorcycles rose to become the dominant mode at **31%**, and bicycles also saw growth to **28%**. This shift indicated a changing lifestyle, improved road conditions, and increased access to personal mobility tools such as two-wheelers and bicycles.

Public and private motor vehicles also became increasingly important. Car/jeep trips increased from **6% in 2082** to **11% in 2087**, while **public vehicle use nearly doubled from 8% to 15%**. These trends suggested a growing reliance on both private and public motorized transport, likely influenced by better road connectivity and rising income levels. The increase in public vehicle use also hinted at a potentially successful implementation of rural transport services or shared commuting systems during this period.

Overall, the transportation trends between 2082 and 2087 painted a picture of rapid motorization and urbanization within Sunchhahari. Non-motorized travel modes such as walking saw a consistent decline, replaced by motorcycles, bicycles, and cars. These developments emphasized the need for forward-looking infrastructure planning, especially through the **Rural Municipal Transport Master Plan (RMTMP)**, to accommodate rising vehicle volumes, enhance safety, reduce congestion, and integrate sustainable modes like cycling alongside public transport investments.

Chapter 8 Formulation of Road Network Hierarchy

Urban roads facilitate a variety of functions, including as a direct access to pedestrian and bicycle paths, bus routes and catering for through traffic. Many roads serve more than one function and to varying degrees, but 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.

An urban road hierarchy is a means of defining that each roadway in terms of its function along with appropriate objectives. Roadway can be setup and appropriate design criteria can be implemented. It is an important tool for 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-planned road hierarchy will reduce overall impact of traffic by concentrating longer distance flow onto routes in less sensitive locations, ensuring land uses and activities. These networks are incompatible with traffic flow and restricted from routes where traffic movement should predominate and preserving areas where through traffic is discouraged.

There are some different levels of road hierarchy in India and Nepal Such as:

- Indian Road Congress (IRC) has classified urban roads into four class: Arterial, Sub-Arterial, Collector and Local Street.
- NRS 2070 has classified road in four types that includes Class I, II, III and IV roads based on technical/functional classification and highlight the fact that these classes are almost equivalent with expressways, arterial roads, collector roads and local roads respectively.
- NURS 2076 has classified urban roads into five categories, i.e., Expressway, Arterial, Sub-Arterial, Collector and Local Roads.

he road hierarchy principles will support orderly planning and provision of public transport routes, pedestrian, and bicycle routes. It also identifies the effects of development decisions on surrounding areas. It also facilitates urban design principles such as accessibility, connectivity, efficiency, amenity, safety, road furniture and preserves landscaping. This study also formulates

the road hierarchy for the various roads. After going through large number of literature, the study has proposed four level hierarchy roads namely Class A, B, C and D.

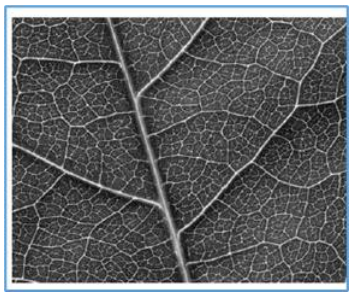

Figure 8-1 : Conceptual Hierarchy

Figure 8-2 : Road Network Hierarchy

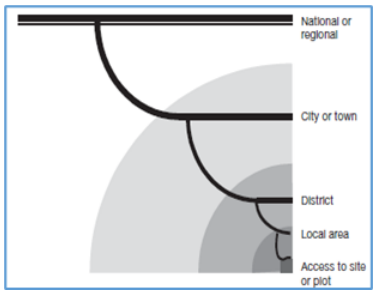

Figure 8-3 : Urban Road Hierarchy

8.1 Right of Way (RoW)

The RoW is width of land to be acquired for the road along its alignment. The Nepal Road Standard 2070 has proposed roads under category of National Highway (NH), Feeder Roads (FR), District Roads (DRCN) and Urban Road within the Rural 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 $\geq$ 20.0) as 6.0 m on either side. All of these standards shall be applied to the Rural Municipality accordingly.

The road classification data for Sunchhahari Rural Municipality details the hierarchy and specifications of various road types based on their function and capacity. The National Highway (NH) is designated with a minimum Right of Way (RoW) of 50 meters and specific set-back distances as prescribed by regulations, serving as the primary transportation corridors. Feeder Roads (FR), which connect local roads to the National Highway, require a minimum RoW of 30 meters. District Roads (DRCN) have a minimum RoW of 20 meters, facilitating regional connectivity. Arterial Roads (A), which are crucial for intra-urban traffic flow, need a minimum RoW of 15 meters. Sub-Arterial Roads (B), supporting arterial roads, have a minimum RoW of 12 meters. Collector Roads (C), gathering traffic from local roads, require an 8-meter RoW. Local Roads (D), providing direct access to residences and businesses, have a minimum RoW of

6 to 7 meters. These classifications ensure an organized and efficient road network to support the Rural Municipality's transportation needs.

Table 8-1 : R- MTMP Right of Way Classification of Sunchhahari Rural Municipality

Road Class	Descriptions	Minimum RoW (m)	Minimum Set-back Distance (m)	Remarks
NH	National Highway	50 m	As Prescribed	
FR	Feeder Road	30 m		
DRCN	District Road	20 m		
A	Arterial Road	12 m	1.5 m	
B	Sub-Arterial Road	10 m	1.5 m	
C	Collector Road	8 m	1.5 m	
D	Local Road	6m	1.5 m	

Based on R- MTMP 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 to 5.0 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.

१४.३१ अब निर्माण हुने सडकको कुनै पनि बाटोको न्यूनतम चौडाई ६ मी. हुनु पर्नेछ र नापी तथा मालपोत कार्यालयहरुलाई सोही बमिजिमले स्रेस्ता, नक्सा तथा अभिलेखहरुमा बाटो कायम गरी यस व्यवस्थाको कार्यन्वयन गर्न लेखि पठाउनु पर्नेछ। । यस्ता बाटोमा भवन निर्माण स्वीकृत दिंदा केन्द्रबाट कम्तिमा ३ मीटर सडकको क्षेत्राधिकार (RoW) र सडक क्षेत्राधिकार सिमाबाट १.५ मीटर सेट ब्याक छाडेर मात्र निर्माण स्वीकृति दिनु पर्नेछ । तर हिमाली/पहाडी जिल्लाका उपत्यका (valley) एवं समथल भू-भाग देखि बाहेकका भिरालो क्षेत्रमा प्राविधिकरुपमा उक्त ६ मिटर चौडाई कायम गर्न सम्भव नभएमा प्राविधिकको प्रतिवेदनको आधारमा सम्बन्धित स्थानीय निकायको परिषद्को निर्णयबाट ४ मिटरमा नघट्ने गरी निर्धारण गर्ने सक्नेछ।

Figure 4 : Fundamental Guideline of Urban planning and Building Construction 2072

१४.३६ नगरपालिका क्षेत्रमा सडक सम्बन्धी ऐन लगायत प्रचलित कानूनले तोकेमा सोही अनुसार र सो नभएमा नगर यातायात गुरुयोजनाले निर्धारण गरे अनुरुप सेटब्याक कायम हुनेछ। तर नगरपालिकाले यस्तो सेटब्याक सडक किनारबाट १.५ मिटर

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. Road Classification

Urban Roads are the roads serving within the Rural Municipality. The classification practices of urban roads basically are guided by the functional hierarchy of roads. In the context of Nepal, Nepal Urban Road Standard- 2076 has classified urban roads as Arterial, Sub-arterial, Collector and Local/Residential Street. The ToR provided for the preparation of R- MTMP has formulated the class of roads into A, B, C and D.

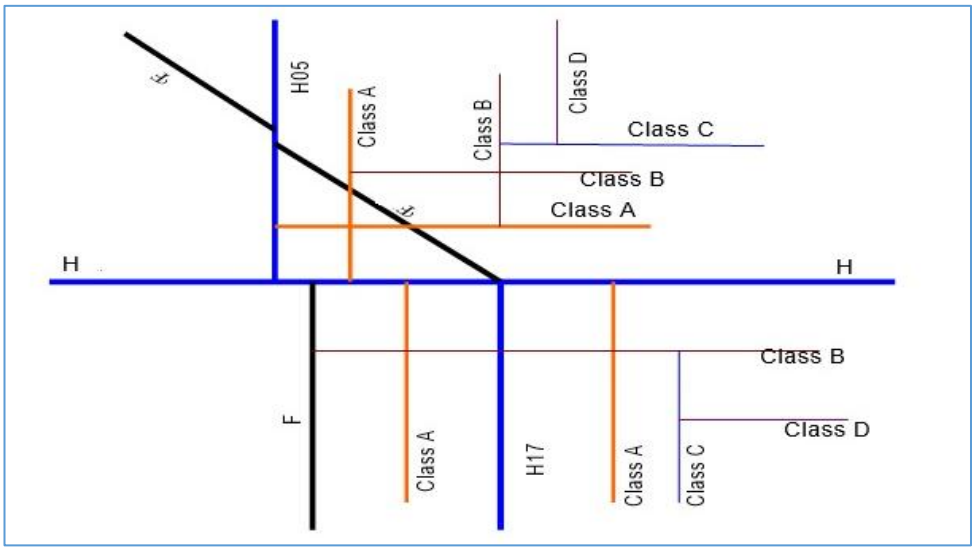

Figure 8-5 : Detail Description of Road Class

8.1.1 National Highways (50 m)

National Highways are main roads connecting East to West and North to South of the Nation. These directly serve the greater portion of the longer distance travel, provide consistently higher level of service in terms of travel speeds, and bear the inter-community mobility. These roads shall be the main arterial routes passing through the length and breadth of the country. They are designated by letter „H" followed by a two-digit number.

8.1.2 Feeder Roads (30 m)

Feeder roads are important roads of localized nature. These serve the community's wide interest and connect District Headquarters, Major economic centres, Tourism centres to National Highways or other feeder roads. They are designated by letter „F" followed by 3-digit number.

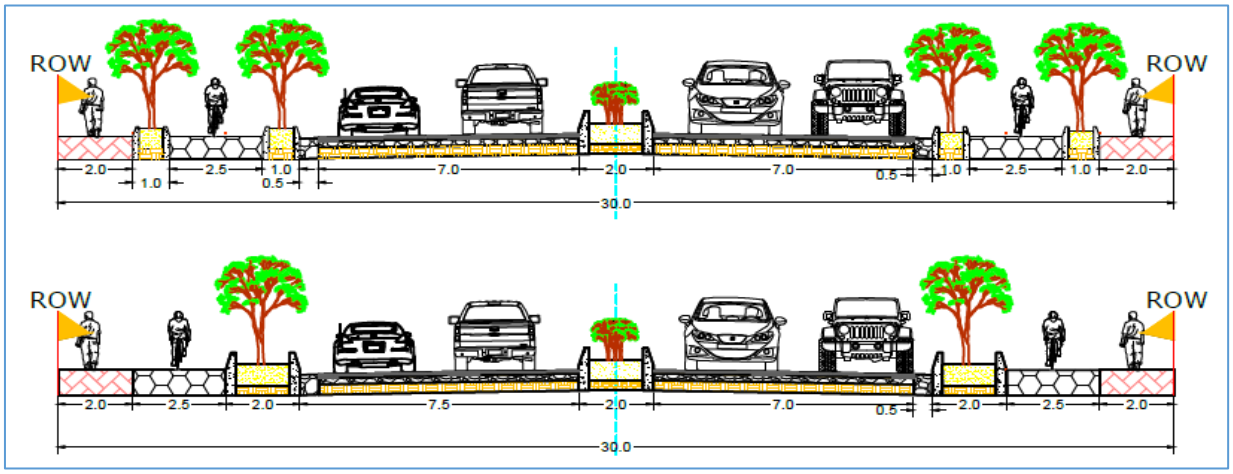

Figure 8-6 : Typical Cross section of Feeder Road

8.1.3 District Roads (20m)

District Roads are important roads within a district serving areas of production and markets, and connecting with each other or with the main highways.

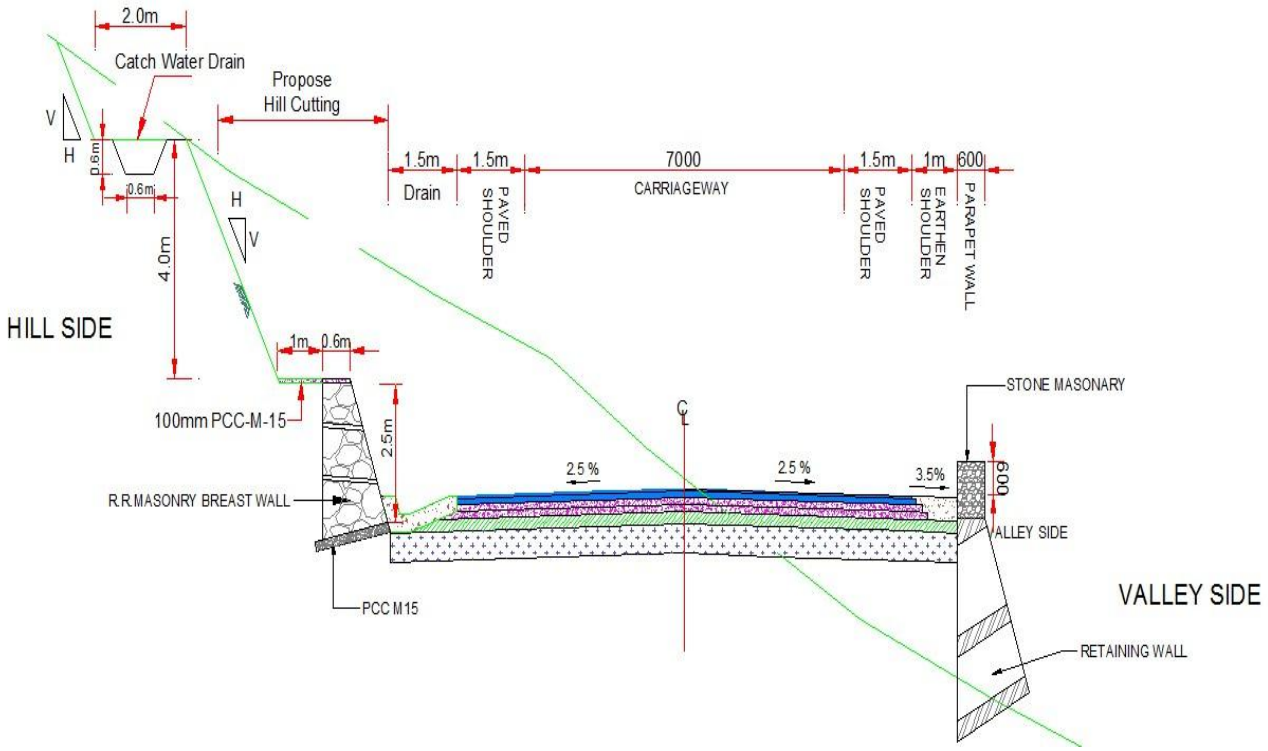

Figure 8-7 : Typical Cross section of District Road

Administrative Road Map

8.1.4 Summary of A Class Road (15 – 20 m)

These roads are major transport corridors within the municipal territory. These roads are assumed to have higher traffic and they connect major settlements or market areas within the Rural Municipality. Functionally these roads carry the traffic from major settlements, tourist areas to the SRN linkages. As per the available RoW, topography and land use pattern, typical cross section may be selected as shown in figure below. Minimum RoW for this class of road has been set to 15 - 20 m. It is highly recommended to have separate segment for pedestrian and cycle track. At the same time, these roads need to have adequate median strip to segregate vehicles coming from different directions.

A Class Roads are high-priority roads that serve as major transportation routes, connecting key urban centers, municipalities, and strategic locations. These roads are typically well-structured with a focus on durability, accessibility, and efficient traffic movement.

Key Characteristics of A Class Roads:

1. **Purpose** – These roads facilitate regional and municipal connectivity, ensuring smooth transport between cities, towns, and rural settlements.

2. **Right of Way (ROW)** – Standard ROW for A Class Roads ranges from **15 meters to 20 meters**, depending on the road's function and strategic importance.

3. **Surface Type** – The roads may have different surface types, including:

    - **Blacktop (Asphalt/Bitumen Paved)** – Well-maintained for smooth vehicular movement. No balacktop road found in rural municipality.

    - **Gravel/Earthen** – Found in developing sections or undergoing upgrading.

    - **RCC (Reinforced Cement Concrete)** – Used in high-load areas requiring long-term durability.

4. Intervention Type – Includes Maintenance (Repairs & Resurfacing) and Upgrading (Converting earthen/gravel roads to blacktop or RCC) to enhance accessibility.

5. **Average Existing Width** – Typically varies from **4.5 meters to 8.5 meters**, ensuring adequate space for vehicle movement.

Significance of A Class Roads:

- Enhance regional and municipal connectivity.
- Facilitate economic activities by improving transport networks.
- Support urban expansion and development planning.
- Provide reliable and durable transportation infrastructure.

