Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads
Planning and Design Branch
HMIS Unit
Babar Mahal, Kathmandu

SOFTWARE MANUAL

ON

ROAD INVENTRY SURVEY SYSTEM (RISS)

FOR

SOFTWARE DEVELOPMENT FOR ROAD INVENTORY, PHASE I ROAD INVENTORY SURVEY OF AH-42, SUPERVISION AND MONITORING OF PHASE II ROAD INVENTORY SURVEY OF ALL SRN IN NEPAL

REF. NO.: RSDPAF-C-HMIS-02

UNDER THE JOINT VENTURE OF

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PREFACE

Overview of Road Inventory Survey System (RISS)

RISS is an android application based complete package solution for Road Inventory Survey that is efficient, powerful, accurate and easy to learn. The software has interactive module with easy to use menu system for the data collection. This software not only provides data but also directly links with the server to save or to extract the data.

The software is developed by Hi Tech Valley iNet Pvt. Ltd. under the direct support from Department of Roads (DoR), SILT Consultants (P.) Ltd. & Tech Studio of Engineering Pvt. Ltd. (TSE). The software is being tested and widely used under the road inventory survey.

1. PROCEDURE TO DOWNLOAD AND RUN THE APPLICATION

a. The software can be downloaded from **abgroup.com.np/hmis.apk** from your android browser or from your basic computer browser. The name **hmis.apk** should appear after it is downloaded from the website. The downloaded application can be installed directly if it is in your tablet or you can send the computer file to the specific folder of tablet by means of U.S.B. cable or using network and you could install it. The software is installed on by the name RISS meaning Road Inventory Survey System.

b. Run the application by clicking on the RISS icon.

Figure 1 RISS Software Icon

c. The main splash screen will appear as provided below.

Figure 2 RISS Splash Screen

d. The main page opens up after some seconds of the splash screen. The main page consists the following buttons.

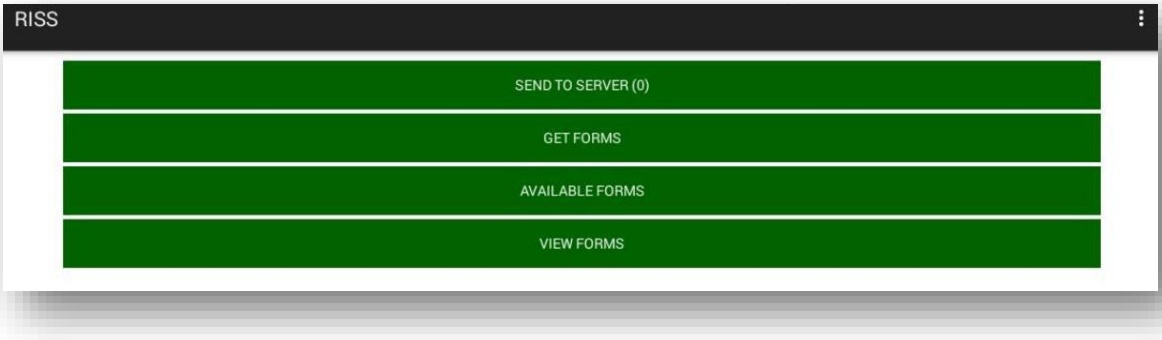


Figure 3 Page after Splash Screen

i. SEND TO SERVER

It simply means that the written inventory surveyed data's will be send to the specific address that is provided on the settings tab. Clicking on three straight dotted line located on top right corner the settings tab can be viewed. The bracket sign showing "**(0)**" on right side of corner simply denotes the number of forms filled. It goes on increasing if the forms are saved or goes on decreasing if the forms are deleted.

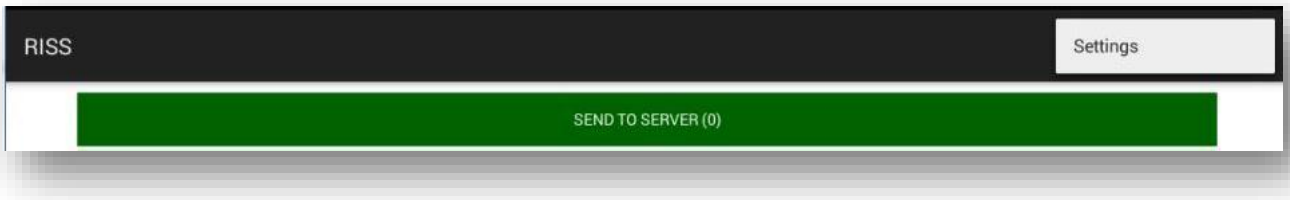


Figure 4 Settings Located on Top Right Corner

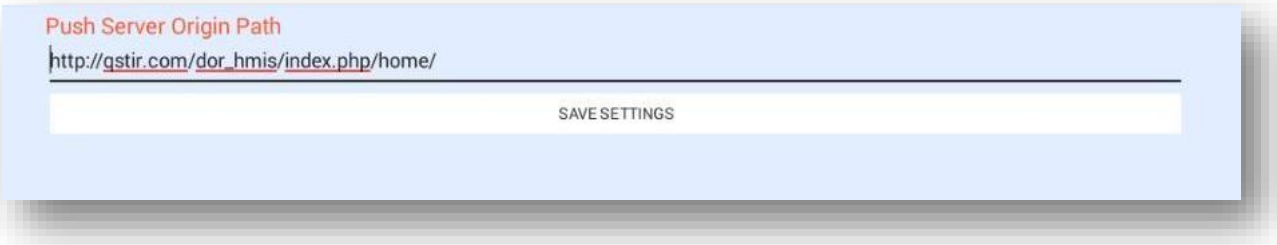


Figure 5 Path Showing the Server's Address

ii. GET FORMS

The get forms simply gets all the inventory formats from the server that are created with proper guidelines from the respective DoR unit. User can download the inventory formats with the help of internet that may be Wi-Fi or regular cellular network. After clicking on the get forms button the confirming dialog box shows up showing the message "**Are you sure to download latest forms from server!!!"** The "**YES**" button begins downloading the forms and the "**NO**" button hides the confirming message box. It shows "**Wait while loading…**" for some time to download the forms from the server. When the downloading is complete another message pops up showing "**Everything is UP-To-Date**". These forms is shown on available forms tab.

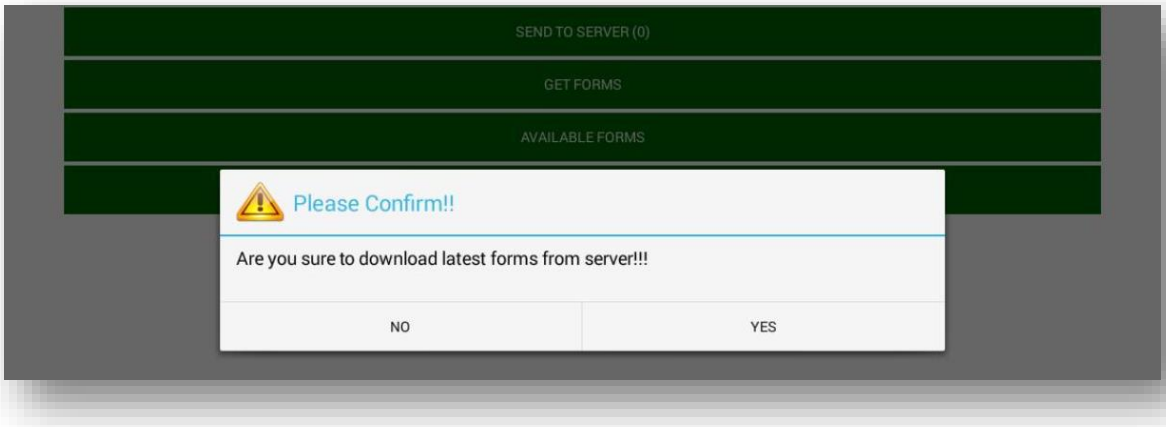


Figure 6 Confirming Message Box

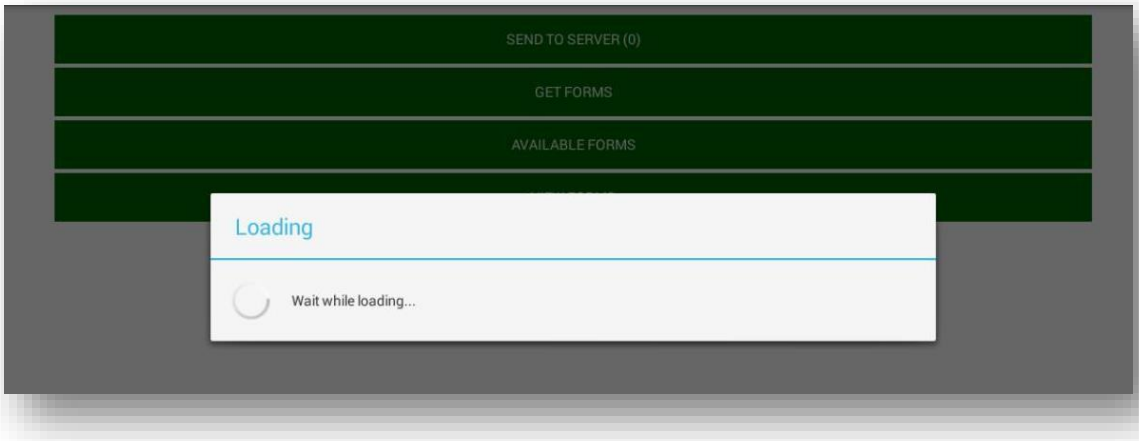


Figure 7 Message Showing While Downloading the Forms

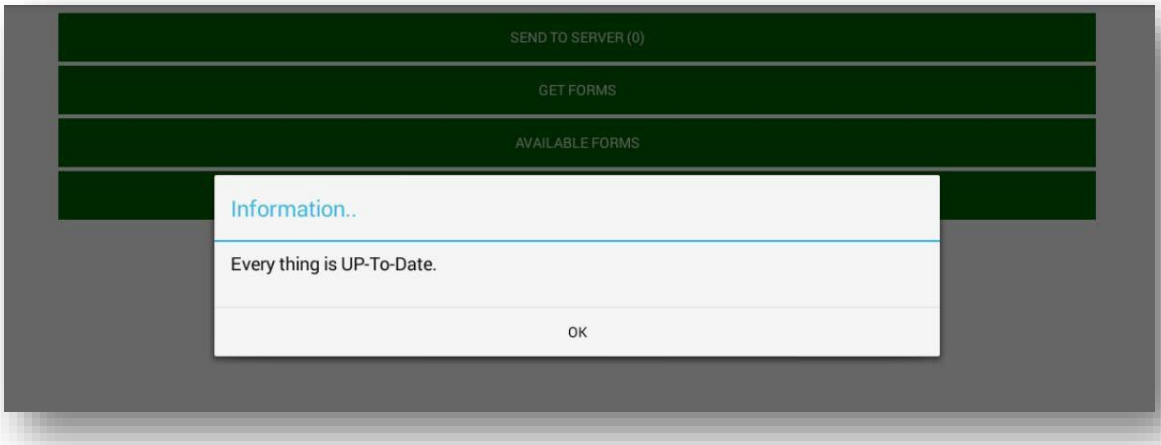


Figure 8 Informing the Forms are Downloaded

iii. AVAILABLE FORMS

After clicking on the available forms button, a new page opens up showing the inventory forms that are downloaded when clicking get forms buttons. Roads particular are filled using these forms. Without downloading from get forms, the forms will not be available in this tab.

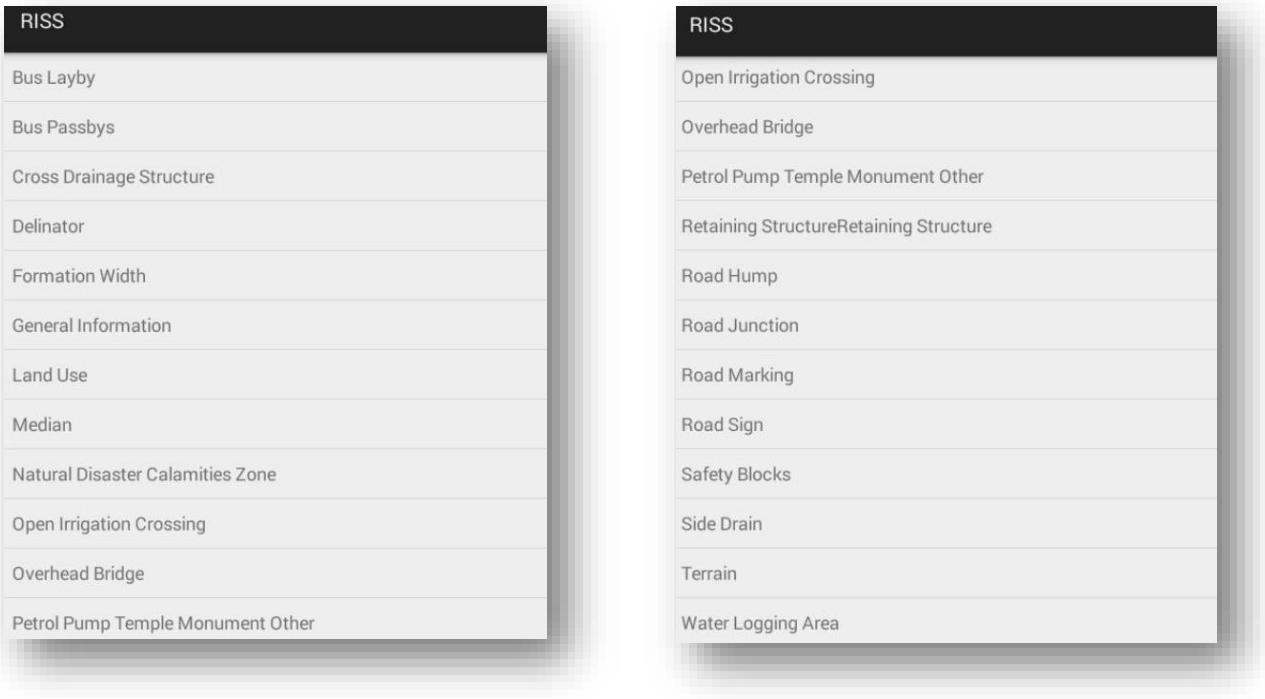


Figure 9 AVAILABLE FORMS

iv. VIEW FORMS

The view forms shows the saved inventory data that are to be send on the server. It consists of all the saved inventory formats that are similar to the available forms but after clicking on the forms, it opens up new pages showing the details of respective inventory.

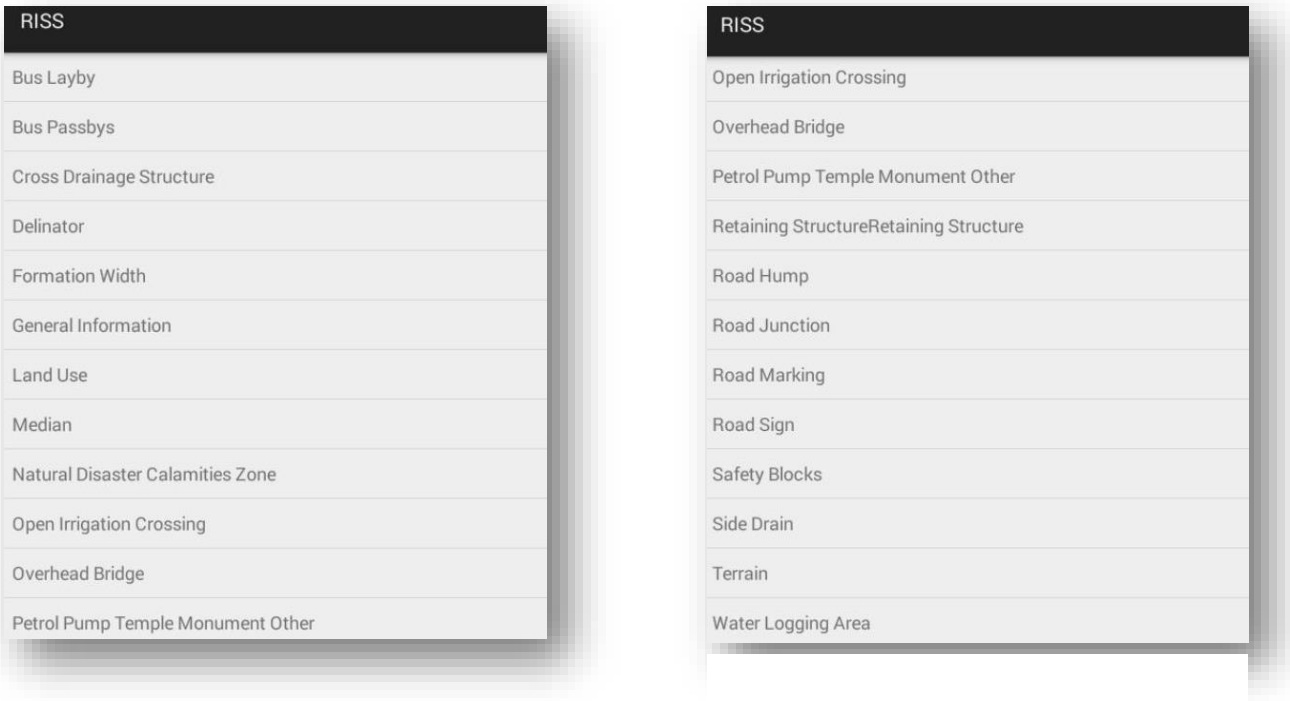


Figure 10 VIEW FORMS

2. LIST OF INVENTORIES PROVIDED

Here are the list of the inventories provided within all the details of each and every parts thoroughly.

2.1. GENERAL INFORMATION

It mainly provides the information's about the road link and its attributes. The followings fields are provided in the general information inventory format of the software application.

2.1.1 District

It consists of all 75 districts of Nepal where users can select the appropriate district from the dropdown menu.

2.1.2 Road Class

Mainly the road class is the hierarchy of roads according to their function and capacities. So in the software itis classified into three parts.

a. **Arterial e.g. National Highway** –Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
b. **Collector e.g. Feeder Roads** – Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
c. **Local e.g. Strategic Urban**- Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

2.1.3 Road Reference Number

According to the Strategic Road Networks (SRN) of 2013/14, there are altogether 21 Highways and 209 Feeders. It is the references for the national highways and the feeder roads that are located in Nepal. It has been developed and formulated by the Departments of Roads (DoR), Nepal. For e.g. the first highway of Nepal **Mahendra Highway** which is referenced as **H01**. Similarly, the second one **Tribhuwan Highway**referencedas**H02**. Also for the feeder,**F001** is the link between **Birtamod (Mahendra Highway)-Chandragadhi** and similarly **F057**, links **Dharan - Chatara - Gaighat-Katari - Sindhuli-Hetauda**.The software contains all the required road reference numbers that are present SRN 2013/14 from the website http://www.dor.gov.np/road_statistics.php of DoR.

2.1.4 Link Code

It is the sub code of the road reference number, whichdenotes the link between two destinations. For e.g. **H0101** denotes the link between **Kakarbhitta** to **Charali** of **Jhapa** district that falls under **Tribhuwan Highway (Road Reference No.:H01).** Similarly, **H1413** denotes the link between **Darchula** to **Tinkar (Indian Border)** of **Darchula**district that falls under **Mahakali Highway(Road Reference No.:H14).**

2.1.5 Road Name

It is the name based on the road ref. number. For e.g. **road ref. no.H01** its road name is **Tribhuwan Highway.** Similarly, for **H14**its road name is **Mahakali Highway**. Also, **road ref. no.F001** its road name is **Birtamod (Mahendra Highway)–Chandragadhi** and for **F057** its road name is **Dharan - Chatara - Gaighat - Katari - Sindhuli – Hetauda.**

2.1.6 Road Link Name

It is the name based on the link code. For e.g. link code **H1413** means link name **Darchula** to **Tinkar (Indian Border).** Similarly for link code **F001** its road name is **Birtamod (Mahendra Highway)–Chandragadhi** *(it is similar to road name because they are not sub categorized as they are the old link before there was any proper plan was developed)*also for link code **F05701** means link name **Dharan** to **Chatara**and **F05702** means link name **Gaighat – Katari**.

2.1.7 Length

It is the length between the road links.The lengths between the links being taken from (Strategic Road Network)SRN 2013/14 and to be checked on site by the survey teams. The unit for length is kilometer (km).

2.1.8 Start Chainage

A chainage is an imaginary line used to measure distance, often corresponding to the centre of a straight road. Here the start chainage is the chainage where road link starts.

2.1.9 Start Coordinate

The start co-ordinate is the coordinate of the starting chainage.

2.1.10 End Chainage

The end chainage is the chainage where road link ends.

2.1.11 End Coordinate

The end co-ordinate is the coordinate of the end chainage.

Note:

The road reference number, road name, link code and road link name are automatically provided in the other inventory formats of the software.

Look on the Appendix A for the road reference number, road name, link code and road link name.

2.2. FORMATION WIDTH

A road is not just pavement, but has to have shoulders for errors (not regular travel) and drainage. For a particular purpose, it may be necessary to allow for overhangs from vehicles - wide trucks need space to keep from destroying signs, etc. A narrow park/rural road may have almost no shoulder and be very hard to get off or turn around if blocked. A "better" road may have a cars width of gravel shoulder to clear the roadway. Moreover, drainage ditches may be part of the "formation". Therefore, surveying has to determine how much width needed when cut and fill has to be done. A 3 m wide pavement might need a four, six, nine, or more meter wide formation. The following fields are provided in the formation width inventory format of software application.

2.2.1 Start Chainage

It is the chainage from where formation width starts.

2.2.2 Start Coordinate

It is the coordinate of the start chainage.

2.2.3 No of Lanes

A **lane** is part of a carriageway (roadway) that designated for use by a single line ofvehicles, to control and guide drivers and reduce traffic conflicts. The users have to fill up the field according to the provided lanes in the roadway.

2.2.4 Median

The **median** separates opposing lanes of traffic on divided roadways, such as divided highways, dual carriageways, freeways, and motorways. The term also applies to divided roadways other than highways, such as some major streets in urban or suburban areas. The users just have to notify if there is a median or not in the roadway by choosing from dropdown list of yes or no.

2.2.5 Width of Median

Users have to provide the median width in the unit of meters on the required field.

2.2.6 Footpath Surface Type

A **footpath** (also pedestrian way, walking trail, nature trail) is a type of thoroughfare that is intended for use only by pedestrians and no other forms of traffic such as motorized vehicles, cycles, and horses. The users can select the surface type according to the field conditions. The dropdown is provided for the required field. The dropdown consists of the following types.

i. None(Used when there is no footpath available)
ii. Concrete
iii. Earthen
iv. Stone Paved
v. Brick Paved
vi. Gravel
vii. Asphalt Concrete
viii. Other (Look 2.7.)

2.2.7 If Others Please Specify

This field is required when there is **other type** that cannot be defined from the Footpath Surface Type or where the other is selected on the Footpath Surface Type. The user should provide the appropriate type according to the field observation.

2.2.8 Footpath Width

Users have to provide the footpath width in the unit of meters on the required field.

2.2.9 Footpath Condition

The users have to select from the following dropdown lists provided according to the field observation.

i. None(Used when there is no footpath available)
ii. Good
iii. Fair
iv. Poor

2.2.10 Drain Type

A drain is a channel or pipe carrying off surplus liquid, especially rainwater or liquid waste. The user can fill up the required information from the following types that are available in the dropdown menu of the software.

i. None(Used when drain isn't available)
ii. Masonry
iii. Pre-Cast Concrete
iv. Buried
v. Earthen
vi. Other (Look 2.11.)

Note: The detail of the drain type is provided in the side drain formats.

2.2.11 If Others Please Specify

This field is required when there is **other type** that cannot be defined from the Drain Type or where the other is selected on the Drain Type.

2.2.12 Overall Drain Width

It is the overall top width of the drain from outside of road edge to another edge of the drain. The users are required to input the values in meters.

2.2.13 Drain Condition

The condition of the drain can be classified onto the following four types from where the users can fill the required field.

i. None(Used when there is no footpath available)
ii. Good
iii. Fair
iv. Poor

2.2.14 Shoulder Type

A **shoulder**, often serving as an emergency stopping lane, is a reserved lane by the verge of a **road** or motorway. The user can fill up the required information from the following types that are available in the dropdown menu of the software.

i. None(Used when shoulder isn't available)
ii. Concrete
iii. Asphalt Concrete
iv. Earthen
v. Gravel
vi. Other (Look 2.15.)

2.2.15 If Others Please Specify

This field is filled when there is **other type** that cannot be defined from the Shoulder Type or where the other is selected on the Shoulder Type.

2.2.16 Shoulder Width

Users have to provide the shoulder width in the unit of meters on the required field.

2.2.17 Shoulder Condition

The condition of the shoulder can be classified onto the following four types from where the users can fill the required field.

i. None(Used when there is no shoulder available)
ii. Good
iii. Fair
iv. Poor

2.2.18 Carriageway Type

A **carriageway** consists of a width of road on which a vehicle is not restricted by any physical barriers or separation to move laterally.The user can fill up the required information from the following types that are available in the dropdown menu of the software.

i. Single Bituminous Surface Treatment (SBST)
ii. Double Bituminous Surface Treatment (DBST)
iii. Water Bound Macadam
iv. Asphalt Concrete
v. Premix Carpet
vi. Otta Seal
vii. Gravel
viii. Earthen
ix. Other (Look 2.19.)

2.2.19 If Others Please Specify

This field is filled when there is **other type** that cannot be defined from the Drain Type or where the other is selected on the CarriagewayType.

2.2.20 Carriageway Width

Users have to provide the carriageway width in the unit of meters on the required field.

2.2.21 Carriageway Condition

The condition of the carriageway can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair

iii. Poor

2.2.22 End Chainage

It is the chainage point of the new chainage that is to be started. Especially, the formation width chainage is ended when there is change in the width. Also, that chainage will be starting chainage for the new formation width.

2.2.23 End Co-ordinate

It is the co-ordinate of the end chainage.

2.2.24 Formation Width

According to 2070 B.S. Nepal Road Standard (NRS) Cl.11.4.a, it is the sum of total carriageway plus the shoulder.

2.2.25 Carriageway Width

It is the sum of all left and right carriageway. The software automatically calculates the required field or can be edited by the user.

2.2.26 Photos

The users have to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.2.27 Remarks

The users can say something as a comment or mention the appropriate information's can be helpful and additional to the required inventory data.

Note:

1. ***From 2.6 to 2.21 the field to write the above attributes are separated according to the left and right parts.***
2. ***The formation width has to be taken according to the site condition and also 20-50 meters in hilly area and 50-80 meters in plain area.***

2.3. SIDE DRAIN

The side drain is provided to carry surplus water from the roadway. The following fields are provided in the side drain inventory format of software application.

2.3.1 Start Chainage

It is the chainage from where side drain starts.