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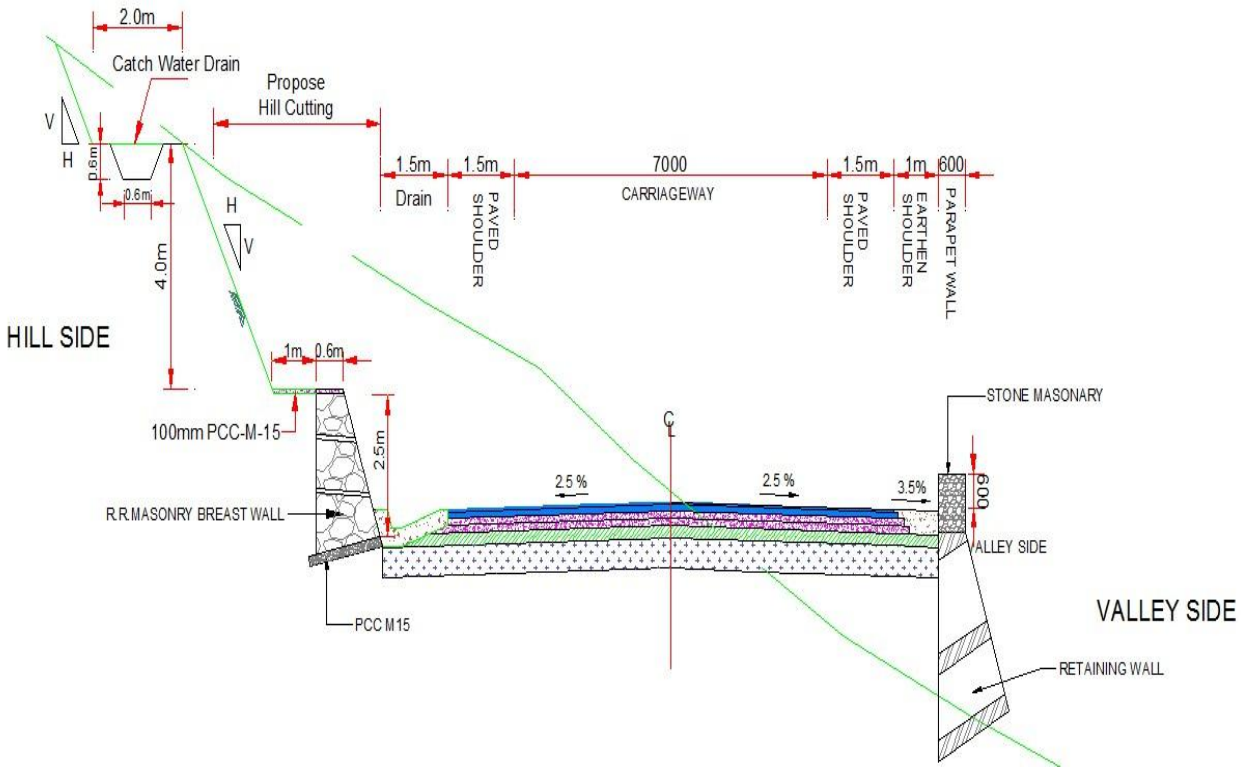


Figure 8 : Cross section of A Class Road

A Class Road Map

Table 2 : A Class Road Network Data

A Class Road Code and Road Name	Existing Road	Proposed Road	Grand Total
A001_Ruinibang - Badachaur - Gumcghal - Harjung Syuri - Bahiri Gam - Vitri Gam	15.48		15.48
A002_Natgha - Syuri - Kimleghat Sadak	7.09		7.09
A002_Sulichaur- Baddhacahur - Gumchal - Gam - Baglung Sadhak Khanda	22.64		22.64
A003_Muigha Dahra - Bhuluchung - Basa - Bibang Sadhak Khandha	2.01		2.01
A003_Muikadhara - Blunchung - Basa - Bibang - Marbi Cheda Sadak	1.53	14.67	16.20
A004_Dangbang - Karjang - Mukunta – Kilachan Sadak		12.81	12.81
A004_Mughadhara - Malibung - Borgo - Gaja Sadak	7.07	1.59	8.66
A004_Serum - Ghusbang - Tilachan Motor Bato		13.51	13.51
A005_Sulichaur - Kasala - Pobang - Uwa - Thawang Sadak	21.82		21.82
A006_Salghari - Hamja - Jelbang - Sadak	16.67		16.67
A007_Sulichaur - Fagam - Jelbang - Okharani - Mirul Sahid Marga	21.17	12.15	33.32
Grand Total	**115.49**	**54.73**	**170.22**

8.1.5 Summary of B Class Road (10 m)

These roads serve for the purpose of collectors from relatively small settlements and having less traffic flow. The RoW for such class of roads is minimum of 10m. The typical cross section of such roads is shown in figure below. These roads serve as linkage to class "A" roads. These roads have been categorized based on public demand as well as keeping in view the future need of Rural Municipality. These roads will be served by smaller public transport modes.

These are roads of somewhat lower level of travel mobility than the arterial roads. The emphasis on access to adjoining area is more in case of these roads than in case of arterial roads. These roads have been designed with total right of way of (**10 m)** which can be considered as Feeder roads of R-Rural Municipality. These roads connect major road network and other roads of similar hierarchy with either major growth center or provide access between Class A and Class C road. Mobility is also the main function and purpose for these roads too and are designed with similar facilities for all road users including drivers, pedestrians and cyclists. The Design Speed of 25-35 Kmph has been set for Class B roads. Pedestrians are allowed to cross only at intersections or at the designated crossings.

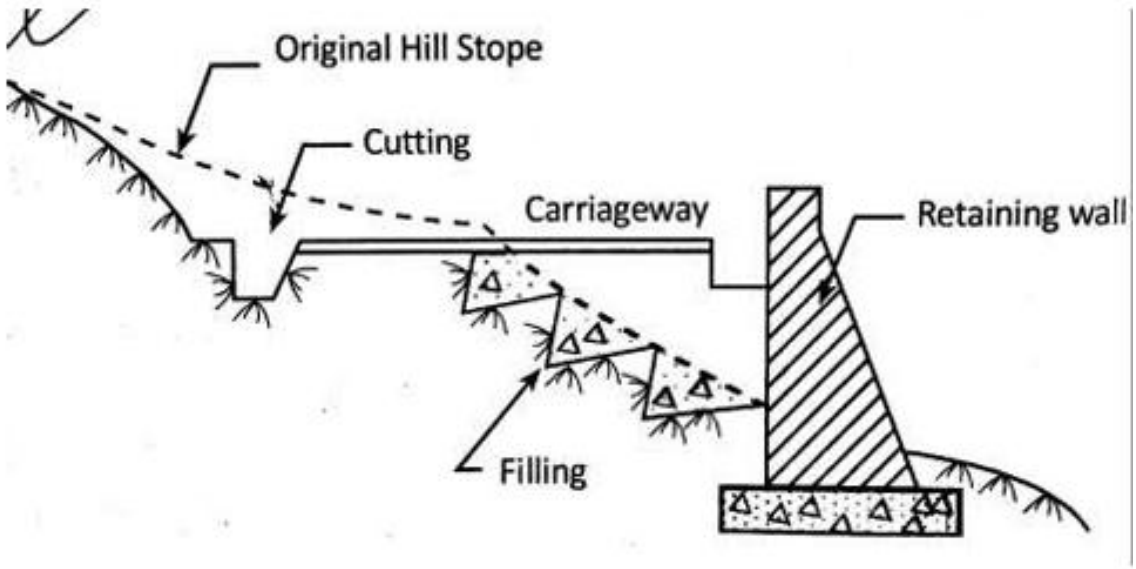


Figure 9 : Typical Cross Section of B Class Hill Road

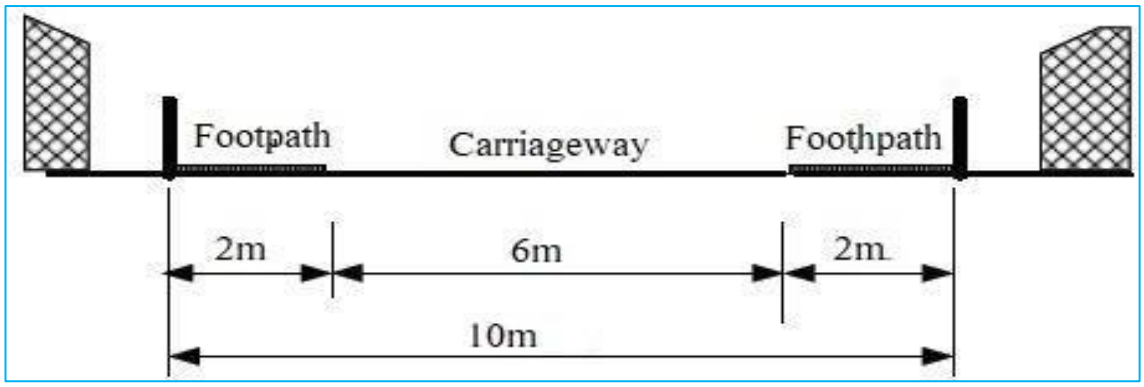


Figure 8-10 : Typical Cross Section of urban Road Class "B"

The **B Class Road Network** in the Rural Municipality plays a crucial role in facilitating intra-ward and inter-ward connectivity. These roads serve as essential links between residential areas, commercial centers, and institutional hubs, ensuring smooth mobility for pedestrians and vehicles. The B Class roads are primarily **Rural Municipality roads**, maintained and managed at the local level, with a focus on **maintenance and upgrading** to improve accessibility and safety. Many of these roads have an existing **right-of-way (ROW) of 10 meters**, allowing for future expansion and upgrades. However, the **average existing width** varies, with some roads having a width of just **4.5 to 6 meters**, indicating a need for widening in certain areas. The network includes **surface types**, like **gravel, and earthen roads**, reflecting the varying levels of development and maintenance required across different wards.

During the preparation of the Rural Municipal Transport Master Plan (RMTMP) for Sunchhahari Rural Municipality, a total of **123.35 kilometers** of **B-Class road network** had been identified for development. Out of this, **35.25 km** of roads already existed, while **88.11 km** were proposed to enhance the overall connectivity within the municipality. All planned roads were designed with a uniform **10-meter Right of Way (RoW)**, ensuring consistency in width and long-term road sustainability.

Key existing routes included the Bahiri Gam – Rijaban – Bhaba – Seulibang – Pyuthan Sadhak (B001) with 5.91 km, and the Gaja Bhulunchung Sadhak (B002) spanning 4.60 km. Additionally, roads like Pobang – Serum – Ghusbang – Uwa, Jelbang – Khibang – Mabang – Gaupalika Jodne, and Bachham – Janki Sadhak contributed significantly to the existing network. Several roads, such as Fagam – Dansibang, had both existing and proposed segments, ensuring phased improvement.

The proposed road segments focused on extending connectivity to remote areas and interlinking major settlements. Roads like **Mahanthan – Tharkhari – Rangri (8.28 km)**, **Yanabang – Danggung – Pokhara – Gothabang – Deurali (11.25 km)**, and **Salap – Chheda – Thawang Gaupalika (17.67 km)** were some of the major proposed corridors. These routes were selected based on their potential to improve access to basic services, support local economic growth, and promote inter-ward mobility.

Overall, the planned B-Class road network represented a strategic vision for balanced infrastructure development across the municipality. By integrating existing and proposed routes, the RMTMP aimed to create a reliable and resilient transport framework, addressing current mobility gaps while laying a foundation for future expansion and development.

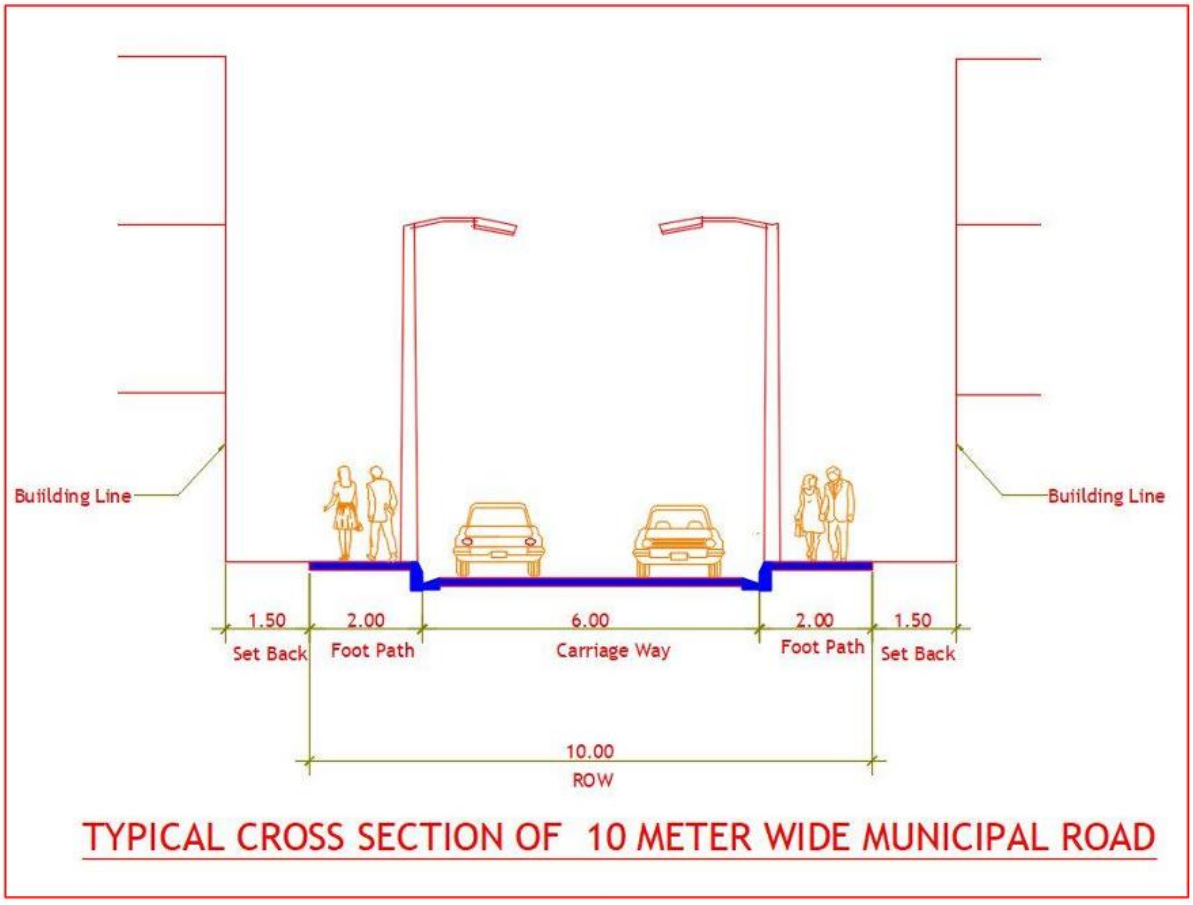


Figure 11 : Typical Cross section of 10 m Road (Source: MOFAGA)

B Classs Road Network Map

Table 3 : B Class Road Network Map

B Class Road Code and Road Name	Existing Road	Proposed Road	Grand Total
B001_Bahiri Gam -Rijaban - Bhaba - Seulibang - Pyuthan Sadak	12.576		12.576
B002_Gaja Bhulunchung Sadak	4.595		4.595
B002_Khursanibari - Gaja - Bahirigaam Sadhak	1.066	1.844	2.910
B002_Pobang - Serum - Ghusbang - Uwa Sadhak	3.744		3.744
B003_Bobang - Shikung - Madhai - Narbang - Pokhara Sadak	5.312	1.979	7.291
B004_Mahanthan - Tharkhari - Rangri		8.281	8.281
B004_Pokhara - Sayang - Rangri		3.815	3.815
B005_Gothabang - Dangmang - Danga - Basa Sadak		3.650	3.650
B005_Muiga - Dongbang - Dangadhara - Basa		6.361	6.361
B006_Yanabang - Danggung - Pokhara - Gothabang - Deurali Sadak		11.248	11.248
B007_Bachham - Janki Sadhak	2.503		2.503
B007_Jhanki - Halekharka - Raune - Rimul (Panimul) - Lapati Sadak		0.010	0.010
B008_Jelbang - Khibang - Mabang - Gaupalika Jodne Sadak	9.869		9.869
B009_Salap - Chheda - Thawang Gaupalika Sadak		17.672	17.672
B010_Punchiwang - Chheda - Lungtung - Gorakhandey Sadak		8.218	8.218
B011_Fagam - Dansibang Sadak Khanda	5.007		5.007
B012_Jelbang - Majing - Cheda - Ridhim - Dhawang - Rolpa Nagarpalika Sadak		6.902	6.902
B013_Ghusbang Uwa Sadak		0.864	0.864
Grand Total	**44.672**	**70.842**	**115.514**

8.1.6 Summary of C Class Road (8 m)

These types of urban roads are for the purpose of residential access. Residential streets are designed for lower traffic volumes for especially private transport. Therefore, RoW for this class is designed for single lane pavement. Minimum RoW for such class of roads is allocated as 8m. Typical cross section of such roads is shown below.

A collector road is one intended for collecting and distributing the traffic to and from local roads and also for providing access to arterial/sub-arterial road. They may be in residential neighbourhoods, business areas and industrial areas. Normally full access is allowed on these roads from abutting properties. Typical section of Collector Road is shown in the figure given below:

All roads which provide connection to higher order roads with any one of the following:

- All agricultural roads which connect a farm with a mini-market Centre or an agro-based production Centre
- The right of way is **8 m**, Roads for mobility of local trips.