2.3.2 Start Coordinate

It is the co-ordinate of the start chainage.

2.3.3 Drain Side

The users should write the respective side of the drain as the field can be filled up using the dropdown menu consisting of Left or Right.

2.3.4 Drain

The drain is classified into following types from where users can fill up the required field.

i. Covered
ii. Uncovered

2.3.5 Type of Drain

It consists of the following dropdown list from where user can fill up the required field.

i. Lined
ii. Unlined

2.3.6 Shape of Drain

It consists of the following types where users can select from the dropdown list in the software.

i. Tick
ii. Triangular
iii. Rectangular
iv. Trapezoidal
v. Saucer
vi. Other (Look 3.7.)

2.3.7 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the Shape of Drain or where the other is selected on the Shape of Drain.

2.3.8 Drain material (If Lined)

The users can select from the following dropdown list and fill up the required field.

i. None(Used when the drain material is unlined)
ii. Plain Cement Concrete(PCC)
iii. Reinforced Cement Concrete(RCC)
iv. Brick Masonry
v. Stone Masonry
vi. Dry Brick Masonry
vii. Dry Stone Masonry
viii. Other (Look 3.9.)

2.3.9 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the Drain Material or where the other is selected on the Drain Material.

2.3.10 Bottom Width

It is the inner bottom width of the drain. The user are required to fill up the required formats. The unit used is meter.

2.3.11 Top Width

It is the inner top width of the drain. The user are required to fill up the required formats. The unit used is meter.

2.3.12 Side Wall Width

It is the side wall width of the drain. The user are required to fill up the required formats. The unit used is meter.

2.3.13 Road Side Wall Width

It is the wall width of the drain that existed in road side. The user are required to fill up the required formats. The unit used is meter.

2.3.14 Depth of Drain

It is the inner depth of drain from the top. The user are required to fill up the required formats. The unit used is meter.

2.3.15 Condition of Drain

The condition of the drain can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor

2.3.16 End Chainage

Especially, the side drain chainage is ended when there is change in the shape of the drain or the side drain ends.

2.3.17 End Coordinate

It is the coordinate of the end chainage.

2.3.18 Cross Sectional Sketch of Drain

The users should provide a cross sectional sketch of drain with appropriate dimensions in the respective field.

2.3.19 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.3.20 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.4. TERRAIN

Terrain is used as a general term in physical geography, referring to the lay of the land.The following fields are provided in the terrain inventory format of software application.

2.4.1 Start Chainage

It is the chainage from where terrain data is started.

2.4.2 Start Coordinate

It is the coordinate of the starting chainage.

2.4.3 Type of Terrain

The terrain type can be selected from dropdown menu that is being extracted from the Nepal Road Standard (NRS) 2070 B.S.

i. (PLAIN: X-SLOPE(%) : 0-10 / DEGREES: 0-5.7)
ii. (ROLLING: X-SLOPE(%) : >10-25 / DEGREES: >5.7-14)
iii. (MOUNTAINOUS: X-SLOPE(%) : >25-60 / DEGREES: >14-31)
iv. (STEEP: X-SLOPE(%) : >60 / DEGREES: >31)

2.4.4 End Chainage

Especially, the terrain chainage ended when there is change in the type of the terrain.

2.4.5 End Coordinate

It is the coordinate of the end chainage.

2.4.6 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.4.7 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

Note:

1. ***The terrain type should be filled up according to the site conditions.***

2.5. MEDIAN

The median separates opposing lanes of traffic on divided roadways, such as divided highways, dual carriageways, freeways, and motorways. The term also applies to divided roadways other than highways, such as some major streets in urban or suburban areas.The following fields are provided in the median inventory format of software application.

2.5.1 Start Chainage

It is the chainage from where median data started.

2.5.2 Start Coordinate

It is the coordinate of the start chainage.

2.5.3 Height at Start

It is the height of the median at start. The users are required to fill up the required formats. The unit to use is meter.

2.5.4 Width at Start

It is the width of the median at start. The users are required to fill up the required formats. The unit to use is meter.

2.5.5 Formation Type

The formation types provided with the following dropdown lists from where the users can select the appropriate type.

i. Railing
ii. Jersey Barrier
iii. Strip Island
iv. Other (Look 5.6.)

2.5.6 If Other Please Specify

Users are required to fill the field when there is **other type** that isn't defined from the Formation Typeor where the other is selected on the Formation Type.

2.5.7 Material Type

The material type provided with the following dropdown lists from where the users can select the appropriate type.

i. Reinforced Cement Concrete
ii. Steel
iii. Composite
iv. Others (Look 5.8.)

2.5.8 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the Material Type or where the other is selected on the Material Type.

2.5.9 Condition

The condition of the median can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor

2.5.10 End Chainage

Especially, the median chainage ended when there is change in the formation type of the median or the median structure ends.

2.5.11 End Coordinate

It is the coordinate of the end chainage.

2.5.12 Height at End

It is the height of the median at end. The user are required to fill up the provided field. The units use is meter.

2.5.13 Width at End

It is the width of the median at end. The users are required to fill up the required formats. The unit used is meter.

2.5.14 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.5.15 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.6. RETAINING STRUCTURE

It is designed to restrain soil to unnatural slopes. They are used to bound soils between two different elevations often in areas of terrain possessing undesirable slopes or in areas where the landscape needs to be shaped severely and engineered for more specific purposes like hillside farming or roadway overpasses. The following fields are provided in the retaining structure inventory format of software application.

2.6.1 Start Chainage

It is the chainage from where retaining structure starts.

2.6.2 Start Coordinate

It is the coordinate of the start chainage.

2.6.3 Type of wall or support

It is mainly the support that is provided to retain the earth located at hill side or the valley side. The user have to select the appropriate types from the following field.

i. Breast Wall
ii. Mountain Side Retaining Wall
iii. Valley Side Retaining Wall
iv. Crib Wall
v. Anchor Wall
vi. Drum Wall
vii. Gabion
viii. Other (Look 6.4.)

2.6.4 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the type of wall or supportor where the other is selected on the type of wall, or support.

2.6.5 Material of Retaining Wall

The material type are provided with the following dropdown lists from where the users can select the appropriate type.

i. Plain Cement Concrete
ii. Reinforced Cement Concrete
iii. Stone Masonry
iv. Dry Stone Masonry
v. Brick Masonry
vi. Composite
vii. Steel
viii. Other (Look 6.6.)

2.6.6 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the Type of Wall or Support or where the other is selected on the type of wall or support.

2.6.7 Bottom wall width at Start

It is the width of the retaining structure at start. The users are required to fill up the required formats. The unit used is meter.

2.6.8 Top wall width at Start

It is the top width of the retaining structure at start. The users are required to fill up the required formats. The unit used is meter.

2.6.9 Wall Height at Start

It is the wall height of the retaining structure at start. The users are required to fill up the required formats. The unit used is meter.

2.6.10 Condition of Wall

The condition can be classified onto the following three types from where the users can fill the required field.

iv. Good
v. Fair
vi. Poor

2.6.11 End Chainage

Especially the chainage of retaining structure is ended if the type of wall or support is changed or the retaining structure ends.

2.6.12 End Coordinate

It is the coordinate of the end chainage.

2.6.13 Bottom Wall Width at End

It is the width of the retaining structure at end. The users are required to fill up the required formats. The unit used is meter.

2.6.14 Top Wall Width at End

It is the top width of the retaining structure at end. The users are required to fill up the required formats. The unit used is meter.

2.6.15 Wall Height at End

It is the wall height of the retaining structure at end. The users are required to fill up the required formats. The unit used is meter.

2.6.16 Cross Sectional Sketch of Wall at Start

The user should sketch the cross section of retaining wall at start with proper dimensions to the paper and should embed to the format by taking the photograph.

2.6.17 Cross Sectional Sketch of Wall at End

The user should sketch the cross section of retaining wall at end with proper dimensions to the paper and should embed to the format by taking the photograph.

2.6.18 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.6.19 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.7. CROSS DRAINAGE STRUCTURE

A **cross drainage** work is a **structure** carrying the discharge from a natural stream across roads intercepting the stream. The following fields provided in the cross drainage structure inventory format of software application.

2.7.1 Chainage

It is the mid chainage of the cross drainage structure.

2.7.2 Mid-Coordinate

It is the coordinate of the provided chainage.

2.7.3 Type of Cross Drainage Structure

The users have to fill the fields according to the following type provided.

i. Box Culvert
ii. Slab Culvert
iii. Pipe Culvert
iv. Causeway
v. Other (Look 7.4.)

2.7.4 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the Type of cross drainage structure or where the other is selected on the type of cross drainage structure.

2.7.5 Chainage

It is the mid alignment chainage of the road structure.

2.7.6 Mid-Coordinate

It is the coordinate of the provided chainage.

2.7.7 Skewed

This field is filled by yes or no, if the structure is not in the straight position across road then user has to select no otherwise yes.

2.7.8 Span or Length

It is the length of the structure across the road. The unit to use is meter.

2.7.9 Internal Width of Opening

It is the width of open space for flow of the water and debris across the road. This field is to filled when box or slab culvert type is selected. The unit to use is meter.

2.7.10 Vertical Clearance (Above Water Surface)

It is the height of the formation road from the cross drainage maximum water level surface.

2.7.11 Height of Wall (Upstream)

It is total height of the wall located at upstream side of the structure.

2.7.12 Height of Wall (Downstream)

It is the height of wall located at the downstream side of the structure.

2.7.13 Diameter of pipe

If the cross drainage type used is pipe structure then the user should fill the diameter of pipe in meters.

2.7.14 Number of Pipes or Barrels

The user should provide the number of pipes or barrels that been provided in pipe structure.

2.7.15 Catch pit

Catch pit is mainly used to collect the drain water and provide the sedimentation of the silt to reduce the clogging in the drainage structure.

2.7.16 Material Type of Catch pit

There are mainly following Material types.

i. Concrete
ii. Masonry
iii. Other
iv. None

2.7.17 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the type or where the other is selected on the type.

2.7.18 Length of Catch pit

The length has to be provided by the user. The unit used is meter.

2.7.19 Width of Catch pit

The width has to be provided by the user. The unit used is meter.

2.7.20 Condition of Catch pit

The condition can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor

2.7.21 Upstream and Downstream Structure

The users have to provide the features if there is presence of upstream or downstream structures.

2.7.21.1 Type of Structure

There are following types that the users can select from the dropdown menu.

i. Chute
ii. Check dam
iii. Cascade Drain
iv. None
v. Other (Look 7.14.2.)

2.7.21.2 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the type or where the other is selected on the type.

2.7.21.3 Average Length

The average length of upstream and downstream structures should be provided. The unit to be used is meter.

2.7.21.4 Average Width

The average width of upstream and downstream structures should be provided. The unit to be used is meter.

2.7.21.5 Condition of Structure

The condition of upstream and downstream structures can be classified onto the following four types from where the users can fill the required field.

i. Good

ii. Fair
iii. Poor
iv. None

2.7.22 Condition of Main Structure

The condition of upstream and downstream structures can be classified onto the following three types from where the users can fill the required field.

v. Good
vi. Fair
vii. Poor

2.7.23 Condition of Protection Works at Inlet

The condition of protection works at inlet can be classified onto the following four types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor
iv. None

2.7.24 Condition of Protection Works at Outlet

The condition of protection works at inlet can be classified onto the following four types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor
iv. None

2.7.25 Sketch of Cross Drainage Structure

The user should sketch the cross section of retaining wall at end with proper dimensions to the paper and should embed to the format by taking the photograph.

2.7.26 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.7.27 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.8. SAFETY BLOCK

These are the blocks provided on the roadside to protect the vehicles from falling over the cliff or blocking the vehicle movement. The following fields provided in the safety block inventory format of software application.

2.8.1 Start Chainage

It is the chainage from where safety block starts.

2.8.2 Start Coordinate

It is the coordinate of the start chainage.

2.8.3 Side

The users can select the required field from the following dropdown.

i. Left
ii. Right

2.8.4 Type

It consists the following dropdown lists from where the users can select.

i. Gabion
ii. Steel
iii. Concrete
iv. Other (Look 8.3.)

2.8.5 If Other Please Specify

This field is filled when there is **other type** that cannot be defined from the type or where the other is selected on the type.

2.8.6 Layout

It consists the following dropdown lists from where users can select.

i. None
ii. Continuous
iii. Interval

2.8.7 Centre to Centre Distance

The users are required to take the centre-to-centre distance of the blocks. The unit used is meter.

2.8.8 Width

The width of the block should be provided if possible. The unit used is meter.

2.8.9 Height

The height of the blocks should be provided. The unit used is meter.

2.8.10 Number

The number of the blocks is to be provided if applicable.

2.8.11 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.8.12 Condition

The condition of the blocks can be classified onto the following three types from where the users can fill the required field.

i. Good

ii. Fair
iii. Poor

2.8.13 End Chainage

It is the chainage from where the safety block ends or not provided.

2.8.14 End Coordinate

It is the coordinate of the end chainage.

2.8.15 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.9. DELINEATOR

It warns an impending hazard situation. The following fields provided in the delineator inventory format of software application.

2.9.1 Start Chainage

It is the chainage where the delineator starts.

2.9.2 Start Coordinate

It is the coordinate of the start chainage.

2.9.3 Side

The user has to provide the appropriate side from the following dropdown lists.

i. Left
ii. Middle
iii. Right

2.9.4 Centre to Centre Distance

The users are required to take the centre-to-centre distance of the delineator. The unit used is meter.

2.9.5 Height

The height of the delineators should be provided. The unit used is meter.

2.9.6 Number

The number of the delineators is to be provided if applicable.

2.9.7 Condition

The condition of the blocks can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor

2.9.8 End Chainage

It is the chainage from where delineator ends or not provided.

2.9.9 End Coordinate

It is the coordinate of the end chainage.

2.9.10 Photos

The users have to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.9.11 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.10. ROAD JUNCTION

A **road junction** is a location where multiple **roads** intersect, allowing vehicular traffic to change from one **road** to another. The following fields provided in the road junction inventory format of software application.

2.10.1 Chainage

The user should provide the intersected chainage.

2.10.2 Coordinate

The user should provide the intersected coordinate.

2.10.3 Name of road Junction

The name of the road junction should be filled on the provided field.

2.10.4 Types

The junction types can be provided from the following dropdown lists.

i. X
ii. Y
iii. T
iv. Other (Look 10.5.)

2.10.5 If Other Please Specify Number of Connections

This field is filled when there is **other type** that cannot be defined from the type or where the other is selected on the type.

2.10.6 Traffic Channelization Present

The channelization separates the lanes in a proper way to minimize accidents. If the channelization is present then user should provide yes otherwise no.

2.10.7 Signalized Intersection

These types of intersection contain the traffic signals and proper road markings for the proper movement of vehicle and pedestrians. If the signalization is present then user should provide yes otherwise no.

2.10.8 Radius of Roundabout

If there is roundabout available then user should provide the radius of roundabout.

2.10.9 Condition

The condition of the blocks can be classified onto the following three types from where the users can fill the required field.

i. Good
ii. Fair
iii. Poor

2.10.10 Sketch of Road Junction

The user should sketch the cross section of retaining wall at end with proper dimensions to the paper and should embed to the format by taking the photograph.

2.10.11 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.10.12 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.11. ROAD MARKING

It is any kind of device or material that is used on a **road** surface in order to convey official information. They can also be applied in other facilities used by vehicles to mark parking spaces or designate areas for other uses. The following fields provided in the road marking inventory format of software application.

2.11.1 Start Chainage

The start chainage is the chainage where road marking starts.

2.11.2 Start Coordinate

It is the coordinate of start chainage.

2.11.3 Place Name at Start

It is the name of place from where the road marking starts. The user has to write the name of place themselves.

2.11.4 Place Name at End

It is the name of the place where the road marking ends. The user has to write the name of end of the place of road marking.

2.11.5 Type of Marking at Centre

Generally, there are two types of centerline road marking. Usually no centerline is provided for roads having less than 5m width. The user has to write the type of the marking at center of the road by manually. The centerline may be marked with either single broken line, single solid line, double broken line, double solid line or none depending upon the road and traffic requirement.

2.11.6 Condition of Centerline Marking

This term denotes the present situation of the lines in the road.
The condition of centerline may be:

- Good
- Fair
- Poor
- None

2.11.7 Type of Marking at Right Edge

The following type of marking at right edge can be select by the user:

- Continuous
- Break
- None

2.11.8 Type of Road Marking at Left Edge

The following type of road marking at left edge can be select by the user,

- Continuous
- Break
- None

2.11.9 Condition of Edge Line Marking

The user can select the following condition of the edge line marking:

- Good
- Fair

- Poor
- None

2.11.10 Type of Marking at Lane Separator

The user can select the following types of marking at lane separator:

- Continuous
- Break
- None

2.11.11 Condition of Lane Separator Marking

The user can select the following type of condition of lane separator marking:

- Good
- Fair
- Poor
- None

2.11.12 End Chainage

The end chainage is the chainage where road marking ends. The format for the chainage should be “000+000".

2.11.13 End Coordinate

The end co-ordinate is the coordinate from where the road marking ends. Differential GPS (DGPS) system is used for taking the latitude, longitude and elevation of the centre point of road and the system that is used is Universal Transverse Mercator (UTM) Co-ordinate System.

2.11.14 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.11.15 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.12. ROAD SIGN

It is the sign, which gives the information or instruction to the road users. The following fields provided in the road sign inventory format of software application.

2.12.1 Chainage

The user has to write the chainage of the road sign by manually.

2.12.2 Coordinate

It is the coordinate of the respective road sign.

2.12.3 Type of Sign

There are mainly four types of road sign in Nepal (Traffic safety unit: Traffic Signs Manuals Vol-I and Vol-II). The user can select the following road signs from the dropdown menu:

- Regulatory signs
- Warning signs
- Information sign
- Other signs

2.12.4 Meaning

The user has to write the meaning of the type of road sign for the respective road signal.

2.12.5 Side of Road

The user can select the following side of the road from the drop down menu:

- Left
- Right

2.12.6 Reflective

Reflective denotes the shining nature of the road signal. The user can select the following option from the dropdown menu:

- Yes
- No

2.12.7 Condition

The term condition denotes the state of the road sign with regard to its appearance, quality and working order. The user can select the following road sign condition from the dropdown menu:

- Good
- Fair
- Poor

2.12.8 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.12.9 Remarks

The users can say something as a comment or mention the appropriate information's that can be helpful and additional to the required inventory data.

2.13. ROAD HUMP

Road hump is the raised devices, parabolic in shape, placed across the road to slow traffic. The following fields provided in the road hump inventory format of software application.

2.13.1 Chainage

It is the chainage of the road hump.

2.13.2 Coordinate

It is the coordinate of the respective road hump.

2.13.3 Type

Usually there are four types of road hump. The user has to select the following types of road hump from the dropdown menu:

- Rubber
- Concrete
- Polymer
- Asphalt
- Other

2.13.4 If Other Please Specify

This field is filled when there is other type that cannot be defined from the type of road hump or where the other is selected on the type of road hump.

2.13.5 Length

It is the length of the road hump. The users are required to fill up the required formats. The unit used is meter.

2.13.6 Width

It is the width of the road hump. The users are required to fill up the required formats. The unit used is meter.

2.13.7 Height

It is the height of the road hump. The users are required to fill up the required formats. The unit used is meter.

2.13.8 Road Hump Condition

The condition of the road hump can be classified onto the following four types from where the users can fill the required field

- Good
- Fair
- Poor

2.13.9 Photos

The users have to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.13.10 Remarks

The users can say something as a comment or mention the appropriate information's that can be helpful and additional to the required inventory data.

2.14. LAND USE

Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods. The following fields provided in the land use inventory format of software application.

2.14.1 Start Chainage

It is the chainage from where the respective inventory data started.

2.14.2 Start Coordinate

It is the co-ordinate of the started chainage.

2.14.3 Side

The users should write the respective side of the land use type as the field can be filled up using the dropdown menu consisting of Left or Right.

2.14.4 Land Use Type

Usually there are nine types of land use. The user has to select the following types of land use from the dropdown menu:

- Agricultural
- Industrial
- Commercial
- Built-up
- Forest
- Grazing Land
- Rock Outcrop
- Permanent snow and ice
- Landslide
- Water body
- Others

2.14.5 If Other Please Specify

This field is filled when there is other type that cannot be defined from the type of road hump or where the other is selected on the type of road hump.

2.14.6 End Chainage

The end chainage is the chainage where road land use changes.

2.14.7 End Coordinate

The end co-ordinate is the coordinate from where the road land use ends.

2.14.8 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.14.9 Remarks

The users can say something as a comment or mention the appropriate information's that can be helpful and additional to the required inventory data.

2.15. WATER LOGGED AREA

Water logging refers to the saturation of soil with **water**. Soil may be regarded as **waterlogged** when the **water** table of the groundwater is too high to conveniently permit an anticipated activity, like agriculture. The following fields provided in the water logged area inventory format of software application.

2.15.1 Place Name

It is the name of place in which the water logged area is started.

2.15.2 Start Chainage

It is the chainage from where the respective inventory data is started.

2.15.3 Start Coordinate

It is the co-ordinate from where the water logged area is started.

2.15.4 Severity

It denotes the condition of being severe.

2.15.5 End Chainage

The end chainage is the chainage where water logged area ends.

2.15.6 End coordinate

The end co-ordinate is the coordinate from where the water logged area ends.

2.15.7 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.15.8 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.16. BUS LAYBY

It is a designated spot on the side of a road where buses may pull out of the flow of traffic to pick up and drop off passengers. The following fields provided in the bus layby inventory format of software application.

2.16.1 Start Chainage

It is the chainage from where the respective inventory data is started.

2.16.2 Start Coordinate

It is the co-ordinate of the started chainage.

2.16.3 Place Name

It is the name of place of the bus layby area. User has to write the name of that place in the required place name field.

2.16.4 Side

The users should write the respective side of the bus layby as the field can be filled up using the dropdown menu consisting of Left or Right.

2.16.5 Width

It is the width of the bus layby that existed in the road side. The user are required to fill up the required formats. The units to be used is meter.

2.16.6 Surface type

Usually there are five types of surface type. The users can select the following surface type of bus layby from the drop down menu:

- None
- Concrete
- Asphalt
- Stone paved
- Brick paved
- Gravel
- Others

2.16.7 If other please specify

This field is filled when there is other type that cannot be defined from the type of road hump or where the other is selected on the type of road hump.

2.16.8 Condition

The condition of bus layby can be classified onto the following three types from where the users can fill the required field:

i. Good
ii. Fair
iii. Poor

2.16.9 End Chainage

It is the chainage from where the respective inventory data is ended.

2.16.10 End Coordinate

It is the co-ordinate of the end chainage.

2.16.11 Photos

The user has to take one number of photos in each field either from gallery or from the inbuilt camera application.

2.16.12 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.17. BUS PASSBY

It is the place provided to pass the vehicle along the road side. The following fields provided in the bus passby inventory format of software application.

2.17.1 Start Chainage

It is the chainage from where the respective inventory data is started.

2.17.2 Start Coordinate

It is the co-ordinate of the start chainage.

2.17.3 Place Name

It is the name of place of the bus layby area. User has to write the name of that place in the required place name field.

2.17.4 Side

The users should write the respective side of the bus pass by as the field can be filled up using the dropdown menu consisting of Left or Right.

2.17.5 Width

It is the width of the bus pass by that existed in the road side. The user are required to fill up the required formats. The units to be used is meter.

2.17.6 Surface Type

Usually there are five types of surface type. The users can select the following surface type of bus layby from the drop down menu.

- None
- Concrete
- Asphalt
- Stone paved
- Brick paved
- Gravel
- Others

2.17.7 If other please specify

This field is filled when there is other type that cannot be defined from the type of surface or where the other is selected on the type of surface type.

2.17.8 Condition

The condition of bus layby can be classified onto the following three types from where the users can fill the required field:

- Good
- Fair
- Poor

2.17.9 End Chainage

It is the chainage from where the respective inventory data is ended.

2.17.10 End Coordinate

It is the co-ordinate of the end chainage.

2.17.11 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.17.12 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.18. OVERHEAD CROSSINGS

A passage, roadway or bridge that crosses above another roadway or thorough fare. The following fields provided in the bus overhead crossing inventory format of software application.

2.18.1 Chainage

It is the chainage of crossing drainage.

2.18.2 Coordinate

It is the coordinate of the respective chainage.

2.18.3 Place Name

It is the name of place of the overhead crossing area. User has to write the name of that place in the required place name field.

2.18.4 Type

There are three types of overhead crossing commonly used in Nepal. The following are the types overhead crossing mainly used, the users have to select the following types of overhead crossing from the dropdown menu in the required field:

- RCC
- Steel
- Composite
- Others

2.18.5 If other please specify

This field is filled when there is other type that cannot be defined from the type of surface or where the other is selected on the type of surface type.

2.18.6 Vertical Clearance

It is the clear vertical distance between the gap of vehicle and the overhead crossing structure. The user has to write the clear vertical distance between overhead crossings and the top level of vehicle themselves.

2.18.7 No. of Span

It is the total number of span measuring from the center to center distance between two supported structure. User has to put the total number of span themselves.

2.18.8 Span length

It is the distance between the two intermediate supports of structure. The user have to write the length of span by themselves in the required field.

2.18.9 Width of crossing

It is the distance between the side to side of overhead crossing. The user has to measure the width of the overhead crossing and put the value of width in the required value.

2.18.10 Condition

The condition of overhead crossing can be classified onto the following three types from where the users can fill the required field:

i. Good
ii. Fair
iii. Poor

2.18.11 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.18.12 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.19. IRRIGATION CROSSING

It is the type of canal but small in size, which crosses the road. The following fields provided in the irrigation crossing inventory format of software application.

2.19.1 Chainage

It is the chainage of irrigation crossing.

2.19.2 Coordinate

It is the coordinate of the respective overhead crossing.

2.19.3 Place Name

It is the name of place of the irrigation crossing area. User has to write the name of that place in the required place name field.

2.19.4 Length of Crossing

It is the distance between the two long vertical edges of irrigation crossing. The user has to measure and write the length of crossing by themselves.

2.19.5 Condition

The condition of irrigation crossing can be classified onto the following three types from where the users can fill the required field

- Good
- Fair
- Poor

2.19.6 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.19.7 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.20. PETROL PUMPS/ TEMPLES/ MONUMENTS

The following fields provided in the inventory format of software application.

2.20.1 Chainage

It is the chainage of the structure.

2.20.2 Coordinate

It is the coordinate of the respective structure.

2.20.3 Place Name

It is the name of the place where the Petrol pump, Temples, Monuments are located.