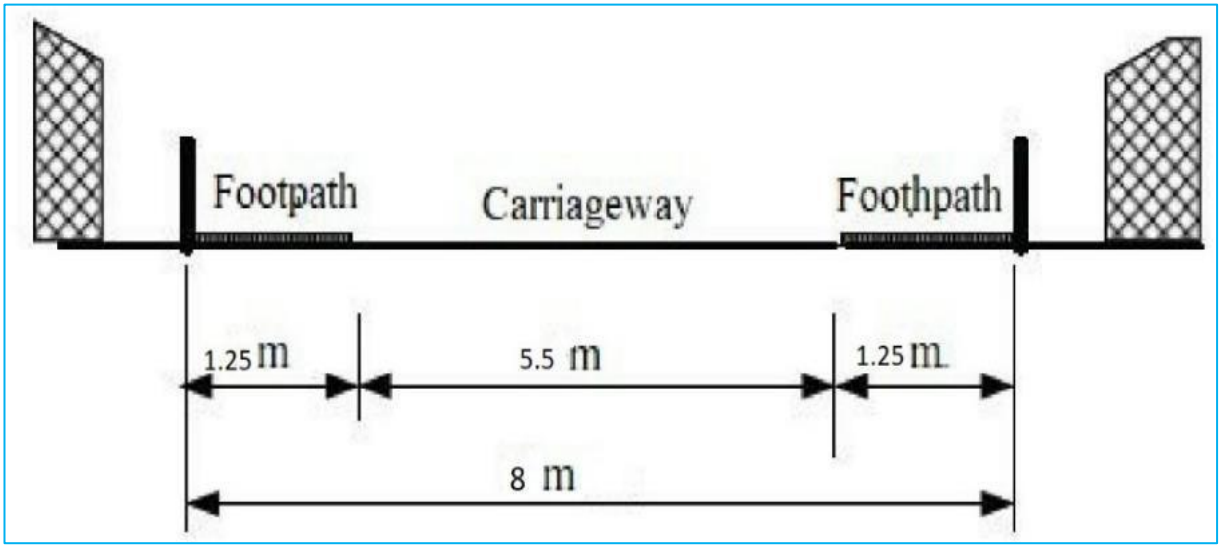


Figure 8-12 : Typical Cross section of Road Class

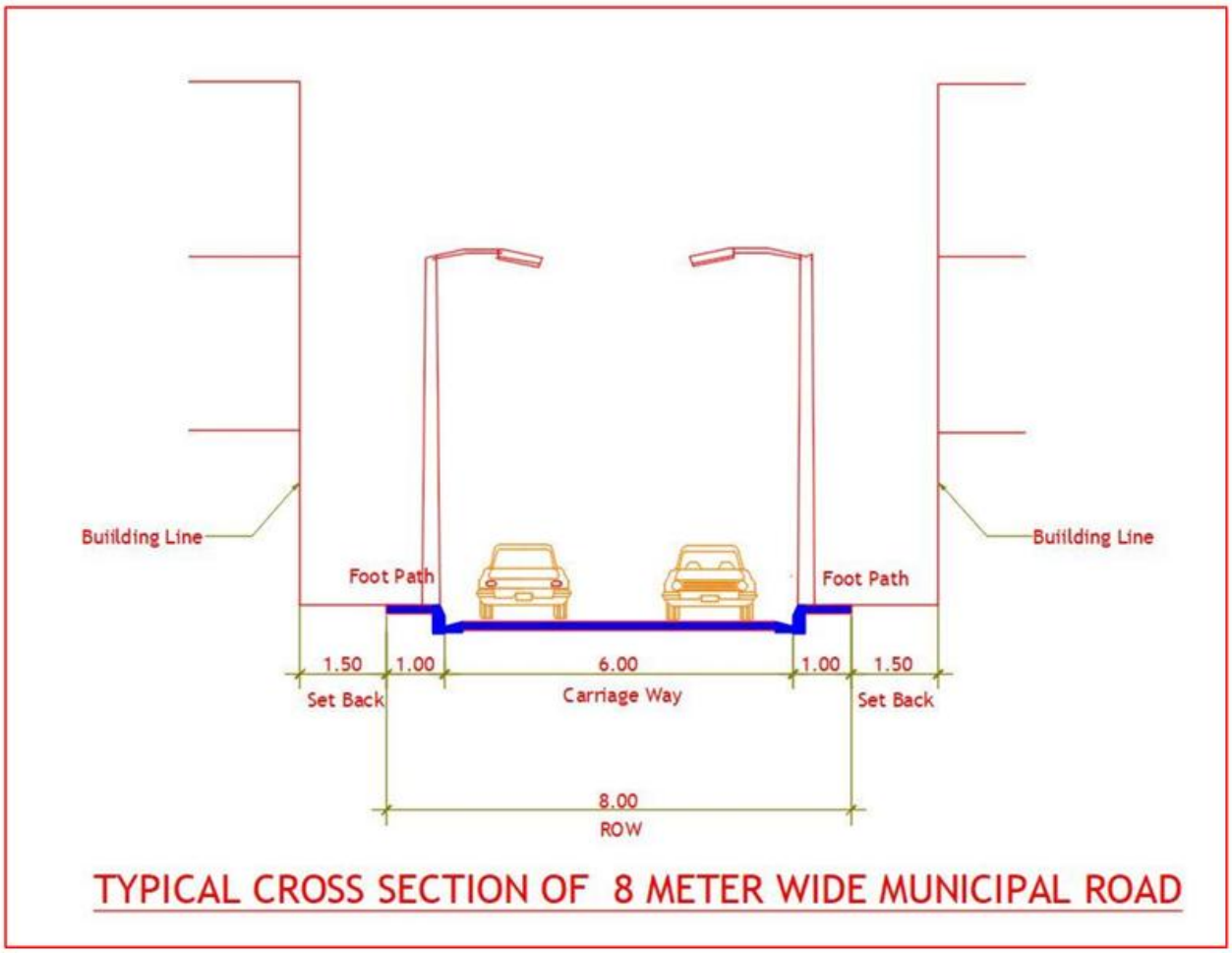


Figure 13 : Typical Cross Section of 8 m Road Network (Data Source: MoFAGA)

The road infrastructure in Sunchhahari Rural Municipality is primarily composed of **C-class roads** with varying surface types, interventions, and existing widths. The dataset shows that most roads require **upgrading**, highlighting the need for investment in improving road conditions. The roads are categorized based on their **surface type**, including **earthen, gravel,** roads.

A notable pattern emerges in the **road width distribution** across different wards. Most roads have an **average existing width of 4 to 5 meters**, which is suitable for municipal roads but may pose challenges for traffic congestion and future urban expansion. Some roads have a setback requirement of **12 meters**, indicating potential plans for road widening. However, several roads remain at **6 meters**, which may not be sufficient for high-traffic areas. The classification of roads under **Rural Municipality road status** suggests that local authorities are responsible for their maintenance and development. However, without proper intervention strategies, congestion and degradation could become pressing issues in the coming years.

As part of the Rural Municipal Transport Master Plan (RMTMP) for Sunchhahari Rural Municipality, a total of **141.80 kilometers** of **C-Class roads** had been identified for development. Of this, **31.59 km** were existing roads, while **110.21 km** had been proposed to fill critical connectivity gaps within and between wards. All C-Class roads were designed with an **8-meter Right of Way (RoW)**, aligning with standards for local-level feeder and access roads.

Several roads had already existed prior to the planning, such as **Gohakhola – Charipani – Khalasbang – Pyuthan (C003)**, with **1.56 km** existing and **6.05 km** proposed, totaling **7.61 km**. Other notable existing stretches included **Fagam – Mehaldhara – Pobang (C028)** with **9.69 km**, and **Jubang – Uppalo Kasala – Jaima (C029)** with **3.30 km**. Roads like **Pobang – Serum – Ghusbang – Uwa (C015)** and **Basadung – Thawang – Udaldhunga (C016)** further strengthened local access, contributing to the municipal road foundation.

A majority of the C-Class roads were newly proposed routes aiming to expand connectivity in previously isolated settlements. Examples included the **Khibang – Japlapo – Mijakho – Siddha Darbar – Pore Chhera (C018)** route at **12.10 km**, and the **Fagam – Panchibang – Changa – Khalu – Rigim (C027)** stretch measuring **8.23 km**. Numerous other corridors, such as **Syuri – Rangri (C011)**, **Salghari – Dharamsala – Bamari (C030)**, and **Okharani – Tharna – Lungtung – Bagtare (C031)**, were introduced to address community needs and improve access to services, schools, and markets.

This extended network of C-Class roads reflected a well-thought-out approach to rural infrastructure development. The strategic integration of existing and proposed roads ensured comprehensive coverage across the municipality, with particular attention to last-mile connectivity. The C-Class network had been envisioned to support daily mobility, agricultural trade, and socio-economic growth by linking remote areas to central nodes and external market routes.

Table 4 : C Class Road Network Map

C Class Road Code and Road Name	Existing Road	Proposed Road	Grand Total
C001_Gombang - Pitambare - Kancha Kothi Sadak		6.971813	6.971813
C002_Nandhu Khola - Manchare Dawar Sadak		4.587426	4.587426
C003_Gohakhola - Charipani - Khalasbang - Pyuthan Sadak	1.563055	6.047182	7.610237
C004_Jelbung - Bibang Sadak	0.88065	3.008808	3.889458
C005_Jelgung - Chalbang - Tallo Jure Sadak	0.839371	2.692728	3.532099
C006_Bulungchung - Ghicche - Larmi - Bargo Sadak		5.590476	5.590476
C007_Kuipa - Moulaban - Rijaban Sadak	1.70071	4.777091	6.477801
C008_Andhare Serbash Sadak		5.017571	5.017571
C009_Bobang Kafal Dada Sadak		1.297494	1.297494
C010_Narbang - Bhumeythan Sadak		1.96503	1.96503
C011_Syuri Rangri Sadhak		2.106608	2.106608
C012_Natgha Sakina Sadak	3.46063		3.46063
C013_Jhinja Bhadaure Sadak		5.569798	5.569798
C014_Tharkari - Harganj Sadak		1.370683	1.370683
C015_Pobang - Serum - Ghusbang - Uwa Sadak	4.069113		4.069113
C016_Basadung - Thanbang - Udaldhunga Sadak	3.570723	1.390136	4.960859
C017_Serum - Bhakeychung - Wabang - Fuliban	2.448591	1.772638	4.221229

C Class Road Code and Road Name	Existing Road	Proposed Road	Grand Total
C018_Khibang - Japlapo - Mijakho - Oppa - Bachhey Khola - Sunphalung - Siddha Darbar - Pore Chhera		12.101531	12.101531
C019_Mijakhor - Liging - Dokharka - Chamja Sadak		4.549608	4.549608
C020_Khagali - Ghotbang - Damphu Sadak		2.661381	2.661381
C021_Bhumethala - Ledhey Khola - Ghorakhandey - Fusrey - Sirwang - Bagtare Sadak		4.726075	4.726075
C022_Rulbang - Pakher - Sadak		0.821946	0.821946
C023_Chalaune - Chamja		1.616418	1.616418
C024_Sulichar - Fagam - Gelbang Sadak	0.262851	3.817422	4.080273
C025_Korbang -Namurga - Khung - Daphey Chheda		2.250907	2.250907
C026_Galjabang - Jankcang - Khung		2.613384	2.613384
C027_Fagam - Panchibang - Changa - Khalu - Rigim Sadak		8.231242	8.231242
C028_Fagam - Mehaldhara - Pobang	9.692735	2.567604	12.260339
C029_Jubang - Uppalo Kasala - Jaima Sadak	3.297934	2.167908	5.465842
C030_Salghari - Dharamsala - Bamari Sadak Khanda	3.060081		3.060081
C031_Okharani Upallo Tharna - Lungtung - Bagtare Sadak Khanda		4.596755	4.596755
C032_Gaga Khola - Falbang - Jaktang Sadak		5.151114	5.151114
C033_Sirbang -Koidhara - Damang Sadak		1.265389	1.265389
Grand Total	**34.846444**	**113.304166**	**148.15061**

8.1.7 Summary of D Class Road (6 m)

D-Class roads, with a **6-meter right of way (RoW)**, are primarily designed for **local access and low-traffic areas**. These roads typically serve **residential neighborhoods, rural areas, and small commercial zones**, providing essential connectivity between main roads and individual properties. The 6-meter width allows for **two-way vehicular movement**, but with limited space, making them more suitable for **light vehicles, motorcycles, and pedestrians** rather than heavy transport.

In the development of the Rural Municipal Transport Master Plan (RMTMP) for Sunchhahari Rural Municipality, a total of **52.66 kilometers** of **D-Class roads** had been identified, of which **7.10 km** were existing and **45.55 km** were proposed. All D-Class roads were planned with a **6-meter Right of Way (RoW)**, specifically designed to serve as local access and agricultural roads, improving intra-village connectivity and promoting rural livelihoods.

Existing roads included stretches such as Dhamse Gajulgha Sadak (D006) with 1.04 km, Rotey Dhara – Sikung Gaun (D011) with 1.26 km, and Pobang Health Post Road (D015) with 0.84 km. Several short but critical routes like Lasabang Sadak (D013) and Bangnang Khola – Bangnang Sakha Road (D036) had also contributed to the initial road network. These roads had primarily supported local commuting, agricultural movement, and immediate access to health and educational facilities.

The majority of the D-Class network was newly proposed, focusing on connecting scattered rural settlements. Important proposed roads included **Jelbang – Mathdhara – Sarbash Dada – Bagtare – Jaljala (D024)** with **5.23 km**, **Furcey – Pakhapani – Nimkung – Karmaji – Lungtung Pokhara (D025)** with **3.05 km**, and numerous others facilitating local travel and agricultural transport. Additionally, a **15.13 km foot trail** known as **Sunfulup – Uttarganga – Dharampani – Okharani Gorilla Marathon Padmarga (D028)** was incorporated to preserve and promote eco-tourism and heritage trekking routes.

The D-Class road and trail network formed a crucial part of the municipality's rural accessibility plan. It had been envisioned to enhance agricultural productivity, enable better service delivery, and uplift the overall quality of life in remote villages. Through a balance of motorable roads and foot trails, the D-Class interventions complemented higher-class road investments and provided critical last-mile connectivity

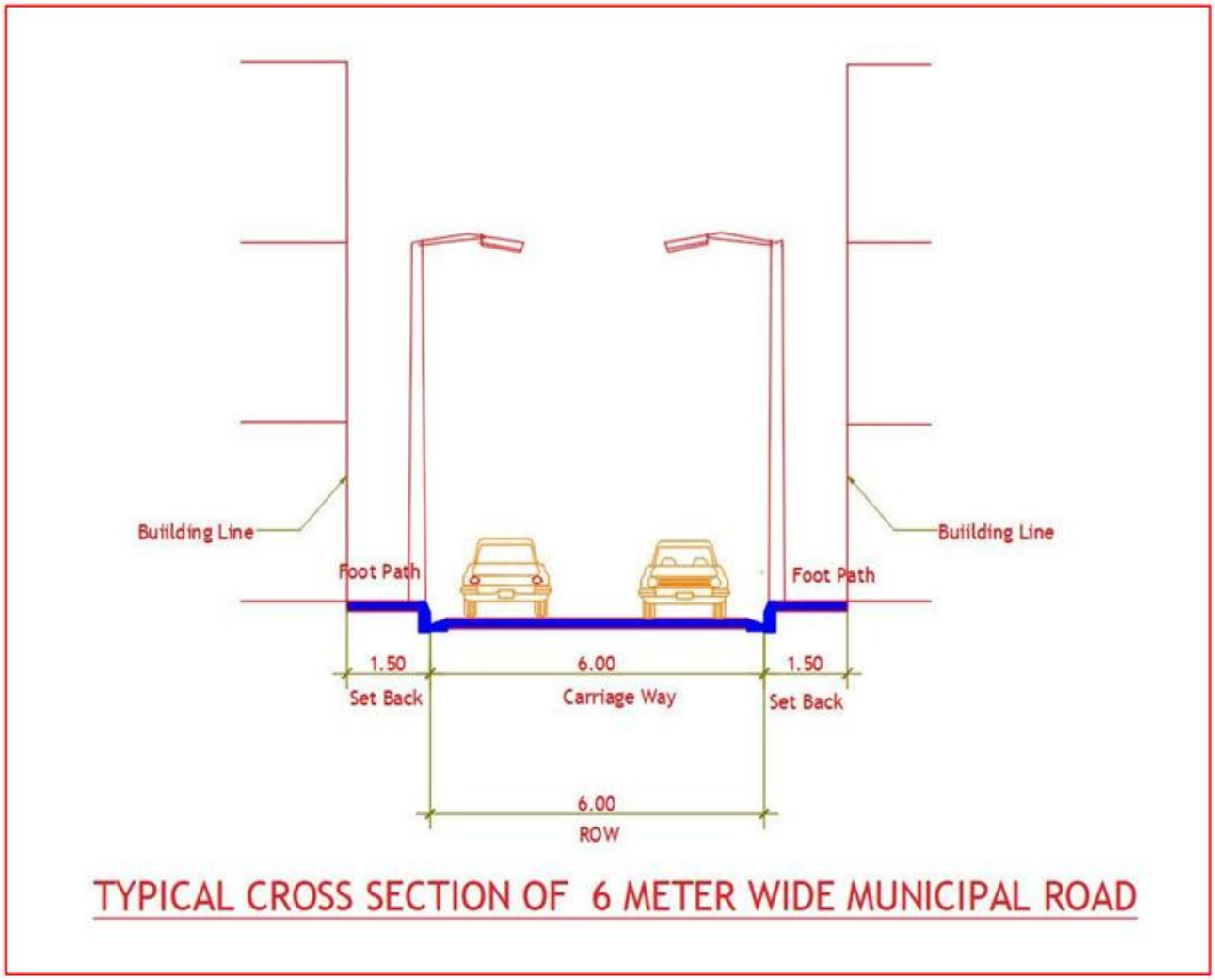


Figure 14 : Typical Cross section of D Class Road (Data Source: MOFAFA)