2.20.4 Type

The user can select the following type of structure from the drop down menu:

- Petrol Pump
- Monument
- Temple
- Others

2.20.5 If other please specify

This field is filled when there is other type that cannot be defined from the type of surface or where the other is selected on the type of surface type

2.20.6 Side

The users can select the following side from the drop down menu:

- Left
- Right
- Centre

2.20.7 Offset from road edge

It is the distance from the road edge to the structure. The user has to write the distance of that structure from the road edge by manually.

2.20.8 Functional

The condition of structure can be select from the drop down menu either yes or no if it is in good condition then it can be select yes otherwise no.

- Yes
- No

2.20.9 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.20.10 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

2.21. NATURAL CALAMITY INDUCED AREA

Natural calamities areas are also known as natural disasters area. They are bad things that occur in the environment, and are not man-made. Generally, this includes earthquakes, landslides, storms, floods. The following fields provided in the inventory format of software application.

2.21.1 Start Chainage

It is the chainage from where the respective inventory data is started.

2.21.2 Start Coordinate

It is the co-ordinate from where the inventory data is started.

2.21.3 Place Name

It is name of place where the natural calamity induced area is located or situated. The user has to write the name of that place in the required field.

2.21.4 Type

Generally, there are three types of natural calamity in the road inventory. They may be classified in the following type. The users can select the following types of natural calamity from dropdown menu.

- Natural landslide

- Flood affected area
- Quarry induced
- Others

2.21.5 If other please specify

This field is filled when there is other type that cannot be defined from the type of surface or where the other is selected on the type of surface type.

2.21.6 Side

The user can select the respective side of the natural calamity where it is located from the drop down menu either it is left or right.

- Left
- Right

2.21.7 End Chainage

It is the chainage from where the respective inventory data is ended.

2.21.8 End Coordinate

It is the chainage of the end coordinate.

2.21.9 Photos

The user have to take one number of photo in each field either from gallery or from the inbuilt camera application.

2.21.10 Remarks

The users can say something as a comment or mention the appropriate information that can be helpful and additional to the required inventory data.

3. FILLING UP THE INVENTORIES

Here is a process just to simplify the filling. This process provides some guidelines to follow for filling up all the inventories that are provided within the software.

- Switch off **Wi-Fi**.
- **GPS only** mode should be opened when using the app. It is in the **Settings - Location**. Then select **GPS only**.
- To get GPS data from **DGPS,** run **RISS GPS app** in the background and from developer setting option enable **"Allow mock locations"**
- The **General Information** should be filled up first otherwise data cannot be stored.
- Go to **AVAILABLE FORMS** - **General Information**
- In the **General Information's** page, user must fill the road information. The information's are provided according to the **Strategic Road Network** data.
- **Road name**, **Road Link Name, Districts** are already available in drop down lists.
- Only after **saving** it run other inventory formats.
- On the top of every other formats, user could view **General Information** parts that is provided for simple reference. Therefore, General Information should only be filled if the road link are changed otherwise it should be kept constant.
- Users can fill the required inventories according to the particulars and the forms are saved using the **SAVE** button that is present on the last part of the form.
- If user clicks back button then new notification appears asking the user to save the data or not. If user selects no then the page returns to the edit mode and if user selects yes then the page will be saved.
- To view the saved forms go to **VIEW FORMS** and select the forms that you have filled. The user can edit the data there too.
- The name that are shown after clicking in inventory formats of VIEW FOMS are from the top field that is available in the formats.
- The numbers of data saved are shown accordingly on the **SEND TO SERVER** followed by the numeric numbers like **(1), (2)… (50)... (100)** etc. After clicking send to server button, the data are uploaded in the server in the presence of Wi-Fi, which can be viewed online by another user.
- Only data's are saved but not the picture while uploading to the server. The pictures are uploaded separately to prevent the data loss.

  Note:
  The process to upload the pictures and to view the forms are shown separately.

4. VIEWING THE DATABASE AND UPLOADING THE PICTURES

Since the data are only updated while uploading from the tablet application, the pictures are to be uploaded separately. Therefore, this guides the simple process to upload the pictures to the database.

4.1. DATABASE BEFORE UPLOADING THE PICTURES

- Before uploading, the pictures to the server open the website http://hitechvalley.net.np/dor_hmis/index.php/admin. This website collects the entire related database that has been uploaded from the server. The name that is provided for this website is Highway Management Information System.
- Put **admin** in both **username** and **password** box.

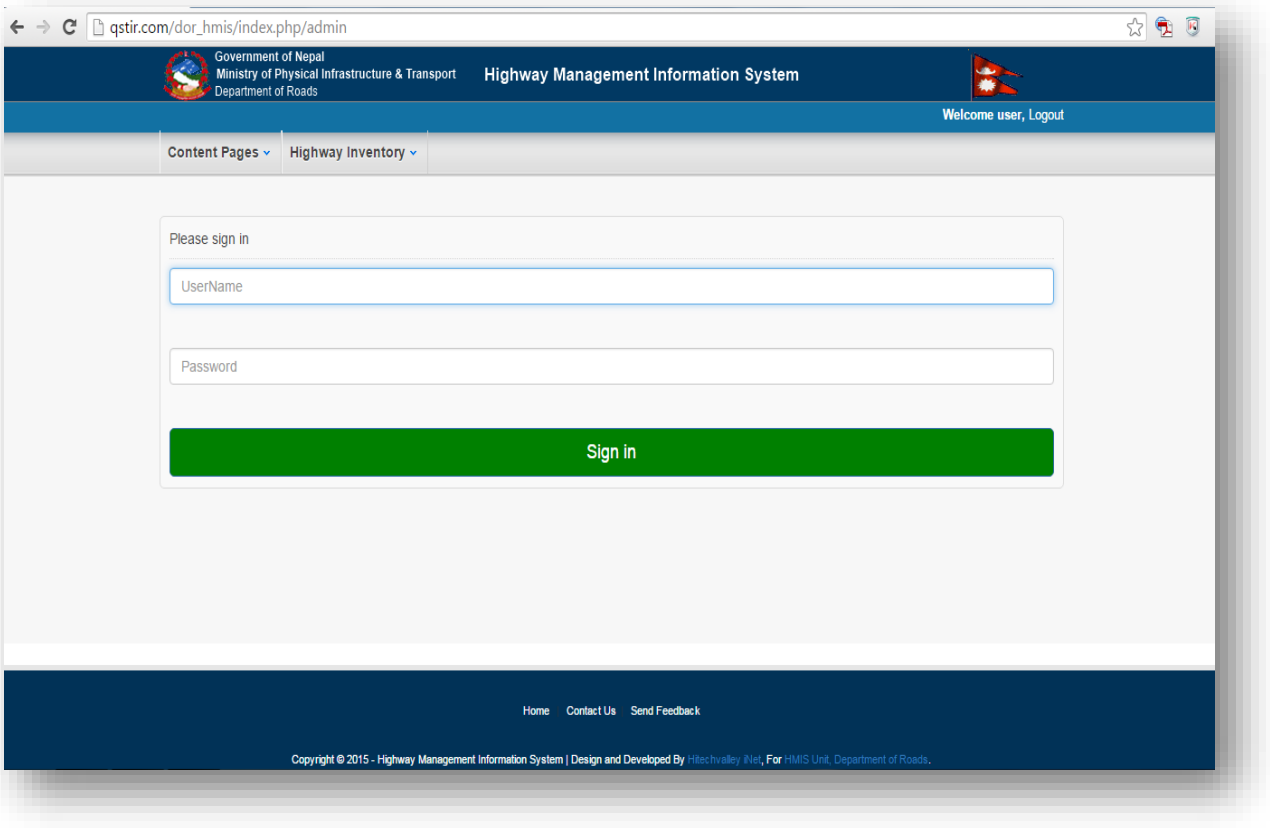
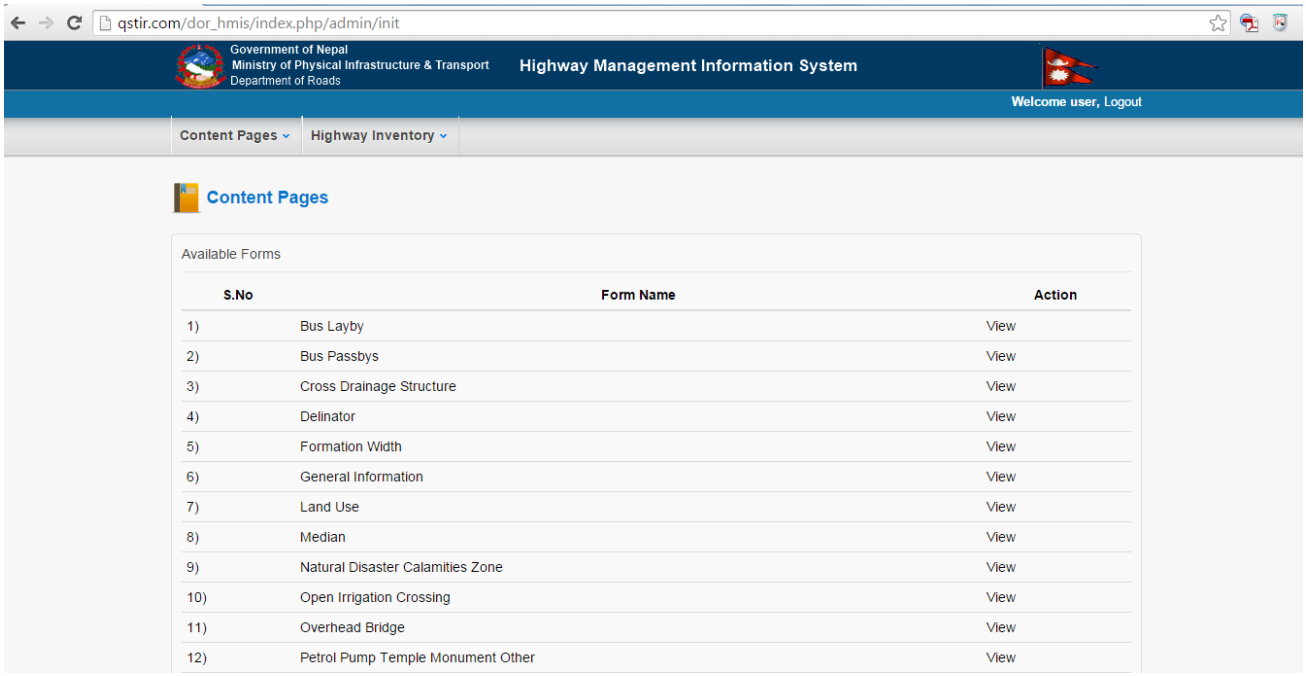


Figure 11 HMIS Website

- After opening the webpage the list of inventories are seen which are similar to the tablet application. Here, in each inventories the data's are saved from the application or simply say that the data's has been uploaded. Click on the **View** to open up any particulars which consists all the relevant data's that are written on the tablet before.



13)	Retaining Structure	View
14)	Retaining StructureRetaining Structure	View
15)	Road Hump	View
16)	Road Junction	View
17)	Road Marking	View
18)	Road Sign	View
19)	Safety Blocks	View
20)	Side Drain	View
21)	Terrain	View
22)	Water Logging Area	View

Figure 12 Particulars Seen on the Website

- Click the General Information's view it provides the **road information's, time and date** as well as **email** of the user tablet that has uploaded the data for the reference.

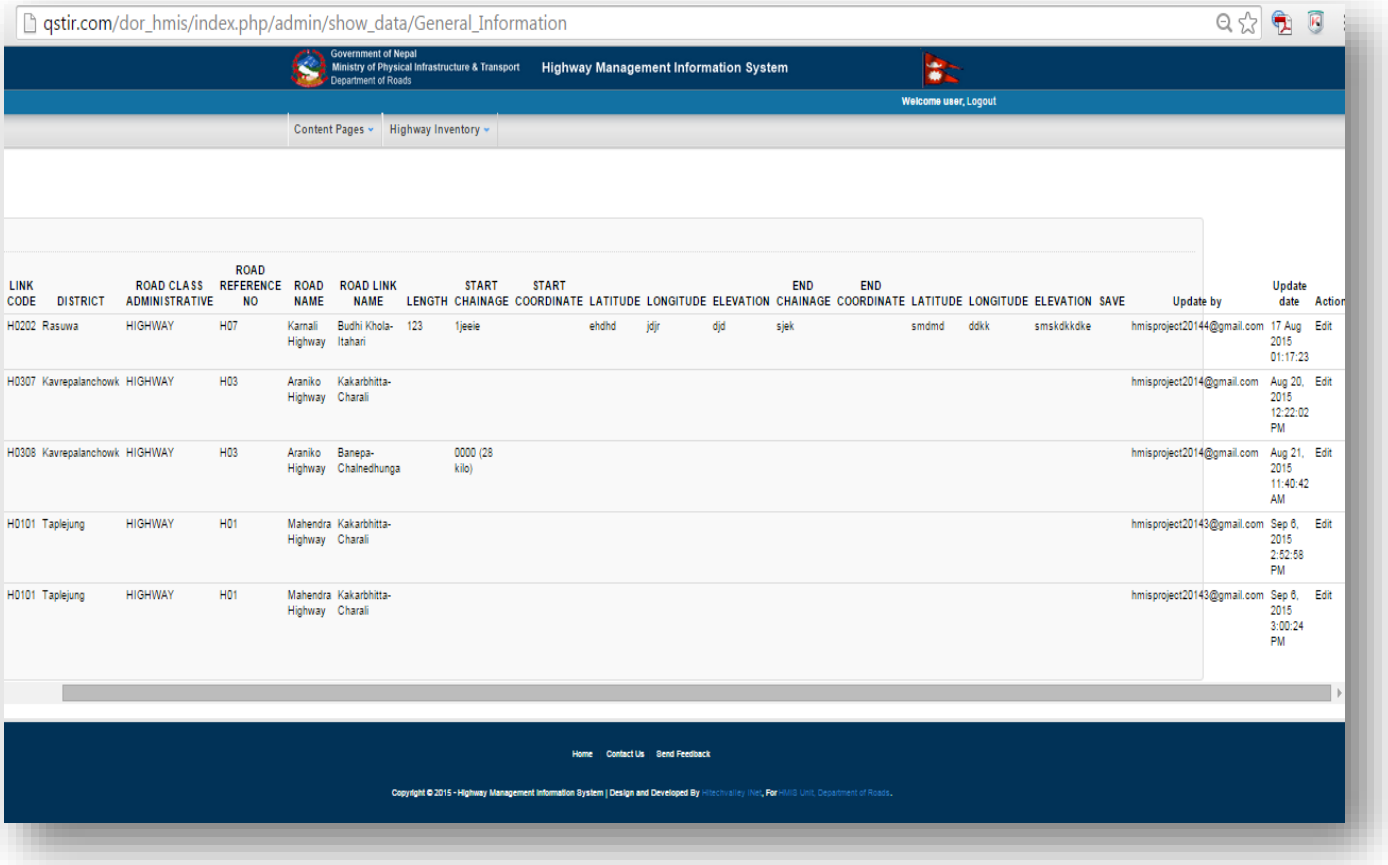


Figure 13 General Information View Tab

- Click on any other particulars it shows the surveyed data saved without pictures but gives the pictures reference with **unique id**. The reference address stars with **uploads/unique id number.jpg**.

- The uploaded data does not consist the photographs of the related number but it consists of the **unique id number** that is unrepeated for **10000 years** with reference.

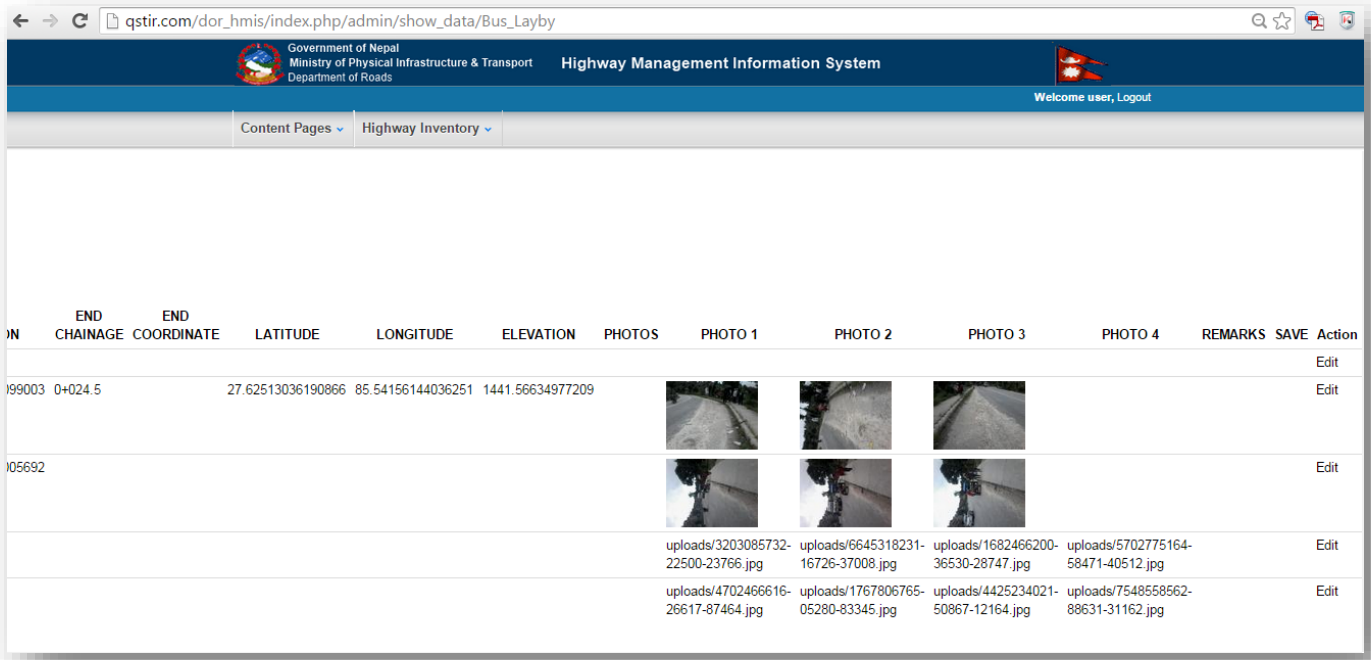


Figure 14 Picture Reference Address

- These **unique id numbers** are the numbers that are provided to the photographs name that is located in the application created folder named **HMIS_DATABASE**.
- Since the numbers are specific, the photographs then can be uploaded on the respective place.

4.2. UPLOADING THE PICTURES

Since the uploading of huge pictures takes time, the slow speed net could not provide the picture to upload properly there is a chance of loss of data. For the prevention of data loss to the tablet, the users are required to upload the picture database separately. The following process helps to provide the clear view to upload the picture database.

- On your device, make sure that the USB computer connection is set to **"Media device (MTP)"**.
- **Touch Settings > Device > Storage**. Then touch **Menu > USB** computer connection. MTP should be selected by default, but you may have to uncheck MTP, check and uncheck Camera (PTP), and then recheck MTP.
- Click on the **phone storage** then look for the folder **HMIS_DATABASE**. It consists all the pictures taken throughout whole survey process. Inside the database folder, the pictures are shown according to the **unique name** provided by the software.
- These unique names are also the names that are provided on the server database when uploading the data's without uploading the pictures.
- The pictures are uploaded with another website named http:// hitechvalley.net.np /dor_hmis/hmis_upload/?token=hmis-can-be-uploaded-from-here.
- By writing down the provided address in the address bar the new website opens up.
- Drag and drop all the files to the **Drag & Drop** shaded portion or click on **Add files** for adding the images.
- To upload the pictures press **start upload** and to delete wrong pictures press remove.

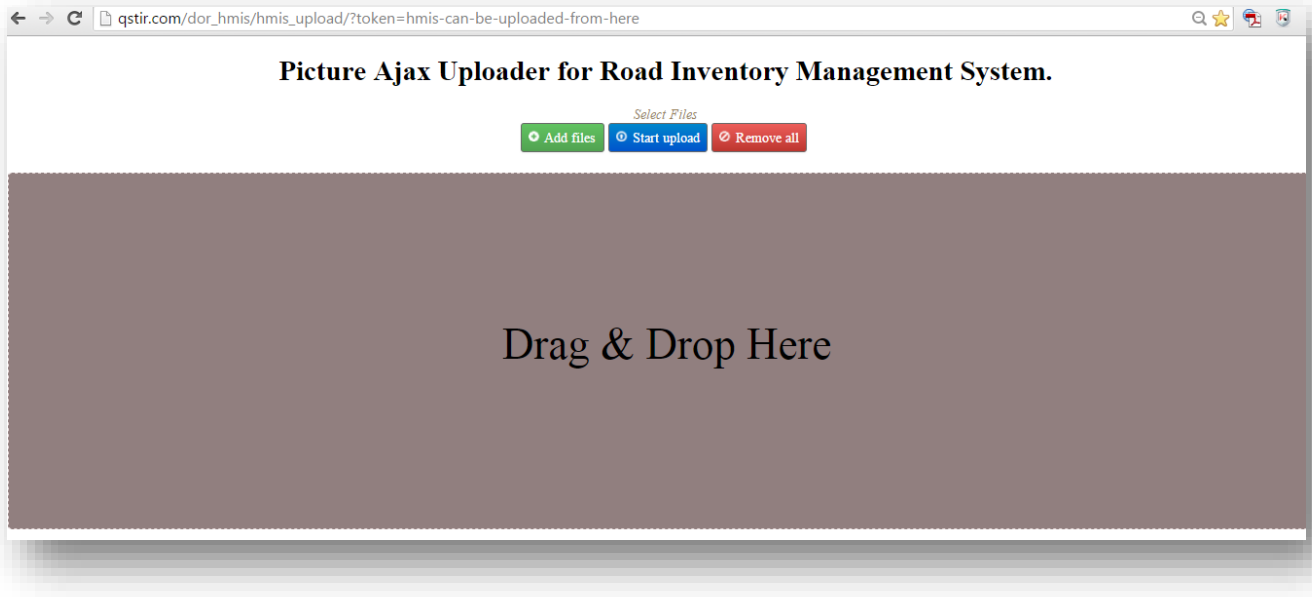


Figure 15 Website for Uploading Pictures

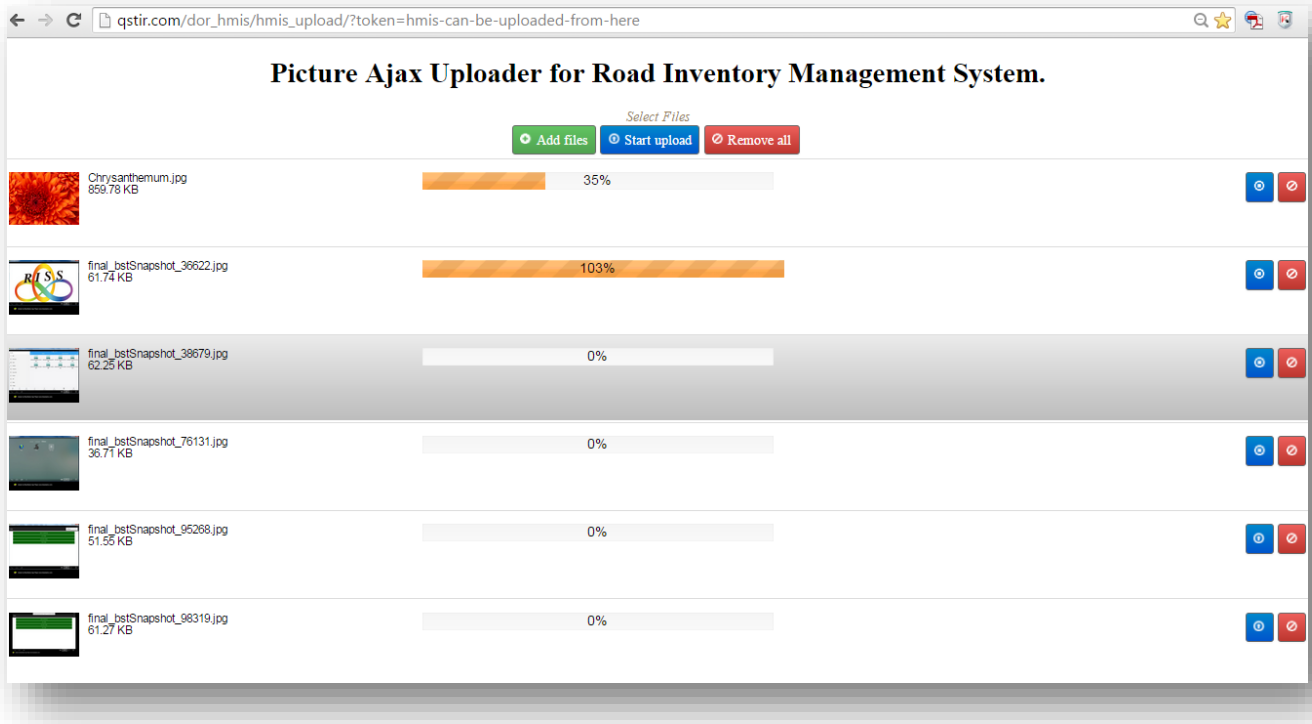
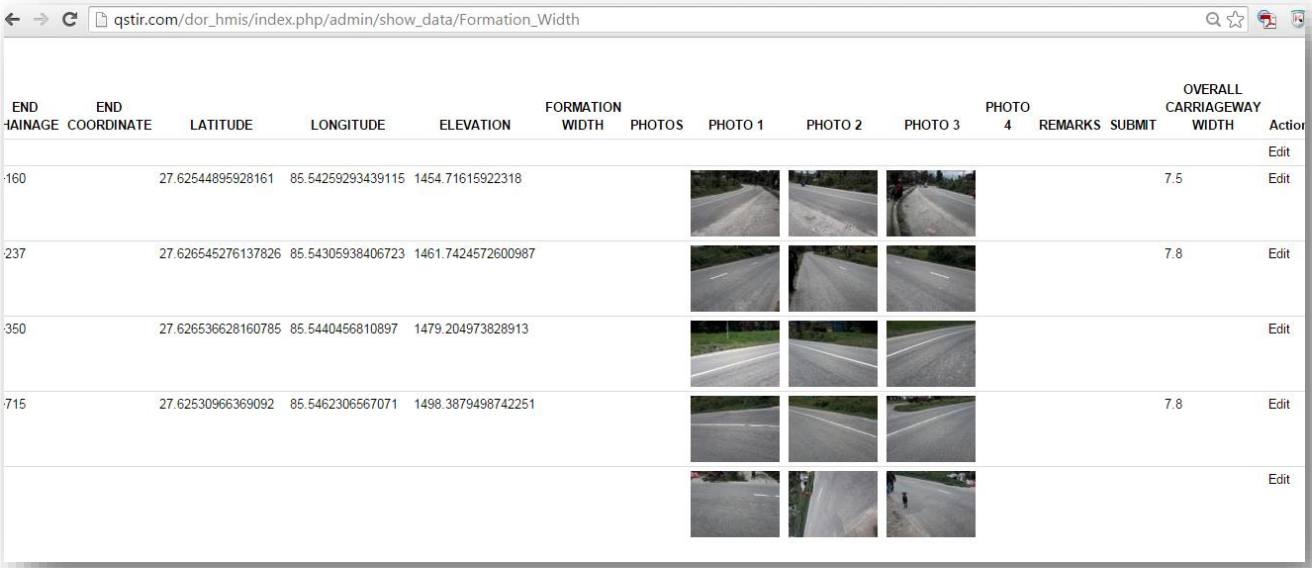


Figure 16 Process While Uploading the Pictures

4.3. AFTER UPLOADING THE PICTURES

- When the pictures are uploaded, once again open the website **http:// hitechvalley.net.np /dor_hmis/index.php/admin**.
- Click on any view tab, it shows the pictures that have been uploaded to the exact referenced path.