D Class Road Code And Road Name	Existing Road	Proposed Road	Grand Total
B007_Jhanki - Halekharka - Raune - Rimul (Panimul) - Lapati Sadak		8.70	8.70
D001_Urla - Ghuri - Jhingrun Sadak		1.87	1.87
D002_Goha Narbang Sadak		0.90	0.90
D004_Gichey - Tamali - Seradfu Sadhak		2.35	2.35
D005_Hima - Neta Sadak		0.13	0.13
D006_Dhamse Gajulgha Sadak	1.04		1.04
D007_Dhamse Kiwasepo Sadak	0.32		0.32
D008_Ghartidera Sakha Motor Bato		0.69	0.69
D009_Sodo Byansi - Chhungbang - Ghurunge Dada		2.63	2.63
D010_Serma Khola - Sene - Bangkona Sakha Sadak		1.24	1.24
D011_Rotey Dhara - Sikung Gaun	1.26		1.26
D012_Sakina To Nera Mabi		2.00	2.00
D013_Lasabang Sadhak	0.49		0.49
D014_Syuri - Rangri - Hargang Sadak		1.19	1.19
D015_Pobang Health Post Road	0.84		0.84
D016_Pobang - Mulbang - Yabang Sadak	1.34	3.73	5.07
D017_Pobang Kharka Sadak	1.50		1.50
D018_Bhalavan - Ghuribang		1.97	1.97
D019_Panchibang - Dhusi - Bhalabang - Jelbang		1.88	1.88

D Class Road Code And Road Name	Existing Road	Proposed Road	Grand Total
D020_Lattay - Charne - Hambang		0.61	0.61
D021_Jokholja - Damfale		1.09	1.09
D022_Umang - Labang - Saribang		1.19	1.19
D023_School - Murkibang - Jhirbang	0.73		0.73
D024_Jelbang - Mathdhara - Sarbash Dada Dhakhane - Bagtare - Jaljala Sadak Khanda		5.23	5.23
D025_Furcey - Pakhapani - Nimkung - Karmaji - Lungtung Pokhara		3.05	3.05
D026_Aaisalu Tharna		2.51	2.51
D027_Aaisalu Kharka - Tharna Samma Jodne Sadak		0.79	0.79
D029_Aaisalu Kharka - Nera Prabi - Chaupati Hudai Sakai Samma		1.27	1.27
D030_Khalu Righim		0.28	0.28
D031_Jhinja Tharkari Road		1.24	1.24
D032_Jhinga Mahanthan Sadak		1.48	1.48
D033_Dhoga Siddha Prabi School		1.66	1.66
D034_Fedi - Bhaktane Krishi Sadak		1.46	1.46
D035_Khaliru Bharepo Krishi Sadak		1.32	1.32
D036_Bangnang Khola - Bangnang Sakha Road	0.31		0.31
D037_Thulo Barbang - Koi - Bargo Sadak		1.90	1.90
D038_Bangnang Khola - Bangnang Sakha Road		0.31	0.31
D039_Dodhe Bari - Narbang		1.93	1.93

D Class Road Code And Road Name	Existing Road	Proposed Road	Grand Total
D040_Radung - Chirkabang Sadak		0.89	0.89
D041_Kyannang - Ripu Lake - Virkuna Sadak		3.08	3.08
D042_Gongbang - Kothi - Rabang - Kilachan Foot Trail		2.63	2.63
D043_Thakali Basti Sadak		0.47	0.47
Grand Total	**7.83**	**63.69**	**71.52**

Table 5 : Standard Geometric Details of Road Classification

Criteria	Arterial Road (Path): - Class A	Sub-Arterial Road (Sadak): - Class B	Collector Road (Marg): - Class C	Local Road (Upa-Marg) Class D
Purpose	Mobility	Mobility and control Access	Access and mobility	Access
Function	Through and long-distance movement	Connection between Class A and C roads; and provide alternative connection routes between Class A	Connects higher order. roads and mobility to local trips	Connect local trips to higher level roads
	High network coverage	Support through movement of traffic	Access to property	direct access to property
	Segregated NMT facilities and Bus laybys	Segregated NMT facilities and Bus laybys	Segregated NMT facilities	Local NMT movement
	Complete access to public transport	High access to public transport	Limited access to public transport	-
Maintenance/Responsibility	Rural Municipality	Rural Municipality	R-Rural Municipality & Community	Community
Public transport services	Mass Transit facilities	Mass Transit, Local Public transport	No public transportation	No public transportation
Minimum Right of Way (ROW) m	15	10	8	6
Design Speed (Kmph)	40-50	30-40	20-30	10-20
Radius (m)	60-70 and 90-105	30-40 and 60-70	15-20 and 30-40	9-20
Stopping Sight Distance, m	45-65	30-45	20-30	10-20
Decision Sight Distance (m)	160-195	120-160	80-120	40-80
Setback, m				
Street Light pole height, m	10-12	10-12	9-10	9-10
Street Light Pole Spacing, m	30-35	30-35	25-30	25-30
Footpath, m	1.5	1.0	1.25	1.0
Cycle Track, m	1.5	1.25	-	-
Vertical Clearance, m	5	5	5	5

Discussion on Road Hierarchy and Proposed Row

During R- MTMP preparation, a series of discussions was held with Sunchhahari Rural municipal Board members, stakeholders on related to R -MTMP. One of the major issues was road hierarchy and RoW. The matter was discussed during field report presentation. It is an obvious fact that people welcome any possibility of investment in their locality. But when the people's contribution demanded especially with their own land and house for the road, they tend not to support such plans. With existing road width of about 6 m or less, the proposed road network with 16 m and 20 m RoW roads were not welcomed whole heartedly.

The necessity of road infrastructures such as pedestrian way with green belt was accepted as necessary roadside infrastructures by all the people at both ward level meetings and at the municipal meetings. The main issue was the possible social, economic, and emotional loss due to loss of only plot of land/house owned by individuals along the proposed wider roads. As such comments could divert the discussion, Class of roads with their function and purpose were first introduced during field report presentation and discussion with all the representatives. It was followed by proposed road network of class A and class B. All the participants had a common consensus on the necessity of the proposed road sections with proper pedestrian way, cycle tracks, green belt, and road space.

After the consensus on the road network was met, the proposed minimum RoW of the roads was explained to accommodate the proposed infrastructures. The proposed RoW of 15 m for class A and 10 m for class B roads was not easily accepted. The necessity of such wider roads was clarified with the examples of developed cities of Nepal such as Kathmandu, Biratnagar, Butwal, etc. where with urbanization, wider roads were enforced at the loss of huge built-up infrastructures including houses. With time, number of people with small plot of land and house along the major roads will increase making expansion socially more unacceptable. The necessity of minimum RoW of 6 m was also emphasized by giving an example of fire in Asan Indrachowk area, Kathmandu. There was slight change in road network during the initial discussion and final discussion at the municipality.

As the necessity of road infrastructure and the RoW accommodating those infrastructure was accepted necessary for the sustainable development of all sectors, the main issue was as to how the loses (social, economic, and emotional) would be addressed. To address this, issue several possible tools were put forward. Such tools are direct compensation (by the rural municipality or through other sources) which will ensure economic security to the people whose land and house are located along the road. Such compensation cannot ensure protection of social and economic loss. The best way to ensure minimum loss of all sorts is through land pooling; where all the land and population that uses the road are identified in a buffer/catchment zone; all those in the buffer zone contribute for the road. In such provision, all the landowners in the buffer zone contributes certain percentage of his/her land for the development of the road so that the person whose land is located directly along the road do not suffer the all the loses and is shared by all those who use the road. After explaining such possible provisions to address loses, the participants agreed on the proposed Row.

All the representatives and people understand the need and necessity of wider roads and proper roadside infrastructure. But without proper compensation to those land/house owners along the roads, implementation of wider roads will be challenging.

Neither such compensation nor the land pooling at the local level is not a common practice in Nepal, expansion of such roads in a built-up area is only possible if proper compensation is ensured for those who lose their property. But it is not completely new (foreign) tool. Land acquisition has been an issue in many major projects in Nepal. So, proper policies and working plans should be prepared by the central level institution to implement these tools. It is utmost necessary as the amount of possible physical loss of property increases as the policy and regulations to enforce them is delayed.

8.2 Nomenclature and Coding of Urban Roads

All urban road links within the R-Rural Municipality have been given their names and unique code number consisting of ten digits. The coding system for particular road link is described below:

- First digit (1 to 7) represents the number of Province. Code 1 stands for Provinces 1, 2, 3, 4 5,6 and 7 indicate Province 2, Province 3, Province 4, Province 5**,** Province 6 Province 7 respectively.
- Second and third digits represent district (1 to 77).
- Fourth code RM represents for the Rural Municipality.
- Fifth and sixth digits represent name (1 to 753 for Rural Municipality) of the Rural Municipality in the district.
- Seventh code indicates letter A to D for Class of road.
- Next three digits (001 to 999) represent the transport linkage.

The following guideline shall be followed for Road Coding.

5	Lumbini Province					
5	02	Rolpa District				
5	02	RM	Rural Municipality			
5	02	RM	01	Sunchhahari Rural Municipality		
5	02	RM	01	A	Class Of Road	
5	02	RM	01	A	001	Number of Roads

After all the code numbers, road name has been written. An example of the code number and road in Sunchhahari Rural Municipality is shown as

5	0	2	RM	0	1	A	0	0	1

Chapter 9 Perspective Plan of Municipal Transport Network

9.1 Accessibility and Trip Pattern

The goal of most transportation is "access," people's ability to reach their destination, and get services and activities in time. Transportation decisions often involve trade-offs between different forms of access. How transport is measured can have a major impact on these trade-offs [(Littman Todd, 2003).

Land use patterns affect mobility and accessibility in various ways. Thus, Land use and transportation are interdependent. Mobility, especially in the form of motorized transport it requires an increasing share of land. For, Long term sustainability it should be considered by altering the urban structure itself. As we fell, Transportation demands are concentrated in urban areas, particularly town centers. However, one approach to alleviate this concentration is to develop markets and economic activities in sub-centers. By creating alternative hubs for commerce and economic opportunities, it is possible to disperse the transportation demand from the main town area and distribute it more evenly across multiple locations. This can help reduce congestion, improve accessibility, and promote balanced development within the region.

Roads are often constructed or upgraded to enhance accessibility to new developments and settlements. The improvement of roads increases the accessibility and desirability of adjacent land, encouraging further development. With more housing and services along the road, traffic volumes increase. This results in more congestion and decreased road capacity. Eventually reduced efficiency of the road necessities and more roadway improvements which can lead to additional development along the road and restart the land use transportation cycle.

When the land use transportation cycle occurs over and over in a newly developed city, the pressure of road capacity increases. The Rural Municipality transport master plan is one among the many planning efforts which will reflect the efforts to define where we work, play and how we move from one place to another. Both population and traffic volume forecasting are considered during the planning.

Land use patterns affect mobility and accessibility in various ways:

Density: (number of people or jobs per unit of land area) increases the proximity of common destinations, and the number of people who use each mode, increasing demand for walking, cycling and transit.

Land use mix: (locating different types of activities close together, such as shops and schools within or adjacent to residential neighbourhoods) reduces the amount of travel required to reach common activities.

Non-motorized conditions: The existence and quality of walking and cycling facilities can have a major effect on accessibility, particularly for non-drivers.

Network connectivity: (more roads or paths that connect one geographic area with another) allows more direct travel.

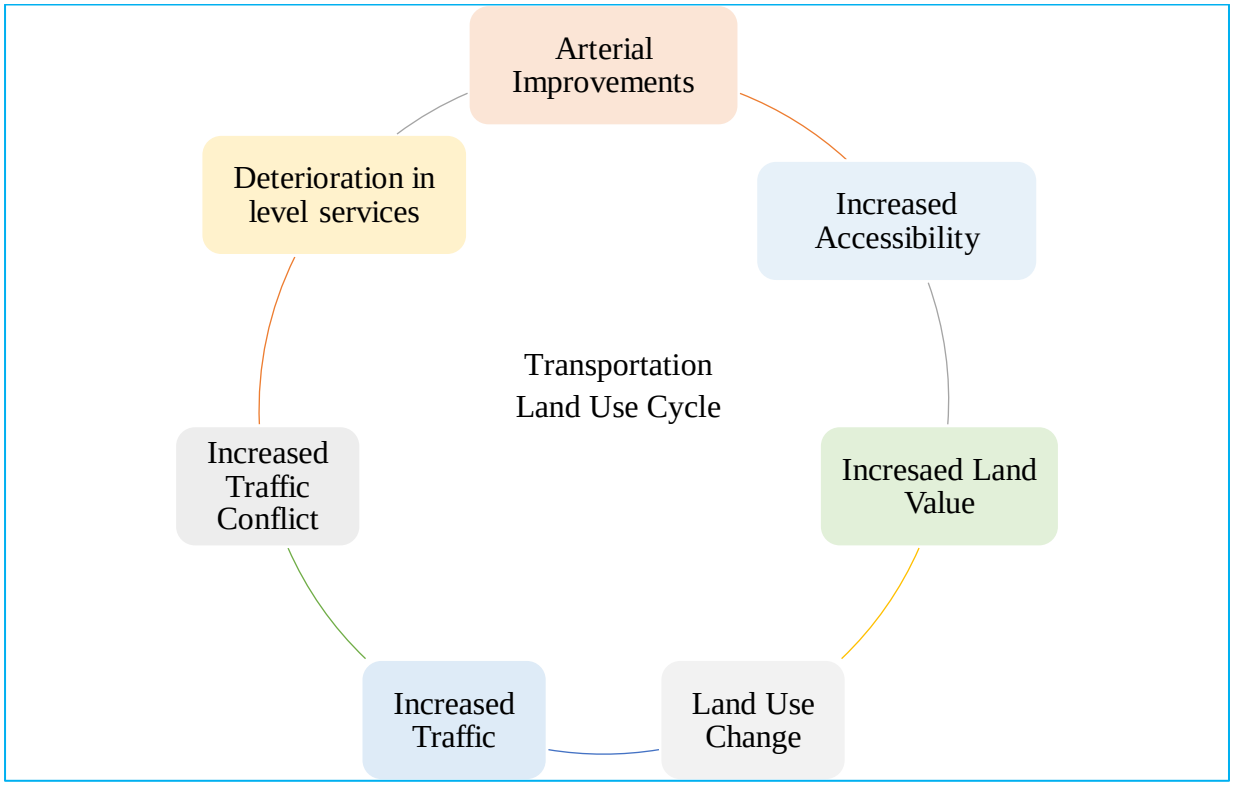


Figure 9-1 : Transportation land use Cycle

There are many ways to measure transportation system performance, each reflecting perspectives concerning who, what, where, how, when, and why. Different methods favour different types of transport users and modes, different land use patterns, and different solutions to transport problems. Vehicle traffic is easiest to measure, but this approach only considers a narrow range

of transportation problems and solutions. Mobility is more difficult to measure since it requires tracking people's travel behaviour. It stills considers physical movement an end, rather than a means to an end, but expands the range of problems and solutions considered to include alternative modes such as transit, ridesharing, cycling and walking. Accessibility is most difficult to measure, because it requires much effort for considering of land use, mobility and mobility substitutes, but most accurately reflects the ultimate goal of transportation, and allows widest range of transport problems and solutions to be considered. For example, an accessibility perspective may identify low-cost solutions to transportation problems, such as improving local walkability; encouraging land use mix so common destinations such as stores, schools and parks are located near residential areas; and improving communications services for isolated people and communities (Litman Todd, 2003).

9.2 Procedure for collecting demands from wards.

Ward level meeting in every ward or ward cluster is done where information on R- MTMP is collected. Demand forms for each ward are provided which are later on collected after the form are duly filled in given time. As road demand from the settlement level is collected bottom up approach of planning is applied.

Data Analysis and Field Verification of the Roads from Demand Form Analysis of data regarding the accessibility situation in each settlement, population forecasting for each sector, major road linkages have been done. Similarly, all the roads demanded in demand form are verified in field by the survey team.

9.3 Scoring System for Screening

Development of the scoring criteria and prioritization criteria based on the provided guidelines are prepared and its approval from the Rural Municipality and Municipal Road Coordination Committee (MRCC) is accomplished during first workshop meeting.

Transport linkage in an urban area has greater importance for its overall development. A transport 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 scoring for screening, grading, and ranking them. The basic criteria that has been used for prioritization includes existing population within the urban 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. The Finalized scoring criteria based on rigorous study is set in front of Rural Municipality and MRCC for its approval. Each road link is allocated the number of points corresponding to the fulfillment of the particular criteria. The weighted average of score that each intervention receives leads to a ranking/prioritization of the intervention options. Consultant has worked out the following weights for the criteria for the prioritization of road links. The following criteria were used as prioritization indicator.

Table 9-1 : Scoring Criteria for Prioritization

S.N.	Criteria	Scoring Unit	Score
1	Link providing service to large settlementareas/population	Population served/km	**15**
2	Link providing service to existing, a) Commerce and business b) Market sites (local haat) c) Tourist attraction d) Argo based and cottage industries. e) Other obligatory centers decided byRural Municipality/Rural Municipality	Discretely based on existence. Each facility is given20% weightage.	**20**
3	Link providing service to high potential for agriculture, horticulture, and livestock production	Annual transaction in these center's (NPR/Km)	**10**
4	Link providing service to service centers (Government offices, educational centers, healthcenter's etc.)	Number of populations served by these service centers (Person/Km)	**15**
5	Link providing service to the potential futuredevelopment sites	Anticipated annual turnover (NPR/Km)	**5**
6	Potential growth service center	Population served/Km	**10**
7	Link providing service to the areas recognized bythe Rural Municipality	Very important-10 Important-5 Less important-1	**15**
8	Linkages with other transport Linkages	National Highway- 10 Feeder Road- 8 District Road- 5 Neighboring Rural Municipality/District-4	**10**
	Total		**100**

These criteria are described in brief below:

9.3.1 Population Served

Population served by the road link is one of the important indicators of prioritization. The higher the population served by the road, the higher will be its necessity or importance. Thus, such roads need to be upgraded/maintained/constructed first. Scoring is done relatively. The highest score is assigned for the road link serving the highest population and is relatively reduced. Thus, the score for road based on population served lies within zero to full score.