END HAINAGE	END COORDINATE	LATITUDE	LONGITUDE	ELEVATION	FORMATION WIDTH	PHOTOS	PHOTO 1	PHOTO 2	PHOTO 3	PHOTO 4	REMARKS	SUBMIT	OVERALL CARRIAGEWAY WIDTH	Actio
														Edit
160		27.62544895928161	85.54259293439115	1454.71615922318									7.5	Edit
237		27.626545276137826	85.54305938406723	1461.7424572600987									7.8	Edit
350		27.626536628160785	85.5440456810897	1479.204973828913										Edit
715		27.62530966369092	85.5462306567071	1498.3879498742251									7.8	Edit
														Edit

Figure 17 Photos Shown after Uploading

Appendix A

List of Highways and Its Links

ROAD REFERENCE NUMBER AND ROAD NAME

Road Ref. No.	Road Name
H01	Mahendra Highway
H02	Tribhuvan Highway
H03	Araniko Highway
H04	Prithvi Highway
H05	Narayanghat Mugling Highway
H06	Dhulikhel Sindhuli Bhittamod Highway
H07	Mechi Highway
H08	Koshi Highway
H09	Sagarmatha Highway
H10	Siddhartha Highway
H11	Rapti Highway
H12	Ratna Highway
H13	Karnali Highway
H14	Mahakali Highway
H15	Seti Highway
H16	KTM Ringroad
H17	Postal Road
H18	Mid Hill Highway
H19	Sabha(Mahendra Highway)-Bramhadev
H20	Kathmandu Terai Fast Track
H21	Kathmandu Outer Ring Road
F001	Birtamod - Chandragadhi
F002	Damak - Gaurigunj
F003	Bhardaha - Rajbiraj
F004	Rupani - Kunauli
F005	Chauharwa - Madar
F006	Nawalpur - Malangwa - Sonbarsa
F007	Chandranigahapur - Gaur - Bairganiya
F008	Bardaghat - Surajpur - Harpur
F009	Sunwal - Parasi - Mahespur
F010	Jitpur - Khunuwa
F011	Taulihawa - Gorusinghe - Sandhikharka
F012	Chanauta - Krishnanagar
F013	Bhaluwang - Liwang
F014	Pyuthan - Chakchake - Ghorahi
F015	Lamahi - Tulsipur
F016	Bhuregaun - Gulariya - Murtihawa
F017	Junga - Rajapur - Bhimapur (IB)
F018	Birgunj - Kalaiya
F019	Bhaise - Bhimphedi
F020	Palung - Kulekhani
F021	Kathmandu - Trisuli - Dhunche - Rasuwagadhi

F022	Balkhu - Dakchhinkali - Kulekhani
F023	Satdobato - Tikabhairab
F024	Satdobato - Phulchoki
F025	Lainchaur - Maharajgunj - Budhanilkantha
F026	Chabahil - Sankhu - Jhule - Chautara
F027	Jorpati - Sundarijal
F028	Bhaktapur - Nagarkot
F029	Banepa - Khopasi
F030	Panchkhal - Melamchi - Helambu
F031	Dolalghat - Chautara
F032	Lamosangu - Ramechhap
F033	Tamkoshi - Jiri
F034	Malekhu - Dhading
F035	Anbukhaireni - Gorkha
F036	Dumre - Besisahar - Chame
F037	Bharatpur Bypass Road
F038	Fikkal - Pasupatinagar
F039	Biratnagar - Rangeli
F040	Hile - Basantapur - Tehrathum
F041	Pokhara - Sarangkot
F042	Pokhara - Baglung - Beni - Jomsom - Ghoktang
F043	Bartung - Tamghas - Wamitaksar
F044	Bhairahawa - Lumbini - Kakrahawa
F045	Lumbini - Taulihawa
F046	Nepalgunj - Gulariya
F047	Chhinchu - Jajarkot - Dunai
F048	Birendranagar - Dailekh
F049	Khodpe - Chainpur
F050	Satbanj - Jhulaghat
F051	Silgadhi - Sanfebagar
F052	Mirchaiya - Katari - Okhaldhunga - Salleri
F053	Basantapur - Chainpur - Khandbari - Kimathangka
F054	Duhabi - Inaruwa
F055	Lahan - Bhagwanpur -Thadi
F056	Jhumka - Chatara - Barahachhetra
F057	Dharan - Chatara - Gaighat-Katari-Sindhuli-Hetauda
F058	Bhedetar - Rajarani - Rabi - Ranke (MERM)
F059	Birtamod - Sanischare - Budhabare
F060	Bardanga-Urlabari - Madhumalla - Daregaunda
F061	Rangeli - Kanepokhari - Dandagaun - Budhabare
F062	Ghinaghat (MRM) - Biratchok
F063	Inaruwa - Kaptanganj
F064	Phattepur - Kanchanpur - Rajbiraj - Gobindapur
F065	Kathauna - Pato
F066	Kalyanpur - Subharpatti

F067	Dhangarhi- Vidyanagar - Bariyarpatti
F068	Pokhariya - Jitpur
F069	Galchhi - Debighat
F070	Khurkot - Manthali
F071	Panchkhal - Palanchok Bhagawati
F072	Gwarko - Panauti - DSRM
F073	Bakhundol (ARM) - Bogatigaun (Ktm University Road)
F074	Nuwakot Darbar Access Road
F075	Kalimati - Sitapaila - Bhimdhunga - Dharke
F076	Ringroad - Tinpipale - Okarpauwa - Kolpu
F077	Budhanilkantha - Kakani - Kaulethana (F21)
F078	Shobhabhagwati - Nishangaun - Halchok - Narayanthan
F079	Thulo Bharyang (Ring Road) - Raniban Post
F080	Balaju - Nepaltar - Sangla Bazar
F081	Baniyatar - Lainchaur
F082	Samakhosi - Tokhagaun-Dandagaun-Gurje-Tadi-Gangate
F083	Kapan - Mandikatar - Hadigaun (Bulbule)
F084	Chuchchepati - Kapan - Gamcha
F085	Mahankal - Atterkhel
F086	Jadibuti (ARM) - Thimi - Sallaghari
F087	Pepsikola - Gothatar
F088	Gokarna - Jorpat i- Gothatar
F089	Pepsikola - Karkigaun
F090	Thimi (SOS) - Lokanthali - Tikathali - Manohara
F091	Kasaultar - Balkot - Sirutar - Biruwa
F092	Thimi - Mulpani - Gokarna
F093	Sallaghari - Duwakot
F094	Byasi (Bhaktapur) - Changunarayan
F095	Mulpani - Changunarayan - Phedigaun
F096	Nagarkot - Sankhu
F097	Chyamasingh - Nala - Banepa
F098	Kamalbinayak - Sudal - Nagarkot
F099	Trolly Bus (ARM) - Suryabinayak - Bhujunge
F100	Sallaghari - Katunje - Lubhu
F101	Manohara Bridge (RR) - Sankhamul-Teku-Balkhu (RR)
F102	Satdobato - Dhapakhel - Thecho
F103	Jayanepal - Bhaisepati - Tikabhairab
F104	Khasibajar - Kirtipur - Tinthana
F105	Nagdhunga -Tankeswor
F106	Charikot - Dolakha - Lamabagar - Lapchegaun
F107	Birendrabazar -Yadukuha - Mahinathur
F108	Janakpur - Yadukaha
F109	Dharapani (MRM) - Dhanusadham - Janakpur
F110	Janakpur (H06) - Jatahi
F111	Jaleswor - Matihani

F112	Janakpur(H06) - Manara - Bathanaha
F113	Janakpur - Kurtha - Samsi
F114	Bardibas - Jaleswor
F115	Maithan (MRM) - Gashala - Samsi
F116	Phuljor (MRM) -Bayalbas - Tribhuwannagar
F117	Nayaroad (MRM) - Barhathwa - Madhubani
F118	Tamagadhi (MRM) - Simraungadh(IB)
F119	Manmat (MRM) - Kalaiya - Matiarwa (IB)
F120	Hetauda - Tikabhairab (Kanti Rajpath)
F121	Pharping - Kulekhani
F122	Bhimphedi - Kulekhani
F123	Dhadingbesi - Arughat - Gorkha
F124	Tandi (MRM) - Sauraha
F125	Bharatpur - Meghauli Airport - Dhruwa
F126	Anptari (H05) - Devghat
F127	Dumre (PRM) - Bandipur
F128	Damauli (PRM) - Neupanebesi - Bhorletar
F129	Talchok (PRM) - Khudimuhan (Beganas Lake)
F130	Bhumahi - Parasi - Bhairahawa
F131	Malunga (SRM) - Mirmi - Gupteswor(Kaligandaki-Kushma)
F132	Ridi - Rudraben i- Wami Taksar
F133	Maldhunga - Beni
F134	Tamghas - Sandhikharka - Pyuthan
F135	Ramapur (MRM) - Lumbini
F136	Shivgadhiya - Padariya (Lumbini-Circumambulatory)
F137	Pipara (MRM) - Chakar Chauda (IB)
F138	Lamahi (MRM) - Koilabas (IB)
F139	Holeri- Sworgadwar - Jaluki (Bhingri)
F140	Sitalpati (H11) - Salyan
F141	Tulasipur - Purandhara - Botechaur
F142	Nepalganj - Baghauda
F143	Ranjha (H12) - Nepalganj Airport
F144	Tallo Dungeswor - Mathillo Dungeswor
F145	Hilsa (IB)- Simikot
F146	Sanphebagar- Martadi - Kolti - Sukhadhik
F147	Sati (Khairipur) - Khakraula
F148	Muda (MRM) - Bhajani - Lalbojhi(IB)
F149	Sahajpur - B.P. Nagar - Silgadhi (Dipayal)
F150	Kaluwapur (MRM) -Shreepur - Belauri (IB)
F151	Daiji (MRM)- Jogbudha - Budar (MKRM)
F152	Leguwaghat - Sabha Khola (Boharatar)
F153	Bastipur - Makri- Pashupatinagar (Hetauda Bypass)
F154	Nagma-Gamgadhi
F155	Bramhadev- Jogbuda
F156	Phikkal (MERM) - Sriantu - Baudhadham

F157	Ilam (MERM) - Maipokhari - Sandakpur
F158	Damak (MRM) - Chisapani
F159	Khurkot - Ramechhap - Sanghutar - Okhaldhunga
F160	Janakpur Circumambulatory
F161	Lothar (MRM) - Chuniyadhara - Malekhu
F162	Beganastal - Bhorletar
F163	Khairenitar (PRM) - Bhimad - Kawaswoti (MRM)
F164	Gagangaunda (PRM)-Begnastal
F165	Pratapur-Raninagar-Triveni
F166	Kagbeni-Muktinath
F167	Gaindakot - Rampur - Pipaldanda-Maldhunga
F168	Bansgadhi (MRM) - Mainapokhar
F169	Kothiya -Thakurdwara - Amreni (MRM)
F170	Baddichour - Gutu
F171	Bhuregaun (MRM) - Bangesimal (Surkhet)
F172	Karnali Corridor (Manma - Kolti)
F173	Gamgadhi - Sukadik
F174	Silgadhi - Khaptad
F175	Patan - Pancheswor
F176	Ugratara - Melauli
F177	Jumla Khalanga - Gamgadhi
F178	Bijulebhanjyang - Lamidanda
F179	Shahid Road
F180	Ganeshman Marg (Thankot-Markhu)
F181	Tadi-Labdhu-Samundratar-GolphuBhanyang
F182	Tallo Dungeshwor - Dullu
F183	Shivanagar - Gumi - Patihalnachaur
F184	11 Kilo (F035) - Chhepetar - Bhaluswara - Barpak
F185	Putalikhet - Karkineta - Majhbeni(Kusma)
F186	Mirdi - Chitre - Bhimad
F187	Trafficchok(MRM)-Baniniya (IB)
F188	Banke (MRM) - Sangrampur (IB)
F189	Gadhimai - Kawahigoth (IB)
F190	Dumkibas (MRM) - Tribeni
F191	Kathawa (IB) -Tribeni
F192	Rajapur-Daulatpur-Sati
F193	Chaurjahari - Bas khola - Devisthal
F194	Saljhandi - Satyawati - Badahare River
F195	Tikapur-Muda-Saphe Bagar-Dadakot-Gothalakhet-Chainpur-Saipal-Urai
F196	Benighat-Arughat-Larke Bhanjyang
F197	Aryabhanjyang (SRM)-Rampur
F198	Birgunj Bypass
F199	Gandhi Manamohan Marga
F200	Kharindrapur(MRM)-Shitalpur-Bilmi
F201	Jiri-Salleri Road