9.3.2 Access to services and facilities

It is one of the main governing prioritization indicators as it outlines the specific services provided to the locals. The road link may provide access to Recreation (picnic spot, historical place, park, cinema hall, and playground), Agricultural land, Market center and Service center (School, Health Centers, government offices etc.). A single road link can serve just a single function or more function. The proposed road interventions which serve all four facilities have higher importance and give the highest score. Each facility is given 20% weightage. Thus, a road link serving all these facilities will get a full score while the road link serving three facilities will get 80 % and so on.

9.3.3 High potential for agriculture

High potential for agriculture, horticulture, poultry, livestock play crucial role for prioritization of road.

9.3.4 Service centers

Road linkage is directly proportional to how far the road can serve the number of populations served to have access to government service centers such as educational centers, health centers, government offices etc.

9.3.5 Potential future development sites

Road is prioritized based on future development sites of town such as such as potential town development, land pooling; potential industrial area and or forming ring road to Rural Municipality etc. as indicated in the Indicative Development Potential Map of the Rural Municipality.

9.3.6 Potential growth service center

Link providing service to the potential growth or service centers identified by the Rural Municipality and shown in the Indicative Development Potential Map of the Rural Municipality, Waste Management Site

9.3.7 Special Consideration

Link providing service to the areas recognized by the Rural Municipality as areas for special consideration, such as areas inhabited by backward and poor ethnic groups/communities, isolated remote areas, historic sites, religious sites etc.

9.3.8 Linkages with other transport linkages

It is also one of the criteria for prioritization. Road linkages reflect the importance of the road in the Rural Municipality. Road linking with higher class road will be more important and immediate intervention required. Roads linking with National highways will receive full score. Road linking with feeder road will receive 80% score and road linking with district road will receive 60% score. Similarly, roads linking with neighboring district or municipal will receive 40% score and remaining others road will be scored zero.

9.4 Perspective Plan Framework for the RM roads

The perspective plan of the Rural Municipality is the development plan that includes the plan of development of all road's hierarchy within the Rural Municipality. R- MTMP/R- MTMP is short term Rural Municipality Transportation Master Plan generally of 5 years which includes the prioritized road demands whereas perspective plan is a long-term plan which includes the overall road demand of the Rural Municipality.

The perspective plan identifies all the transport infrastructure demands of the Rural Municipality. The proposed road networks and road infrastructure will help to enhance the overall transportation network of the Rural Municipality which will eventually result in increased accessibility and mobility. The visionary development plan i.e. the municipal development plan will help to develop other sectors of the Rural Municipality along with the development of transportation sector. The well facilitated and well-connected road will facilitate safe, comfortable and efficient trips to the road user. Moreover, increase in transportation facility will help to boost the economic development of that particular Rural Municipality which will eventually contribute to overall economic development of the nation.

The first five-year financial plan is prepared based on the assumption that each year's budget will increase by 10% from previous year budget. All the roads included in perspective plan along with their score, rank and class are given below:

The framework of the perspective plan of the municipal roads has been presented below which has been categorized according to the scoring system mentioned before.

9.5 Intervention Categories

After the Finalization of perspective plan through the categorization of rural municipal road, required interventions should be decided according to the priority and necessity of the roads. As earthen, gravel, blacktop roads and tracks prevail in this RM, 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 Rural Municipality the categories of the interventions are defined below :

9.5.1 Conservation

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

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).

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.

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.

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.

9.5.2 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:

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.

Gravelling - Placement of a gravel layer to make it all-weather and ensure that the road remains passable during the rainy season.

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

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.

Blacktopping - Placement of a blacktop layer in roads with traffic volumes exceeding 50 passenger car units (PCU) to reduce damage to the road surface.

Widening - Increase of the road width in roads with traffic volumes exceeding 500 passenger car units (PCU) to ensure the proper flow of traffic.

9.5.3 New Construction

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

9.5.4 Sharing of Fund

The financial plan and the Finalization of the R- MTMP shall be done based on terms of reference as given by ministry. During preparation of R- MTMP, the investment from total available resources under road sector for different classes of the road can be distributed as Apportion 30% for maintenance at first and remaining 70% shall be distributed. The MoFALD guidelines has set different view for budget distribution in different class of road:

- Class A road, ≥ 50%
- Class B road, ≤ 30%
- Class C road, ≤ 20%
- Class D road, ≤ 10%

Although, MoFALD has set guidelines for the distribution of budget, it was adjusted by making discussion with local authorities based on local condition and requirement of Rural Municipality. Arjikot Rural Municipality has decided to invest the 70% in construction and 30% in Maintenance of road for next 5 fiscal year. The construction sector Budget shall be invested with 45% in A-Class, 30% in B-class, 20% in C-class and 5% in D- class.

The estimate of budget required for the five years is prepared based on the assumption that the Class A road is to be made two lane, Class B road is to be made intermediate lane and Class C and Class D road is to be made single lane and lane considered are assumed to be gravelled as possible. Due to limitation of budget, the roads are assumed to have simple cross drainage structures within this period whereas cross drainage structures such as Bridges are notincluded in this budget and expected to be completed within this time period by external sources. For approximate costing, the construction rate of road appurtenances is assumed to be equal to that of gravelling cost and for short term the minimum width of 3m is assumed if existing road width doesn't exist. Similarly, longitudinal drainage on both side of roadway is not considered in this plan.

R- MTMP mainly deals with Class A, B and C roads, and Class D roads but private owned Roads are not given any consideration. Interventions on those roads need to be incorporated in annual budget plan. As compared to the present budget of Rural Municipality, the estimated budget is more and the deficit amount should be managed from outer sources.

Intervention that can't be completed in predetermined 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, Rural Municipality need 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.

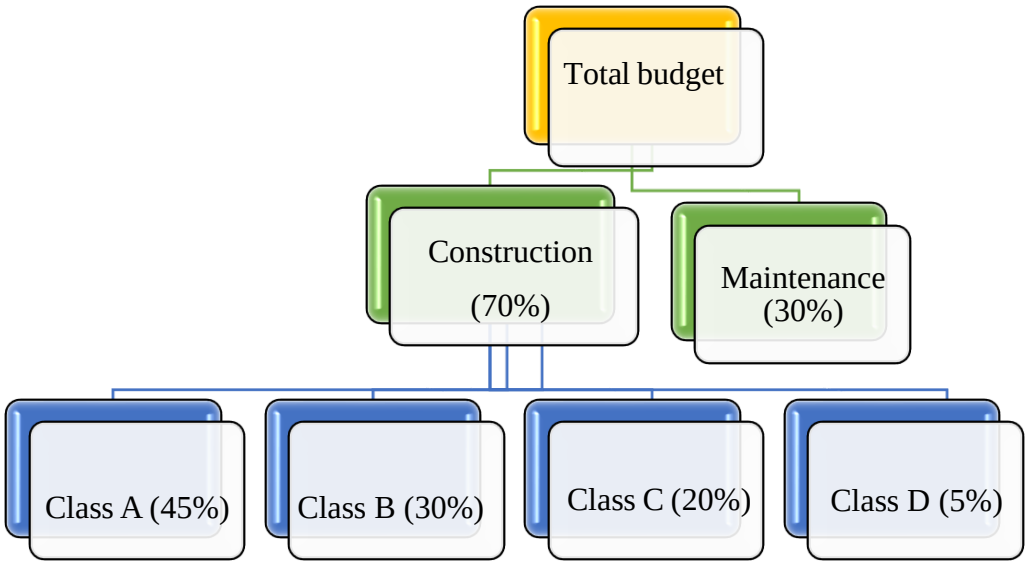


Figure 9-2 : Budget Allocation as Per Interest of Local Authorities over Planning of Municipal

Chapter 10 First Five Years Municipal Transport Master Plan

This chapter deals with the interventions to be made in road and transport sectors for first five years according to the road priority Finalized in the perspective plan

10.1 Budget Fore Casting for Five Years R- MTMP of Sunchhahari Rural Municipality

Table 10-1 : Municipal Budgeting Fore Casting on R- MTMP

Forecasted Budget For Sunchhahari Rural Municipality								
BUDGET	**Probable Budget**	**Construction(70%)**	**maintainance(30%)**	**Class A(50%)**	**Class B(30%)**	**Class C(20%)**	**Class D(5%)**	**Total Cost For Construction**
Base Year	51,850,000	36,295,000	15,555,000	16,332,750	10,888,500	7,259,000	1,814,750	36,295,000
first Year	59,627,500	41,739,250	17,888,250	18,782,663	12,521,775	8,347,850	2,086,963	41,739,250
Second Year	68,571,625	48,000,138	20,571,488	21,600,062	14,400,041	9,600,028	2,400,007	48,000,138
Third Year	78,857,369	55,200,158	23,657,211	24,840,071	16,560,047	11,040,032	2,760,008	55,200,158
Fourth Year	90,685,974	63,480,182	27,205,792	28,566,082	19,044,055	12,696,036	3,174,009	63,480,182
Fifth Year	104,288,870	73,002,209	31,286,661	32,850,994	21,900,663	14,600,442	3,650,110	73,002,209
Total				**142,972,621**	**95,315,081**	**63,543,387**	**15,885,847**	**317,716,937**

Table 10-2 Year Wise Budget Forecasting for Intervention of R- MTMP

Forecasted Financial Plan of the Rural Municipality in Road Sector							
Base Year		**Forecasted Year (Amount in NRs.)**					
year		-	1	2	3	4	5
f/y		**2080/81**	**2081/82**	**2082/83**	**2083/84**	**2084/85**	**2085/86**
Amount		51,850,000	59,627,500	68,571,625	78,857,369	90,685,974	104,288,870
Intervention Type	Construction	36,295,000	41,739,250	48,000,138	55,200,158	63,480,182	73,002,209
	Maintanence	15,555,000	17,888,250	20,571,488	23,657,211	27,205,792	31,286,661

Table 10-3 20-year budget forecasting for R- MTMP Road Network

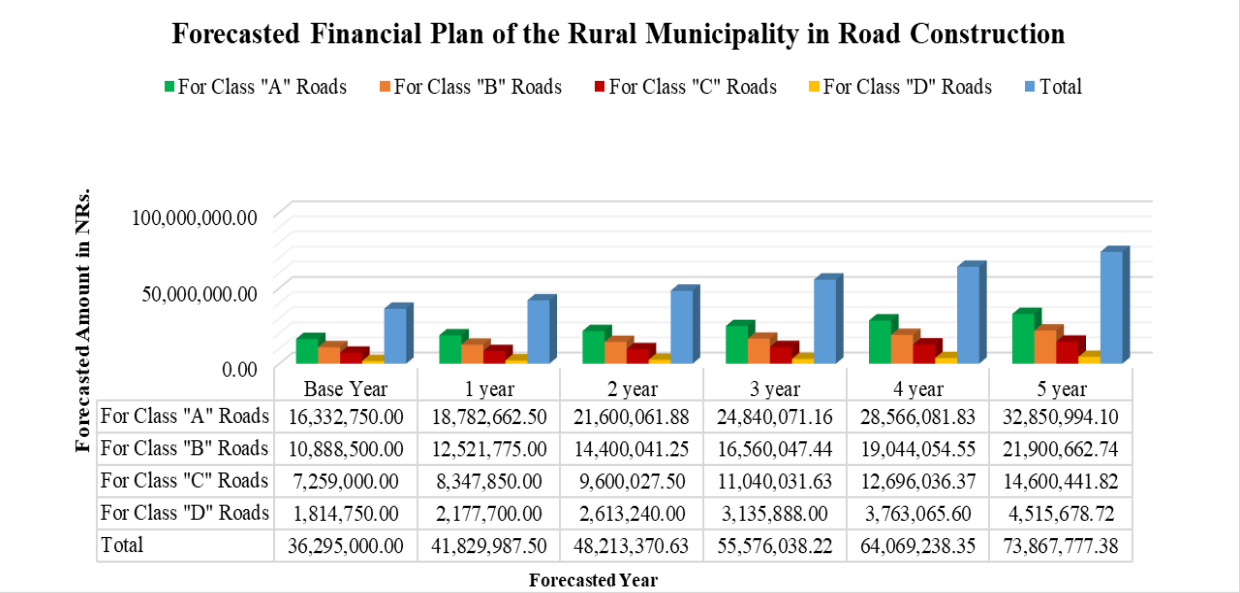
Forecasted Financial Plan of the Rural Municipality in Road Sector								
Base Year	**Forecasted Year (Amount in NRs.)**							
	Base Year	**1 year**	**2 year**	**3 year**	**4 year**	**5 year**	**10 year**	**20 year**

	2080/81	2081/82	2082/83	2083/84	2084/85	2086/87	2091/92	2100/101
Amount	51,850,000	59,627,500	68,571,625	78,857,369	90,685,974	104,288,870	599,661,003	6,896,101,540
Cumulative Budget	**51,850,000**	**111,477,500**	**180,049,125**	**258,906,494**	**349,592,468**	**453,881,338**		

10.1.1 Financial Forecasting in Road Construction

Table 10-4 : Forecasting Financial Plan of the R- MTMP in Road Construction

Forecasted Financial Plan of the Rural Municipality in Road Maintanence						
Road Type for the Maintanence Work	**Forecasted Year (Amount in NRs.)**					
	Base Year	**1 year**	**2 years**	**3 years**	**4 years**	**5 years**
	2080/81	**2081/82**	**2082/83**	**2083/84**	**2084/85**	**2085/86**
Class "A" Roads	6,222,000	7,155,300	8,228,595	9,462,884	10,882,317	12,514,664
Class "B" Roads	4,666,500	5,366,475	6,171,446	7,097,163	8,161,738	9,385,998
Class "C" Roads	3,111,000	3,577,650	4,114,298	4,731,442	5,441,158	6,257,332
Class "D" Roads	1,555,500	1,788,825	2,057,149	2,365,721	2,720,579	3,128,666
Total for Construction	**15,555,000**	**17,888,250**	**20,571,488**	**23,657,211**	**27,205,792**	**31,286,661**



	Base Year	1 year	2 year	3 year	4 year	5 year
For Class "A" Roads	16,332,750.00	18,782,662.50	21,600,061.88	24,840,071.16	28,566,081.83	32,850,994.10
For Class "B" Roads	10,888,500.00	12,521,775.00	14,400,041.25	16,560,047.44	19,044,054.55	21,900,662.74
For Class "C" Roads	7,259,000.00	8,347,850.00	9,600,027.50	11,040,031.63	12,696,036.37	14,600,441.82
For Class "D" Roads	1,814,750.00	2,177,700.00	2,613,240.00	3,135,888.00	3,763,065.60	4,515,678.72
Total	36,295,000.00	41,829,987.50	48,213,370.63	55,576,038.22	64,069,238.35	73,867,777.38

Figure 10-1 Financial Plan of Municipality in Road Construction

To support the implementation of the Rural Municipal Transport Master Plan (RMTMP) in Sunchhahari Rural Municipality, a five-year financial forecast had been prepared. The total estimated budget for the construction and maintenance of the road network amounted to **NPR 317,716,937** over the planning period. The budgeting model had been structured with **70%**

allocated for road construction and **30%** for maintenance activities, ensuring a balanced approach to both expansion and upkeep of the road infrastructure.

In the **base year**, a budget of **NPR 51,850,000** had been projected, with **NPR 36,295,000** directed toward construction and **NPR 15,555,000** reserved for maintenance. The construction budget was further distributed across road classes, with **50%** assigned to Class A roads, **30%** to Class B, **20%** to Class C, and **5%** to Class D. This distribution emphasized the strategic importance of higher-category roads while ensuring reasonable investment in lower-class and agricultural roads.

In subsequent years, the annual budget forecasts had been adjusted upward to accommodate inflation, increased road length targets, and more intensive maintenance needs. By the **fifth year**, the total annual budget had reached **NPR 104,288,870**, with **NPR 73,002,209** allocated to construction alone. Throughout the five-year period, the cumulative construction investment had been projected to reach **NPR 142,972,621** for Class A roads, **NPR 95,315,081** for Class B roads, **NPR 63,543,387** for Class C roads, and **NPR 15,885,847** for Class D roads.

This financial forecast had provided a robust foundation for phased implementation, ensuring that resource allocation matched road priority levels and construction timelines. The forecast also recognized the critical role of routine and periodic maintenance, aiming to extend the service life of the roads while minimizing future rehabilitation costs. Overall, the five-year budget plan had been designed to systematically strengthen rural connectivity, promote economic growth, and enhance access to essential services within Sunchhahari Rural Municipality.

10.1.2 Financial Forecasting in Road Maintenance

Table 10-5 : Financial Plan of R- MTMP in Road Maintenance

Forecasted Financial Plan of the Rural Municipality in Road Maintanence						
Road Type for the Maintanence Work	**Forecasted Year (Amount in NRs.)**					
	Base Year	**1 year**	**2 years**	**3 years**	**4 years**	**5 years**
	2080/81	**2081/82**	**2082/83**	**2083/84**	**2084/85**	**2085/86**
Class "A" Roads	6,222,000	7,155,300	8,228,595	9,462,884	10,882,317	12,514,664
Class "B" Roads	4,666,500	5,366,475	6,171,446	7,097,163	8,161,738	9,385,998
Class "C" Roads	3,111,000	3,577,650	4,114,298	4,731,442	5,441,158	6,257,332
Class "D" Roads	1,555,500	1,788,825	2,057,149	2,365,721	2,720,579	3,128,666
Total for Construction	**15,555,000**	**17,888,250**	**20,571,488**	**23,657,211**	**27,205,792**	**31,286,661**

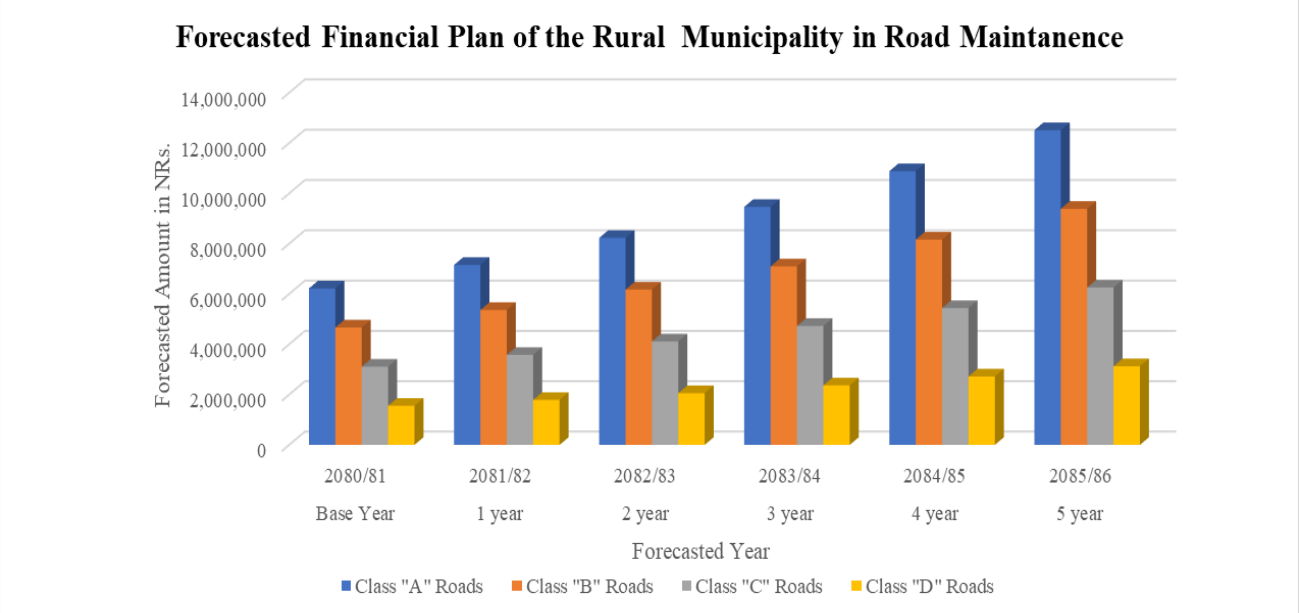


Figure 10-2 : Financial Plan of R MTMP in Road Maintanence

10.2 Prioritized Rural Municipality Road for 5 year R- MTMP

Rural Municipality Transport Master Plan (R- MTMP) of this Rural Municipality includes the following 40 prioritized roads for upcoming five years. All 3 District roads ; 4 Class "A" roads; 4 class "B" roads, 4 class "C" roads and 4 Class "D"roads will be implemented as conservation, improvement and new construction in this five year period.

As such, five-year plan has focused on the accessibility of all the settlements, moving towards mobility to increase the access to wider services, thus paving the way for development of proper sustainable public transport services within and around the Rural Municipality. The strategy and investment plans for 5-year Municipal Transport Master Plan Road Network has been elaborated in below.

The Sunchhahari Rural Municipality has developed a 5-year master plan for rural road construction to address critical infrastructure needs. The total available budget for the period 2024–2028 is NRS 453.88 million, divided into NRS 317.72 million for new construction and NRS 136.16 million for maintenance. Although 317 km of roads across A, B, C, and D classes have been proposed, financial constraints mean that only approximately **10.59 km** of earthen roads can realistically be constructed within the current budget, given an average construction cost of NRS 3 crore per kilometer. This output represents just **3.3%** of the proposed road network, highlighting the urgent necessity for cost optimization measures or the acquisition of additional funding sources.

Executive Summary

- **Total Budget**: NPR 453.88 million (Construction: NPR 317.72 million, Maintenance: NPR 136.16 million)
- **Road Target**: 317 km proposed (ABCD classes)
- **Feasible Output**: **10.59 km** achievable at current budget (NPR 3 crore/km for earthen roads)
- **Critical Gap**: Covers only **3.3%** of proposed network. Urgent need for cost optimization or additional funding.

Proirity wise Road	Road Code and Road Name	Existing Road	Proposed Road	Grand Total	Row (m)
	A Class Road Network	**112.137**	**58.082**	**170.218**	**15 m**
1	A005_Sulichaur - kasala - pobang - uwa - thawang sadak	21.82		21.82	15 m
2	A006_Salghari - hamja - jelbang - sadak	16.67		16.67	15 m
3	A001_Ruinibang - badachaur - gumcghal - harjung syuri - bahiri gam - vitri gam	6.88		6.88	15 m
4	A002_Natdha - syuri - kimleghat sadhak	15.70		15.70	15 m

Proirity wise Road	Road Code and Road Name	Existing Road	Proposed Road	Grand Total	Row (m)
	B Class ROad Network	**35.25**	**88.11**	**123.35**	**10 m**
1	B001_Bahiri gam -rijaban - bhaba - seulibang - pyuthan sadhak	5.91	6.66	12.58	10 m
2	B002_Gaja bhulunchung sadhak	4.60		4.60	10 m
3	B002_Khursanibari - gaja - bahirigaam sadhak	1.07	1.84	2.91	10 m
4	B002_Pobang - serum - ghusbang - uwa sadhak	3.74		3.74	10 m
5	B003_Bobang - shikung - madhai - narbang - pokhara sadhak	5.31	1.98	7.29	10 m

Proirity wise Road	Road Code and Road Name	Existing Road	Proposed Road	Grand Total	Row (m)
	C Class Road Network	**31.59**	**110.21**	**141.80**	**8 m**
1	C001_Gombang - pitambare - kancha kothi Sadak		7.69	7.69	8 m
2	C002_Nandhu khola - manchare dawar Sadak		4.59	4.59	8 m
3	C003_Gohakhola - charipani - khalasbang - pyuthan Sadak	1.56	6.05	7.61	8 m
4	C004_Jelbung - bibang Sadak	0.88	3.01	3.89	8 m
5	C005_Jelgung - chalbang - tallo jure Sadak	0.84	2.69	3.53	8 m

S. N	Road Code and Road Name	Existing Road	Proposed Road	Grand Total	Row (m)
	D Class Road Network	**7.10**	**45.55**	**52.66**	**6 m**
1	D001_Urla - ghuri - jhingrun Sadak		1.87	1.87	6 m
2	D002_Goha narbang sadak		0.90	0.90	6 m
3	D003_Bhulunchung - chalbang sadhak		1.43	1.43	6 m
4	D004_Gichey - tamali - seradfu sadhak		2.35	2.35	6 m
5	D005_Hima - neta Sadak		1.73	1.73	6 m

Budget Allocation

Year	Total Budget (NPR)	Construction (70%)	Maintenance (30%)
Base Year	51,850,000	36,295,000	15,555,000
Year 1	59,627,500	41,739,250	17,888,250
Year 2	68,571,625	48,000,138	20,571,488
Year 3	78,857,369	55,200,158	23,657,211
Year 4	90,685,974	63,480,182	27,205,792
Year 5	104,288,870	73,002,209	31,286,661
Total	**453,881,338**	**317,716,937**	**136,164,401**

Construction Budget by Road Class

Class	% Allocation	Total Budget (NPR)	Constructible Length (km)
A-Class	45%	142,972,621	4.77 km
B-Class	30%	95,315,081	3.17 km
C-Class	20%	63,543,387	2.12 km
D-Class	5%	15,885,847	0.53 km

Year-Wise Construction Plan

NPR 3 crore/km

Year	A-Class (km)	B-Class (km)	C-Class (km)	D-Class (km)	Total (km)
Base	0.54	0.36	0.24	0.06	1.20
Year 1	0.63	0.42	0.28	0.07	1.40

Year	A-Class (km)	B-Class (km)	C-Class (km)	D-Class (km)	Total (km)
Year 2	0.72	0.48	0.32	0.08	1.60
Year 3	0.83	0.55	0.37	0.09	1.84
Year 4	0.95	0.63	0.42	0.11	2.11
Year 5	1.10	0.73	0.49	0.12	2.44
Total	**4.77**	**3.17**	**2.12**	**0.53**	**10.59**

Year	Class	Budget Allocation (NPR)	Constructible Length (km)
Base	A-Class	16,332,750	0.54 km
	B-Class	10,888,500	0.36 km
	C-Class	7,259,000	0.24 km
	D-Class	1,814,750	0.06 km
Year 1	A-Class	18,782,663	0.63 km
	B-Class	12,521,775	0.42 km
	C-Class	8,347,850	0.28 km
	D-Class	2,086,963	0.07 km
Year 2	A-Class	21,600,062	0.72 km
	B-Class	14,400,041	0.48 km

Year	Class	Budget Allocation (NPR)	Constructible Length (km)
	C-Class	9,600,028	0.32 km
	D-Class	2,400,007	0.08 km
Year 3	A-Class	24,840,071	0.83 km
	B-Class	16,560,047	0.55 km
	C-Class	11,040,032	0.37 km
	D-Class	2,760,008	0.09 km
Year 4	A-Class	28,566,082	0.95 km
	B-Class	19,044,055	0.63 km
	C-Class	12,696,036	0.42 km
	D-Class	3,174,009	0.11 km
Year 5	A-Class	32,850,994	1.10 km
	B-Class	21,900,663	0.73 km
	C-Class	14,600,442	0.49 km
	D-Class	3,650,110	0.12 km
Total	**All Classes**	**317,716,937 NPR**	**10.59 km**

Critical Challenges

Several critical challenges threaten the successful implementation of the plan. First and foremost, there is a significant budget shortfall: constructing 317 km would require around NRS 9.51 billion, while the available budget can only achieve 10.59 km of roads. This major gap demands immediate attention. Additionally, a priority mismatch is noted, where A- and B-class roads receive more attention and funds, potentially neglecting remote and marginalized communities that depend on C- and D-class road access. Moreover, the allocation of 30% of the total budget towards maintenance may prove inadequate, particularly given the high likelihood of landslides and other natural calamities affecting earthen roads in the hilly terrain.

Recommendations

Cost Optimization

The Municipality should urgently explore ways to optimize construction costs. One recommendation is to significantly reduce A/B-class construction costs by utilizing local labor forces, municipal-owned equipment, and simplified design standards. Targeting a cost of NRS 2 crore per kilometer could boost the construction output to 15.89 km. Additionally, D-class trail roads could be simplified and constructed at only NRS 1 crore per kilometer, vastly increasing coverage and connectivity to remote villages.

Funding Strategies

To bridge the funding gap, the following strategies are recommended:

1. **Federal Grants**: The Municipality should aggressively seek federal funding through Nepal's **Rural Road Support Program**, which can subsidize up to 80% of construction costs for A- and B-class roads.

2. **Public-Private Partnerships (PPP)**: Collaboration with agribusiness companies and cooperatives can help finance farm-to-market (C-class) roads, which are vital for economic development.

3. **Community Co-Funding**: Mobilizing community labor and partial local contributions for D-class road construction could save an additional 20% on construction costs, stretching the existing budget further.

Conclusion

This master plan underlines both the opportunities and the limitations faced by Sunchhahari Rural Municipality. While financial resources are heavily constrained, a strategic and optimized approach can yield tangible outcomes. Immediate steps should include revising construction cost estimates based on real contractor bids, launching funding proposals to federal agencies, and initiating Phase 1 of construction (Base Year to Year 2) focusing on the A005_Sulichaur - kasala - pobang - uwa - thawang sadak and A006_Salghari - hamja - jelbang - sadak. Successful early implementation could further strengthen the case for additional grants from provience government.

Road List

Field Photographs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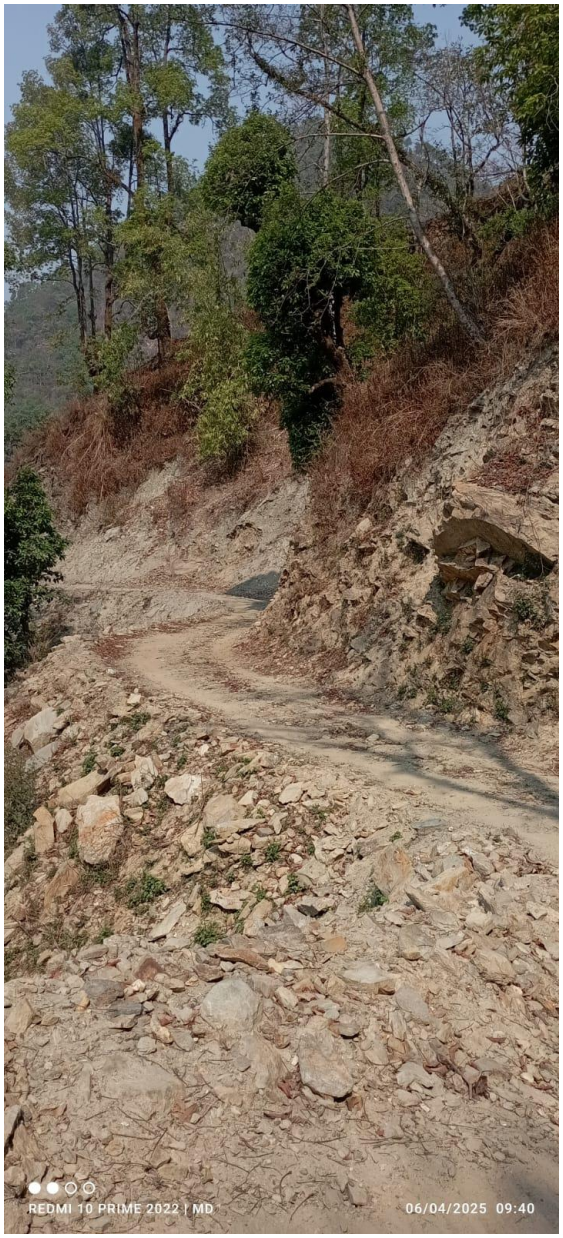
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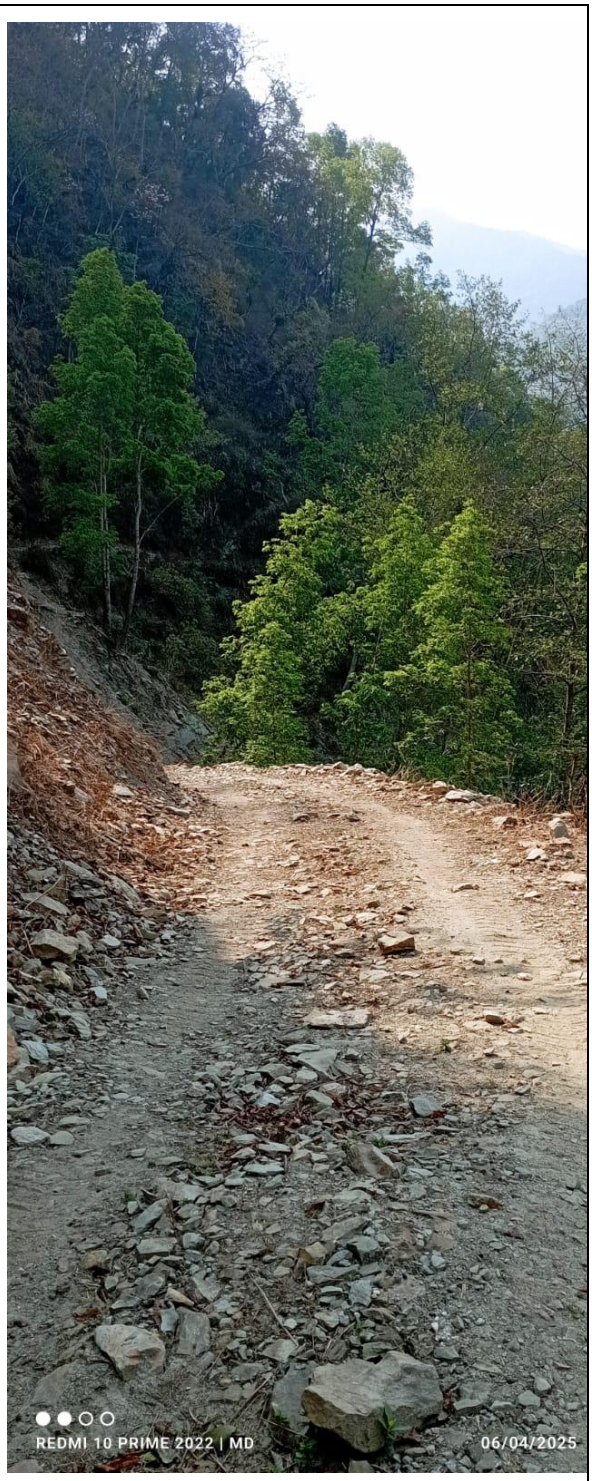
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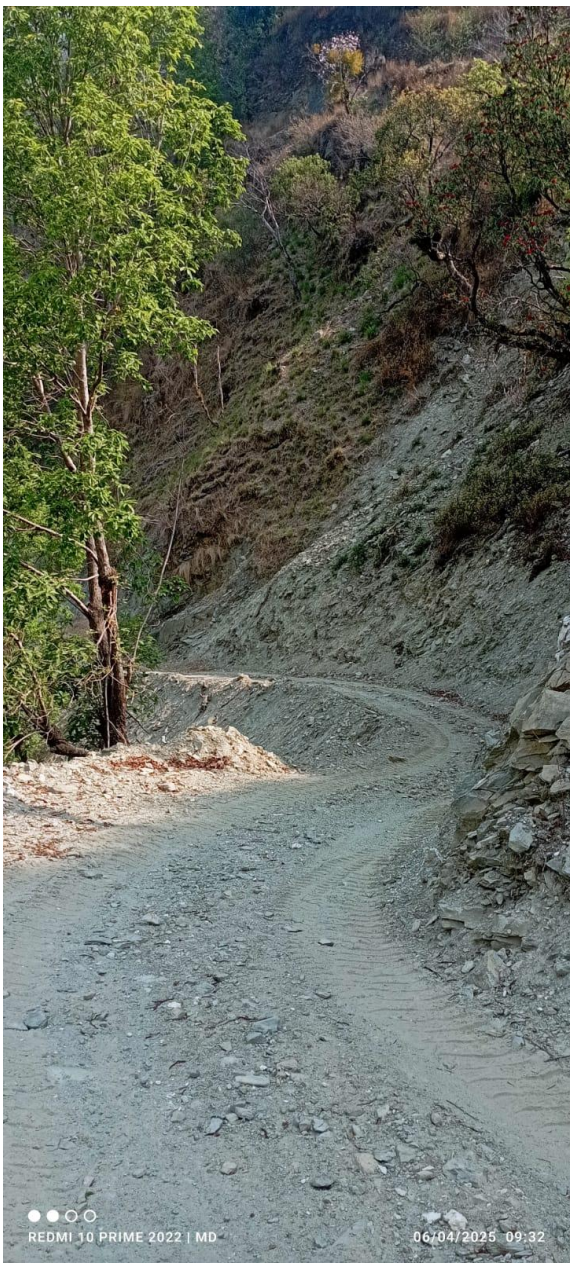
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सुनसहरी गाउँपालिका
२ नं. वडा कार्यालय


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४ नं. वडा कार्यालय
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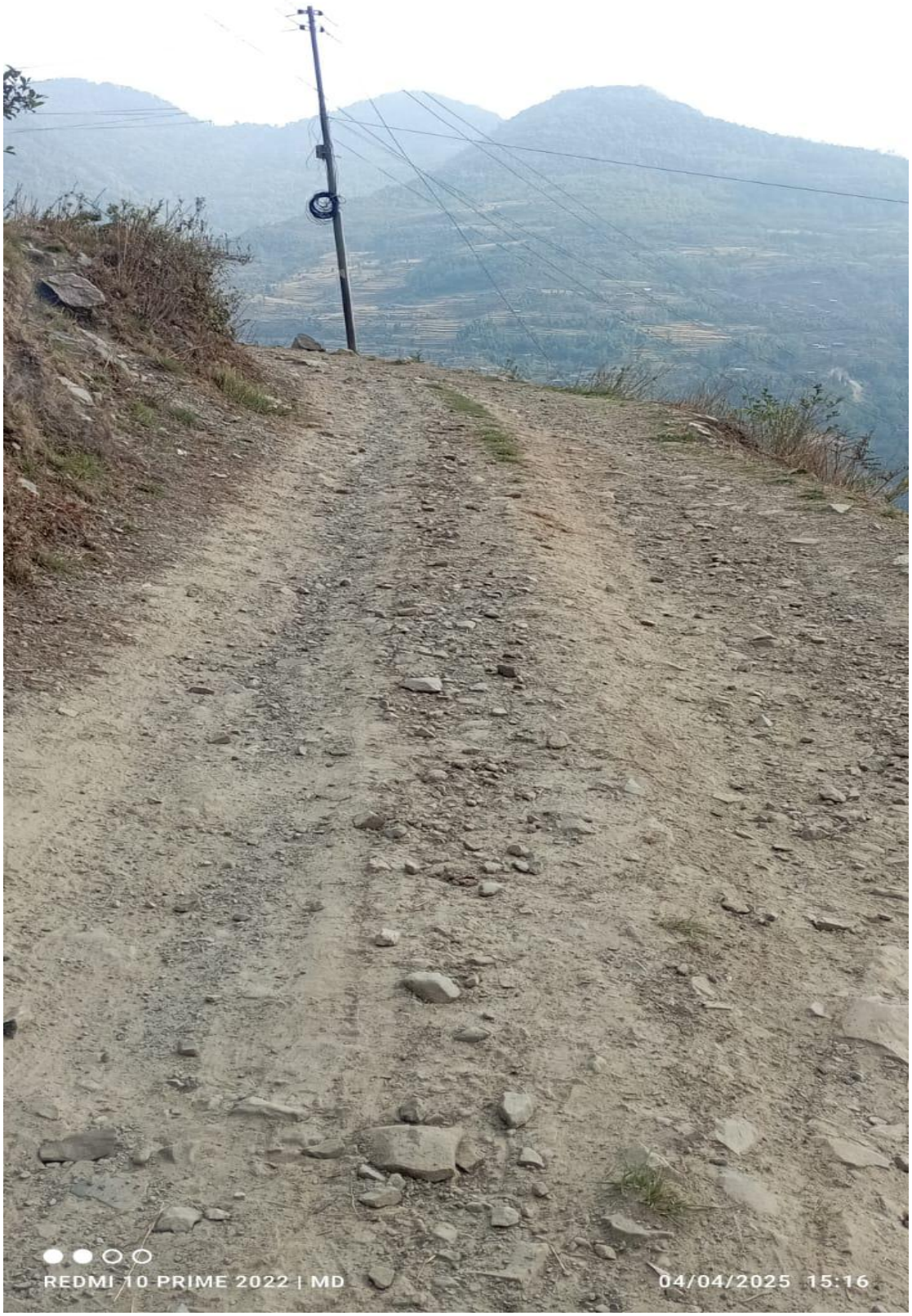
Estd.2076
Ghorahi-15, Dang

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Minutes and Documents

क.सं	सडकको नाम	चरण न. ६ २ ७	कैफियत
१	मुनिचौर कालाम जेलबाङ ओखरेनी सिरन सडक	५	✓
२	मुनिचौर कमला पोखाङ गुम्बा बजार सडक	३,४,२	
३	मुनिचौर बडाचौर गुम्बान गाम बाङुर सडक (गुम्बा देखि)	५.७	✓
४	कालपानी झाम्जा जेलबाङ सडक	५.१	✓
५	पोखाङ सेरम पुम्चाङ उवा सडक	१.३	
६	पुर्वान्चिनी गाजा महिरीगाम सडक	४	
७	नाम्चा ग्युरी किम्लेचाट सडक	६.५	✓
८	पाउवा बेसाधारा पोखाङ सडक	७	
९	म्याबाङ थाजा हेम्कु बागको जनताल सडक	५.७	✓
१०	बाबाङ खिबाङ सडक	१.२	
११	लेहुबाङ दहबाङ डाँडा बाना सडक	३.२	
१२	गुरुनधारा भुलुङभुङ चाम खिबाङ सडक (दोरपा)	६.५	✓
१३	कालपानी धर्मशाला बामरी सडक	४	
१४	स्वास्थ्य चौतारी राङ्गी सडक	४	-
१५	नाम्चा मर्बिना सडक	४	
१६	म्युरी राङ्गी सडक	४	
१७	बोमाङ तिबुङ नारबाङ पोखरा सडक	४	
१८	धोगा देहा झिन्जा सडक	३	
१९	कुइपा बोन्दन रिजाबन सडक	३	
२०	महिरीगाम पाइबाङ प्युटान सडक	३.१	
२१	गुरुधारा मालिगुह बर्मे गाजा मोटरबाटो	२.३	
२२	भुलुङभुङ गिम्दे लामी बर्मे सडक	१	
२३	पुम्चाङ तिलाचन झरी देहा सडक	१	
२४	थाम्चेन झकी सडक	५.७	✓
२५	बलागुङ थबाङ उडालतुम्मा सडक	५	✓
२६	जुबाङ उपल्लो कसला जैला सडक	५.७	✓
२७	पोगाङ मालबाङ गाबाङ सडक	७	
२८	खिबाङ थाबाङ उडालतुम्मा सडक	५	✓
२९	बयाडाडर देहा लाम्या सिरकुना सडक	६	
३०	फगाम पोन्चबाङ दाइलीबाङ सडक	६	
३१	कानाम मलिना थाम्नु रिमिम सडक	७	
३२	नयाँबस्ती थम्जा सडक	७	
३३	पल्लूपल्ले मधधारा स्याबाँस सडक	७	
३४	भुमेभला धोराकाडे फुलरे गिरम्बाङ सडक	७	
३५	गराही बधानधारा थुङ सडक	७	
३६	सेन्द्रन्या खाँबे साउनेपानी सडक	७	
३७	ओखरेनी उपल्लो थर्न मुङलुङ भागमारे सडक	७	
३८	गेन्जबाङ जहुबाङ सडक	७	
३९	मजाखोर लिभिङ खगनी दाखर्क थम्जा सडक	७	
४०	लिभिङ जुङलुङ हेम्कु सडक	१.७	
४१	रिमुल राँने निनर्बाल्ला सडक	२	
४२	झलीगुह लिवाङ सडक	२	
४३	गोलाखोला घरियानी देहा सडक (छेकेको)	.४	
४४	पोखरा बाबाङ स्याङ राङ्गी	४	
४५	नारबाङ भुमेभला सडक	५	
४६	नबिन्या ने.रा.मा.वि सडक	४	
४७	झिन्जा मर्बिना सडक	१	
४८	टडबाङ कार्इड गुहुन्ला किन्दवन सडक	३.२	
४९	गाजा भुलुङभुङ सडक (जलबाङ, मल्केड.)	६	
५०	उम्बाङ लबबाङ मरिबाङ दाम्फले सडक	५	✓
५१	पोखाङ खर्क सडक		✓
५२	निर्वाचन्ना उतरगाङ धर्मशाली गनीयासा ओखरेनी गुरिल्ला स्मारक मार्ग		
५३	मुनाहरी फुलबारी सुइमा भबभर बाँटी गबाङ खिबाङ तिलाचन कार्इड टडबाङ सेरम पर्यटन मार्ग		
५४	ओखरेनी मेम्रासा स्तल भन्नबाङ मसिना मन्धा हुदै गजुकोट दरबार गुरिल्ला पदमार्ग		

ओनबाङ ~~बाल~~ कान्छाकोठी पर्यटकिय सडक मार्ग

मोलगुङ देखा — मोलगुङ देखा चालबाङ, (ग)

दिम तेता तमाली — नन्दुखोला मल्चरे डोबार (ग)

लुङकुङ चालबाङ — गोदा तरबाङ - (घ)

मोरदे तमाली खेराङ (घ)

Date : ....
Page: ....

Ward No. 5, Sunchhari Rural municipility

आज मिति २०७१/१२/१५ गतेका दिन (शुक्रबार) सुनछहरी गाउँपालिका वडा नं ५ का वडा अध्यक्ष देवीलाल रोका मगर ज्यू को अध्यक्षतामा बसेको बैठकको उपस्थितीमा तपसिल बमोजिमका वडा तथा प्रतिनीधी, कर्मचारी, टोल विकास संस्थाका प्रतिनिधि तथा स्थानिय समाजसेवी एंव बौद्दिक व्यक्तित्व महानुभावहरुको उपस्थितिमा नगर यातायात गुरुयोजनामा छलफल गरी निर्णय गरियो।

स्थान : वडा कार्यालय जैमा कलला।

समय : 1:45PM

उपस्थिती :

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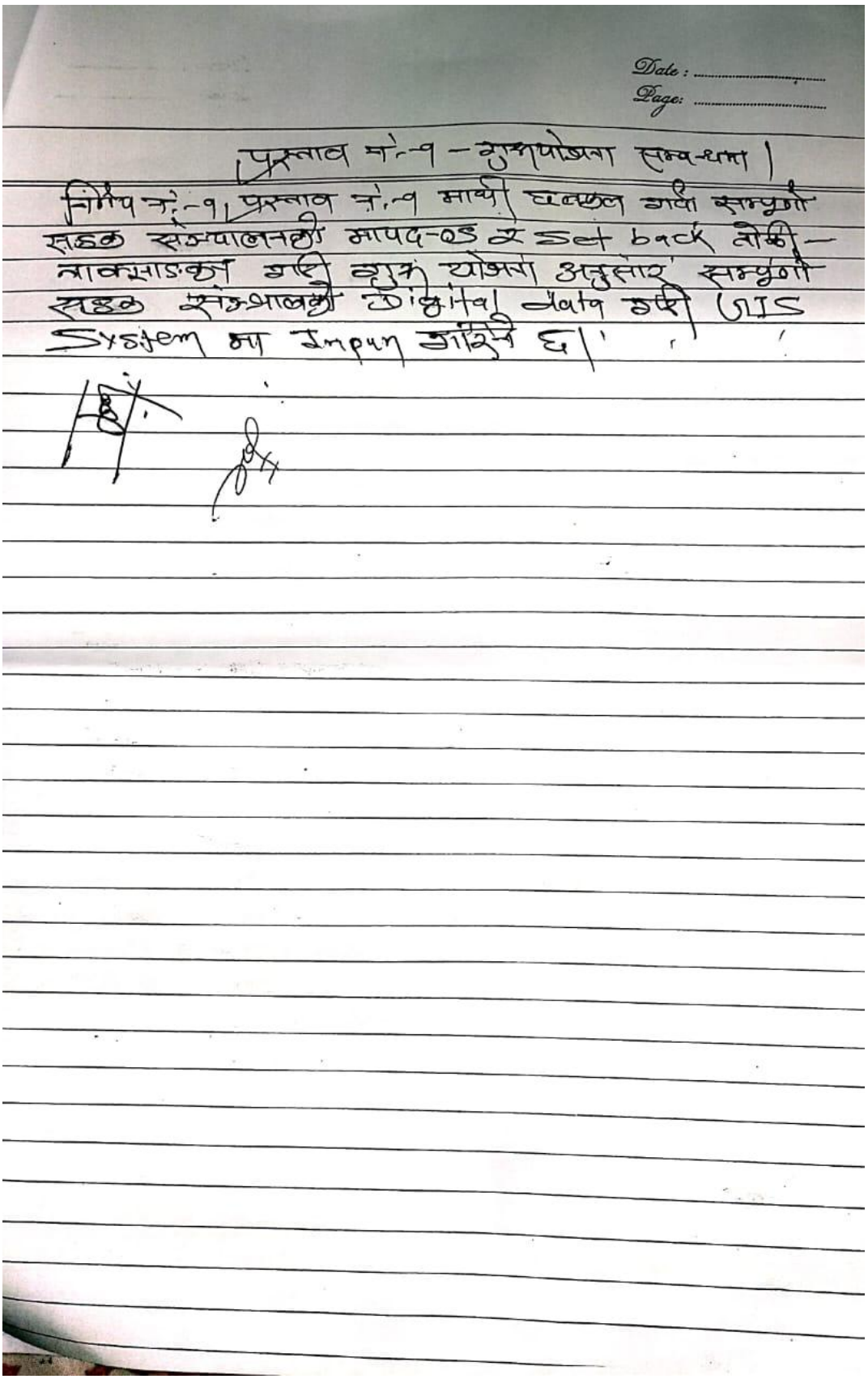
१ देविलाल रोका मगर	५ नं वडा अध्यक्ष	[signature]
२ मनिराज रोका क्षेत्री	” ” सदस्य	मनिराज
३ वेराम बुढाथोकी	” ” ”	[signature]
४ दिला वि.क.	” ” ”	[signature]
५ अनिता विष्ट	” ” ”	
६ पूर्ण ब. बुढामगर	” ” समाजसेवी	[signature]
७ राम ब. पुन	” ” टोल विकास समिति अध्यक्ष	[signature]
८ खगेन्द्र घर्तीमगर	” समाजसेवी	[signature]
९ हुन ब. रोका मगर	” टोल विकास समिति अध्यक्ष	[signature]
१० लाल मती रोका मगर	” ” ” ”	” [signature]
११ बुद्धि बहादुर रोका	” ” समाजसेवी	[signature]
१२ फुल माति वि.क.	” ” समाजसेवी	फुलमती
१३ ठगतलाल पुन मगर	” ” समाजसेवी	[signature]
१४ निमकली बुढाथोकी	” समाजसेवी	निमकली
१५ खुमा घर्ति मगर	” ”	खुमा
१६ गणेश गिरी	” वडा सचिव	[signature]
16 Manoj upadhyay	Er	[signature]

प्रस्ताव तथा निर्णय हरु।



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प्रस्ताव नं.-१ - शुभकामना सम्बन्धमा ।

निर्णय नं.-१, प्रस्ताव नं.१ मार्फी छलफल गर्दा सम्पूर्ण सडक संरचनाहरुमा मापदण्ड र Set back तोकी - नक्साङ्कन गरि यूनको योजना अनुसार सम्पूर्ण सडक संरचनाहरुको Digital Data गरी GIS System मा Input गरिने छ ।

आज मिति २०७९/१२/१६ गतेका दिन सुनछहरी गाउँपालिका वडा नं ६ रोल्वाङ रोल्पा का वडा अध्यक्ष श्री राज बहादुर रोकामगरज्यूको अध्यक्षतामा वडा प्रतिनिधि कर्मचारी टोलविकास समितिका अध्यक्ष वा प्रतिनिधि तथा स्थानिय समाज सेवी एवं बौद्धिक व्यक्तित्व हरुको उपस्थितिमा सडक गुरुयोजना र भवन निर्माण सम्बन्धि मापदण्ड निर्माणका लागि निर्णय गरियो

स्थान :- सुनछहरी गा.पा. ६ नं वडा कार्यालय

समय :-

उपस्थिति हरु

१	राज बहादुर रोकामगर	वडा अध्यक्ष
२	ललिता पुनमगर	महिला सदस्य
३	राम प्रसाद बुढामगर	खुल्ला सदस्य
४	कुमै पुनमगर	" - "
५	कुमारी कामी	दलित म. सदस्य
६	टिकबहादुर बुढामगर	नि. वर्तमान वडा अध्यक्ष
७	राज रोका	नि. वर्तमान वडा सदस्य
८	प्रेम ब बुढा	आम्बिवाङ टोल वि.स. अध्यक्ष
९	मन्न बहादुर रोका	ऐसेलु खर्क टोल वि.स. अध्यक्ष
१०	पृथ्वी प्रसाद बुढामगर	थुरेखला " - " - "
११	मनोज रोका	नेल्वाङ बुलोगाउँ " - " - "
१२	लाल ब कामी	फुल्कवाङ " - " - "
१३	फुली पुन	इन्द्रकोवाङ " - " - "
१४	पूर्ण ब बुढामगर	राङ्सी धुरा " - " - "
१५	निम ब बुढा	हल्वाङ " - " - "
१६	दल ब बुढामगर	टिबाङ " - " - "
१७	मुनलाल पुनमगर	ओवाङ " - " - "
१८	गजेन्द्र रोका	ने.क.पा. मा.के. प्रतिनिधि
१९	चन्द्र ब पुन	ने.क.पा. एमाले प्रतिनिधि
२०	रामकुमार रोकामगर	ने.का. प्रतिनिधि
२१	जित ब बुढा	
२२	प्रकाश रोकामगर	बुद्धिजीवी

Date : ....

Page: ....

२३. कमला बुढामगर

२४ कृष्ण रोकामगर

२५ ... बहादुर बुढामगर

२६ छविलाल पुन

27 Er. Manoj upadhyaya

पिवाङ रोल्पा

प्रस्तावहरु तथा निर्णयहरु

१. निर्णय नं. १ प्रस्ताव नं. १ माथि छलफल गरी सम्पूर्ण सडक संञ्जालहरुको मापदण्ड र Set back तोकी रेकर्डिङ्ग गरी गाउँ योजना अनुसार सम्पूर्ण सडक सञ्जालको Digital Data गरी GIS System मा Input गरिनेछ।

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आज मिति २०८१।०२।१७ गते आइतबारका दिन सुनछहरी गाँउपालिका वडा नं. ६ रोल्पाका वडा अध्यक्ष श्री अमरजित पुनमगर ज्युको अध्यक्षतामा वडा प्रतिनिधि कर्मचारि टोल विकास समितिका ~~प्रतिनिधि~~ अध्यक्ष वा प्रतिनिधी तथा स्थानिय समाजसेवि एवम् बौद्धिक व्यक्तिहरुको उपस्थितिमा सडक गुरुयोजना र भवन निर्माण सम्बन्धि मापदण्ड निर्माणमा छलफल गरी निर्णय गरियो

स्थान : सुनछहरी गाँउपालिका ६ वडा कार्यलय

समय :-

उपस्थितिहरु

१> अमरजित पुनमगर (वडाअध्यक्ष)
२> निर्मला पुनमगर (वडा. सदस्य)
३> कर्ण ब. पुनमगर (वडा. सदस्य)
४> कमला वि.क (वडा. सदस्य)
५> खुम ब. रोकालेत्ति (वडा. सदस्य)
६> गन्ज ब. थापा (वडा. सचिव)
७) चिंगबहादुर झाक्रीमगर (ने.रा.मा.वी.प्र.अ)
८) कृष्ण गिरी (कृषि प्राविधिक)
९) पार्वता वली (पशु प्राविधिक)
१०) रतन किशोर झाक्री (घुडसीटोल)
११) इस्लामन बुढा (झलबाङ टोल)
१२) देवेन्द्र पुनमगर (अनएका पुवाकलअटल)
१३) भुल ब. पुनमगर (सरिवाङ टोल)
१४> विशाल घर्तीमगर (धारपोख टोल)
१५> माइते कामी (दलित टोल)
१६> कुल ब. पुन (डाम्फले टोल)
१७> ओमिलाल पुन. (
१८) लालु पुनमगर (नयाँगाउँ टोल)
१९> जगमन घर्तीमगर (हाङ्गुङ टोल)
२०> बालाराम पुनमगर (हाङ्गुङ)
२१> डीया वि.क (दलितटोल)

Shubha Bihani Engineering Consultancy Pvt. Ltd.
Estd.2076
Ghorahi-15, Dang

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22) हरि पुतमगर (धर्मशाला टोल)
23) ~~बिर~~ धर्तीमगर (लब्बाङ टोल)
24) बिर ब. धर्तीमगर (लब्बाङ)
25) मनोज उपाध्याय
26) भरत पुतमगर (का.स)
27) आदेश पाल तर्पुधार
28 Er. Manoj Upadhyaya

प्रस्तावहरु तथा निर्णयहरु

१. निर्णय नं. १ प्रस्ताव नं. १ मार्फि धनफल गर्दा सम्पुर्ण सडक संचालनको मापदण्ड र Set Back तोडी ~~नक्शा~~ नक्साङ्कन गरी गुरु योजना अनुसार सम्पुर्ण सडक सन्जालको Digital Data गरी UIS System मा Input गरिने छ।

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आज मिति २०८१।१२।२१ गतेका दिन यस सुनछहरी गाउँपालिका वडा नं

५ स्युरी ठोल्याको वडा अध्यक्ष श्री हर्कराम बुढा मगर ज्यूको अध्यक्षतामा - नि. वर्तमान जनप्रतिनिधी, जनप्रतिनिधी, वडा कर्मचारी, टोल विकास सेल्याका पदाधिकारी लगायत कायम रहेका बुद्धिजीवी, सरोकारवाला निकायहरुको उपस्थितिमा सडक गुरुयोजना र नयाँ निर्माण सम्बन्धि मापदण्ड निर्धारण छलफल गरी निर्णय गरियो।

उपस्थिति

1) श्री हर्कराम बुढा मगर (वडा अध्यक्ष)
2) श्री खड्क बहादुर घर्ती मगर (नि. वर्तमान वडा अध्यक्ष)
3) श्री ज्ञा बहादुर वि.क. (वडा सदस्य)
4) श्री मनलाल चुनारा (वडा सदस्य)
5) श्री दल बहादुर गुरुङ (फुलबारी टोल विकास सेल्या अध्यक्ष)
6) श्री कुलो घर्ती (तौदुले टोल " " ")
7) श्री नागेराम वि.क. (चैतेपात " " " ")
8) श्री आइते पुन (चौतारी " " " ")
9) श्री मनसिङ घर्ती (फ्राकोत्रे " " ")
10) श्री दल प्रसाद बुढा
11) श्री खड्क बहादुर घर्ती
12) श्री ~~[illegible]~~ नानासिङ गुरुङ
13) श्री रमेश घर्ती
14) श्री मन बहादुर घर्ती
15) श्री चित्रा पुन
16) श्री खड्क बहादुर शाह मगर
17) श्री वेलमन बुढा
18) श्री मनोज उपाध्याय
19) श्री जानकी कुमारी यादव
20) श्री समिता नामाङ
21) श्री प्रधानसिङ गुरुङ
22) श्री धनिमला पुजा

१. प्रस्ताव तथा निर्णय

१) प्रस्ताव नम्बर १ माथि छलफल गर्दा सम्पूर्ण सडक संचालनको मापदण्ड र Set Back जोडी नक्साङ्कन गर्दै गुरु योजना अनुसार सम्पूर्ण सडक सञ्चालनको Digital

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आज मिति २०८१।१२।२७ का दिन यस सुनछहरी गाउँपालिका वडा नं. ३ का वडा अध्यक्ष श्री इडबीर घर्तीमगर ज्यूको अध्यक्षतामा वडा प्रतिनिधि ज्यूहरु, पूर्व-वर्तमान जनप्रतिनिधि ज्यूहरु, टोल विकास संस्थाका अध्यक्ष सचिव प्रतिनिधि ज्यूहरु, वडा कार्यालयका कार्यरत कर्मचारीहरु, सरोकारवाला र वडामा रहेका अन्य बुद्धिजीवीहरुको उपस्थितिमा सडक गुरुयोजना र भवन निर्माण सम्बन्धी मापदण्ड निर्माणमा छलफल गर्ने निर्णय गरियो।

उपस्थिति

१. श्री इडबीर घर्तीमगर - वडा अध्यक्ष
२. श्री दिपा घर्तीमगर - कार्यपालिका सदस्य
३. श्री दिलमाया दमाई - वडा सदस्य
४. श्री गोविन्द शाही - वडा सचिव
५. श्री ओम बहादुर घर्तीमगर - का.स.
६. Er. Manoj upadhyaya

प्रस्ताव र निर्णयहरु:

प्रस्ताव नं. १ माथि छलफल गर्दै सम्पूर्ण सडक सञ्जालको मापदण्ड र set Back तोकी वर्गीकरण गरि सडक योजना अनुसार सम्पूर्ण सडक सञ्जालको Digital Data गरि GIS system मा Input गरिनेछ।

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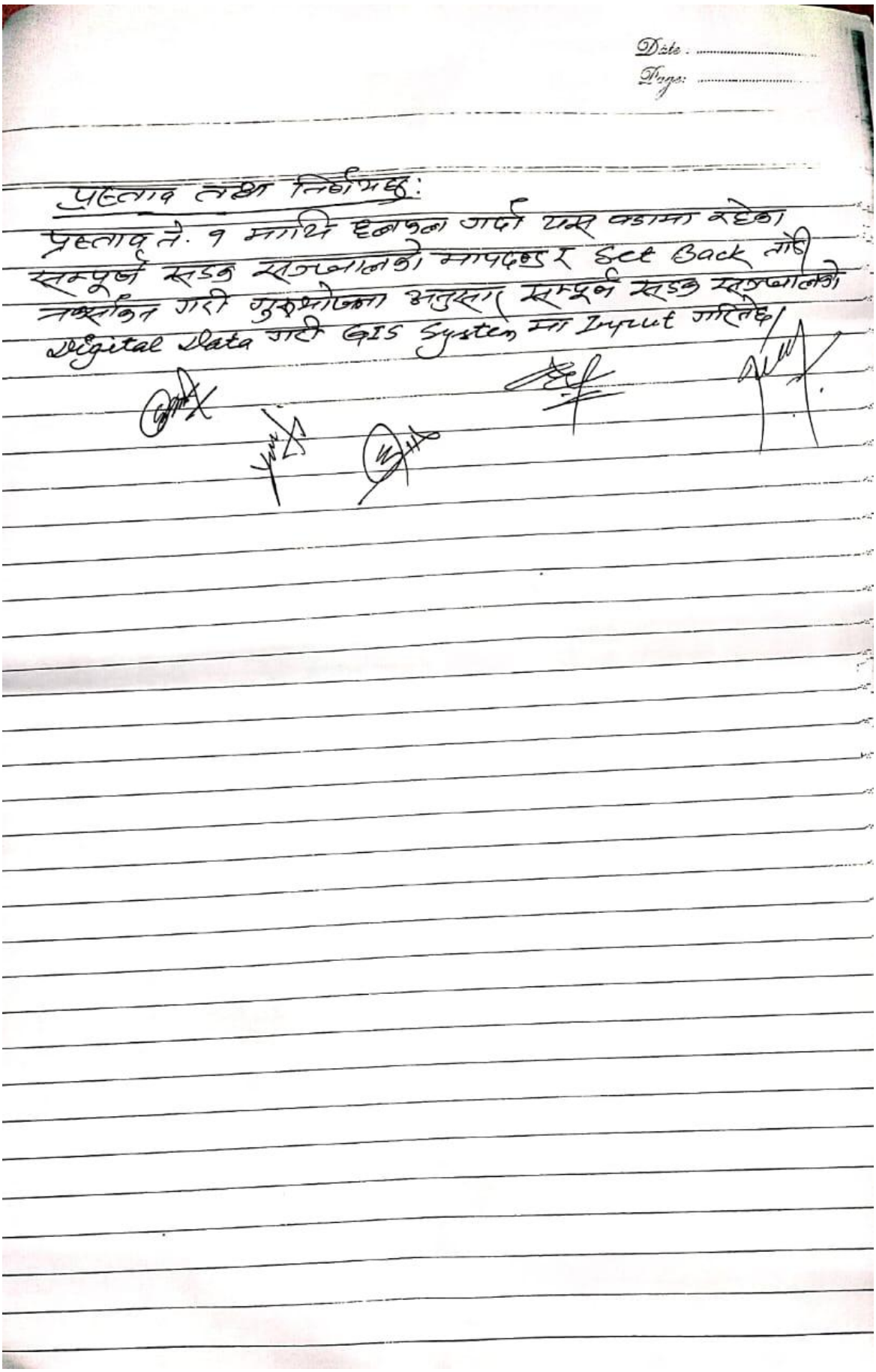
आज मिति २०७९/१२/२२ गतेका दिन यस रोल्पा जिल्ला सुनछहरी गाउँपालिका वडा नं २, मिरुल गाम वडा अध्यक्ष श्री कृष्ण बहादुर बुढाको अध्यक्षतामा यस वडाका पदाधिकारी, निवर्तमान जनप्रतिनिधिहरु, टोल विकास संस्थाका अध्यक्ष एवम् प्रतिनिधिहरु, वडा कार्यालयमा कार्यरत कर्मचारीहरु, सरोकारवाला र वडामा रहेका अन्य बुद्धिजीवीहरुको उपस्थितिमा बैठक बसी सडक गुरुयोजना र भवन निर्माण सम्बन्धी मापदण्ड निर्माण सम्बन्धमा छलफल गरी निर्णय गरियो।

उपस्थिति,

१. श्री कृष्ण बहादुर बुढा - वडा अध्यक्ष
२. श्री मन बहादुर वि.क. - कार्यपालिका सदस्य
३. श्री पशुपति बुढामगर - वडा सदस्य
४. श्री पूर्ण बहादुर बुढामगर - वडा सदस्य
५. श्री कुसमती घर्ती - वडा सदस्य
६. श्री रैमन घर्ती - निवर्तमान वडा अध्यक्ष
७. श्री रुपड बुढामगर - गोहा थार्दे टोल विकास संस्था
८. श्री गणेश कुमार वि.क. - केलगुड टोल विकास संस्था
९. श्री केशलाल बुढामगर - फलबाङ लाक्ना टोल विकास संस्था
१०. श्री हर्क बुढामगर - चापाखर्क टोल विकास संस्था
११. श्री प्रेमन बुढा - बासा टोल विकास संस्था
१२. श्री भक्तसिङ बुढामगर - विवाङ टोल विकास संस्था
१३. श्री एकमन बुढामगर - कास्कोला टोल विकास संस्था
१४. श्री हस्ते घर्तीमगर - तमाली निहद्दे हर्कडे टोल विकास संस्था
१५. श्री एकराज थापा - वडा सचिव
१६. श्री भूराम बुढामगर - सल्कबाङ (बुद्धिजीवी)
१७. श्री रमलाल बुढामगर - विवाङ (बुद्धिजीवी)
१८. श्री चागर घर्तीमगर - फलबाङ (बुद्धिजीवी)
१९. श्री डल्वि बुढा - गोहा(कोला) (बुद्धिजीवी)
२०. श्री केशव घर्तीमगर - निहद्दे (बुद्धिजीवी)
२१. श्री केशव घर्तीमगर - बासा (बुद्धिजीवी)
२२. श्री मनोज उपाध्याय - इन्जिनियर
२३. श्री गोमत बुढामगर - गोहाकोला



प्रस्ताव तथा निर्णयहरु:

प्रस्ताव नं. १ माथि छलफल गर्दा यस वडामा रहेका सम्पूर्ण सडक सञ्जालको Map Digitize र Set Back तोकी नक्सांकन गरी गुरुयोजना अनुसार सम्पूर्ण सडक सञ्जालको Digital Data लाई GIS System मा Input गरिदिने।

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आज मिति २०८१/१२/२ गते का दिन रोल्पा जिल्ला सुनछहरी गा.पा. वडा नं. ७ सेरमको वडा अध्यक्ष श्री धनिमान रोका ज्यूको अध्यक्षतामा यस वडाका पदाधिकारी निवर्तमान जनप्रतिनिधिहरू टोलविकास संस्थाका अध्यक्ष एवम प्रतिनिधिहरू, यस वडा कार्यालयमा कार्यरत कर्मचारीहरू, सरोकारवाला र वडामा रहेका अन्य बुद्धिजीविहरूको उपस्थितीमा बैठक बसि सडक गुरुयोजना र भवन निर्माण सम्बन्धी मापदण्ड सम्बन्धमा छलफल गरि निर्णय गरियो।

उपस्थिती

१.	धनिमान रोका	वडा अध्यक्ष
२.	पुर्ण गोतामे	कार्यपालिका सदस्य
३.	आसपुर घर्ति	वडा सदस्य
४.	वाला राना	वडा एवम कार्यपालिका सदस्य
५.	रामसिं घर्तिमगर	वडा सदस्य
६.	छत बहादुर रानामगर	
७.	ज्याइते रोका	(बुद्धिजीवि)
८.	कमल घर्तिमगर	शिक्षक
९.	दिल प्रसाद घर्तिमगर	शिक्षक
१०.	ज्ञानधिराज रोकामगर	टो. वि. अध्यक्ष
११.	कृष्ण परियार	टो. वि. अध्यक्ष
१२.	विर ब. रानामगर	टो. वि. उपाध्यक्ष
१३.	केशव घर्तिमगर	टो. वि. अध्यक्ष
१४.	किरन रानामगर	शिक्षक
१५.	प्रेमन रोकामगर	[illegible] नेपालका प्रतिनिधि
१६.	मन ब. रानामगर	
१७.	कुमान परियार	
१८.	धोबे पुन	
१९.	जंग रोका	
२०.	श्याम ब. राना	
२१.	हरि ब. के.सी.	वडा सचिव

२१. मनोज उपाध्याय सुर्नौलो निजामी इ. कन्सल्टेन्सी

२२. रंगिला बुढाथोकी सेत्री

२३. रतविर घर्तिमगर कृषि प्रा.वि.

२४. छुजमते घर्तिमगर

प्रस्ताव तथा निर्णयहरु

प्रस्ताव नं १ मा छलफल गर्दा यस वडामा रहेका सम्पुर्ण सडक सञ्जालको ~~मापदण्ड~~ मापदण्ड र set Back तोकि नक्साङ्कन गरि गुरुयोजना अनुसार सम्पुर्ण सडक सञ्जालको Digital Data गरि GIS sist System मा Input गरिने छ।