F202	Jiri-Those-Bamti Road
F203	Gulariya-Bagahighat-Rammapur
F204	Khutiya-B.P.Nagar-Gadhasera--Dipayal
F205	Nijgadh-Pataura-Bankul-Gaur
F206	Gaur-Pipara-Samanpur-Santapur-Nunthar Road
F207	Parsa-Bara-Rautahat-Gandaknahar Road
F208	Triveni-Sanahi-Gandak Nahar Sadak-Nawalparasi
F209	Holangadi-Dharampani-Dhungakhani

LINK CODE AND ROAD LINK NAME

Link Code	Road Link Name
H0101	Kakarbhitta-Charali
H0102	Charali-Birtamod
H0103	Birtamod-Padajogi (Damak)
H0104	Padajogi (Damak)-Ratuwa
H0105	Ratuwa-Mawa
H0106	Mawa-Harichamod
H0107	Harichamod-Budhi Khola
H0108	Budhi Khola-Itahari
H0109	Itahari-Sakhawa Gachhi
H0110	Sakhawa Gachhi-Sunsari bridge
H0111	Sunsari bridge-Koshi Barrage
H0112	Koshi Barrage-Bharadaha
H0113	Bharadaha-Rupni
H0114	Rupni-Kadmaha
H0115	Kadmaha-Balan
H0116	Balan-Padariyachok
H0117	Padariyachok-Chauharwa
H0118	Chauharwa-Mirchaiya
H0119	Mirchaiya-Kamala
H0120	Kamala-Dhalkebar
H0121	Dhalkebar-Ratu
H0122	Ratu-Bardibas
H0123	Bardibas-Banke
H0124	Banke-Nawalpur
H0125	Nawalpur-Bagmati
H0126	Bagmati-Chandranigahapur
H0127	Chandranigahapur-Dhansar
H0128	Dhansar-Pathlaiya
H0129	Pathlaiya-Chure
H0130	Chure-Ratmate
H0131	Ratmate-Hetauda
H0132	Hetauda-Sarashwati Khola
H0133	Sarashwati Khola-Lothar

H0134	Lothar-Tikauli
H0135	Tikauli-Hakimchok
H0136	Hakimchok-Narayanghat
H0137	Narayanghat-Narayani bridge
H0138	Narayani bridge-Junction (Tiger Mountain)
H0139	Junction (Tiger Mountain)-Arun Khola
H0140	Arun Khola-Bardaghat
H0141	Bardaghat-Sunwal
H0142	Sunwal-Maha Khola
H0143	Maha Khola-Sukoura
H0144	Sukoura-Butwal (Milanchok)
H0145	Butwal (Milanchok)-Butwal(Mahendrachok)
H0146	Butwal-Bamaha Khola
H0147	Bamaha Khola-Kothi River
H0148	Kothi River-Jitpur
H0149	Jitpur-Gorusinge
H0150	Gorusinge-Chanauta
H0151	Chanauta-Dhan Khola
H0152	Dhan Khola-Ram Singh Khola
H0153	Ramsimgh Khola-Rapti River
H0154	Rapti River-Bhalubang
H0155	Bhalubang-Lamahi
H0156	Lamahi-Ameliya
H0157	Ameliya-Shiva Khola
H0158	Shiva Khola-Khairi Khola
H0159	Khairi Khola-Kohalpur
H0160	Kohalpur-Man River
H0161	Man River-Bhuregaon
H0162	Bhuregaon-Karnali
H0163	Karnali-Junga
H0164	Junga-Sukhad Choraha
H0165	Sukhad Choraha-Atariya
H0166	Atariya-Mohana River
H0167	Mohana River-Daiji
H0168	Daiji-Sukhanala
H0169	Sukhanala-Gadda Chauki
H0201	Sirsiya border-Junction, old alignment
H0202	Junction, old alignment-Gandak Canal
H0203	Gandak Canal-Jitpur
H0204	Jitpur-Pathlaiya
H0205	Hetauda-Samari
H0206	Samari-Bhainse
H0207	Bhainse-Lamidanda
H0208	Lamidanda-Simbhanjyang
H0209	Simbhanjyang-Palung

H0210	Palung-Tistung
H0211	Tistung-Sopyarg District border
H0212	Sopyarg District border-Naubise
H0213	Naubise-Peepalmod
H0214	Peepalmod-Nagdhunga
H0215	Nagdhunga-Kalanki (Ring road)
H0216	Kalanki (Ring road)-Tripureswor
H0301	Maitighar-Tinkune
H0302	Tinkune-Koteshwar
H0303	Koteshwar-Manohara bridge
H0304	Manohara bridge-Sallaghari
H0305	Sallaghari-Hanumante Culvert
H0306	Hanumante Culvert-Sanga
H0307	Sanga-Punyamata bridge
H0308	Punyamata bridge-Banepa
H0309	Banepa-Chalnedhunga
H0310	Chalnedhunga-Khawa
H0311	Khawa-Lamidanda
H0312	Lamidanda-Dolalghat
H0313	Dolalghat-Lamosangu
H0314	Lamosangu-Barabise
H0315	Barabise-Kodari
H0401	Naubise-Galchhi
H0402	Galchhi-Junction Trisuli bridge
H0403	Junction Trisuli bridge-Mawa Khola
H0404	Mawa Khola-Mugling
H0405	Mugling-Mungling bridge
H0406	Mungling bridge-Ambukhaireni
H0407	Anbukhaireni-Dumre
H0408	Dumre-Muse Khola
H0409	Muse Khola-Byas municipality boundary
H0410	Byas municipality boundary-Kotre
H0411	Kotre-Bijayapur Khola
H0412	Bijayapur Khola-Prithvi Chok
H0501	Narayanghat-Anptari
H0502	Anptari-Ramnagar
H0503	Ramnagar-Mugling
H0601	Bhittamod-Jaleshwar municipality boundary
H0602	Jaleswor municipality boundary-Dhudhmadi bridge
H0603	Dhudhmadi bridge-Janakpur municipality boundary
H0604	Janakpur municipality boundary-Dhalkebar
H0605	Bardibas-Rato River
H0606	Rato River-Chure Temple
H0607	Chure Temple-Sindhuli
H0608	Sindhuli-Khurkot

H0609	Khurkot-Barkhe Khola
H0610	Barkhe Khola-Dhulikhel
H0701	Kechna (IB)-Kechna village
H0702	Kechna village-Jhapa Chok
H0703	Jhapa Chok-Bhaire Chok
H0704	Bhaire Chok-Charali
H0705	Charali-Chihanedanda
H0706	Chihanedanda-Fikkal
H0707	Fikkal-Mai Khola
H0708	Mai Khola-Chureghanti
H0709	Chureghanti-Ranke
H0710	Ranke-Phidim
H0711	Phidim-Gopetar
H0712	Gopetar-Kabeli
H0713	Kabeli-Taplejung
H0714	Taplejung-Gharila (IB)
H0801	Rani (IB)-Kanchanbari
H0802	Kanchanbari-Duhabi
H0803	Duhabi-Itahari
H0804	Itahari-Seuti bridge
H0805	Seuti bridge-Base Camp
H0806	Base Camp-Bhendetar
H0807	Bhendetar-Mulghat
H0808	Mulghat-Patle Khola
H0809	Patle Khola-Hile
H0901	Kadmaha Chok-Siswari bridge
H0902	Siswari bridge-Cement Factory
H0903	Cement Factory-Gaighat
H0904	Gaighat-Ranibas
H0904	Ranibas-Phoksing Tar(Sunkoshi, district Border)
H0905	Phoksing Tar(Sunkoshi, district Border)-Diktel
H1001	Belhiya (IB)-Sidarthanagar
H1002	Sidarthanagar-Butwal municipality boundary
H1003	Butwal municipality boundary-Milanchok
H1004	Mahendra park-Chidiya Khola
H1005	Chidiya Khola-Banstari
H1006	Banstari-Bartung
H1007	Bartung-Tansen municipality boundary
H1008	Tansen municipality boundary-Kaligandaki
H1009	Kaligandaki-Waling
H1010	Waling-Syangja
H1011	Syangja-Kubinde
H1012	Kubinde-Pokhara municipality boundary
H1013	Pokhara municipality boundary-Prithvichok
H1101	Ameliya-Tulsipur municipality boundary

H1102	Tulsipur municipality boundary-Birendrachok
H1103	Birendrachok-Lauri Khola
H1104	Lauri Khola-Choroadanda, Dang district border
H1105	Choroadanda, Dang district border-Junction Salyan
H1106	Junction Salyan road, Sitalpati-Patalechaur
H1107	Patalechaur-Khaula Pass, Salyan district border
H1108	Khaula Pass, Salyan district border-Musikot
H1201	Jamuniya (IB)-Campus
H1202	Campus-Dhamboji
H1203	Dhamboji-Nepalganj municipality boundary
H1204	Nepalganj municipality boundary-Kohalpur
H1205	Kohalpur-Deurali
H1206	Deurali-Harre
H1207	Harre-Chhinchu
H1208	Chhinchu-Newari Khola
H1209	Newari Khola-Bangesimal
H1301	Bangesimal-Baddichaur-Upallo Syaule
H1302	Upallo Syaule-Sain
H1303	Sain-Siradi
H1304	Siradi-Sherighat-Manma
H1305	Manma-Nagma
H1306	Nagma-Jumla Khalanga
H1401	Mohana bridge (IB)-Boradandi
H1402	Boradandi-Atariya
H1403	Atariya-Faltunde
H1404	Faltunde-Budar
H1405	Budar-Gairha
H1406	Gairha-Syaule
H1407	Syaule-Anarkholi
H1408	Anarkholi-Khodpe
H1409	Khodpe-Patan
H1410	Patan-Satbhanj
H1411	Satbanj-Gokuleswor
H1412	Gokuleswor-Darchula
H1413	Darchula-Tinkar (IB)
H1501	Syaule Bazar-Korayal
H1502	Koryal-Samuha Gad
H1503	Samuha Gad-Junction, Sanfe road
H1601	Manohara River - Koteswor (H03) KTM Ringroad)
H1602	Tinkune - Sinamangal - Gaushala (KTM Ringroad)
H1603	Gaushala - Mitrapark (KTM Ringroad)
H1604	Mitrapark - Chabahil (KTM Ringroad)
H1605	Chabahil - Sankhapark (KTM Ringroad)
H1606	Sankhapark - Maharajganj (KTM Ringroad)
H1607	Maharajganj - Balaju Bypass Junction (KTM Ringroad)

H1608	Balaju Junction - Banasthali - Swoyambhu (KTM Ringroad)
H1609	Swoyambhu - Kalanki (KTM Ringroad)
H1610	Kalanki - Balkhu (KTM Ringroad)
H1611	Balkhu - Ekantakuna (KTM Ringroad)
H1612	Ekantakuna- Kusanti - Satdobato (KTM Ringroad)
H1613	Satdobato- Gwarko (KTM Ringroad)
H1614	Gwarko-Manohara River(Balkumari)(KTM Ringroad)
H1701	Bhadrapur-Ratuwa(Postal)
H1702	Ratuwa-Rangeli(Postal)
H1703	Biratnagar-Bhimpur (Keshalya River) (Postal)
H1704	Bhimpur(Keshalya River)-Dewangunj (Postal)
H1705	Harinagara-Jhabartol-Custom-Laukahi (Postal)
H1706	Rajbiraj-Balan River (Postal)
H1707	Balan River-Kamala River (Postal)
H1708	Kamala River-Yogiyada (Postal)
H1709	Yogiyada-Janakpur (Postal)
H1710	Janakpur-Birendrachok (Postal)
H1711	Jaleshwor-Samsi-Hardi Khola (Sitapur) (Postal)
H1712	Hardi Khola (Sitapur)-Malangawa (Postal)
H1713	Malangawa-Kharahiyatol (Postal)
H1714	Kharahiyatol-Gadahiya (Bagamati River) (Postal)
H1715	Gadahiya(Bagamati River)-Sirsiya (Postal)
H1716	Sirsiya-Gaur (Postal)
H1717	Gaur-Aruwa river-Kachorwa (Postal)
H1718	Kachorwa-Kalaiya (Postal)
H1719	Birgunj(Murli)-Basantapur (Postal)
H1720	Basantapur-Amuwapost(Near Thori) (Postal)
H1721	Amuwapost(Thori)-Madi-Jagatpur- Bharatpur(MRM)(Postal)
H1722	Narayanchok - Parasi (Postal)
H1723	Taulihawa-Bahadurgunj (Postal)
H1724	Krishnanagar-Chirai Naka (Chhotabhagwanpur) (Postal)
H1725	Chirai Naka (Chhotabhagwanpur)-Dhan Khola(MRM) (Postal)
H1726	Kalakanti (MRM)-Gadhawa-Rajpur (Postal)
H1727	Rajapur-Sikta-Hardawa (MRM) (Postal)
H1728	MRM (Mathebans)-Madui-Dudhuwa-Kamdi (Postal)
H1729	Beluwa-Rajapur (Postal)
H1730	Satti-Lalbojhi-Hasulia (Postal)
H1731	Hasulia-Dhangadhi (Postal)
H1732	Dhangadhi-Beldandi Chok (Postal)
H1733	Beldandichok - Daiji (Postal)
H1801	Chiyobhanjyang(IB)-Ganesh Chowk (Midhill)
H1802	Jorsal-Tamor River(District Border) (Midhill)
H1803	Tamor River-Sankranti (Midhill)
H1804	Sankranti-Myaglung (Midhill)
H1805	Hile-Leguwaghat (Midhill)

H1806	Leguwaghat-Bhojpur (Midhill)
H1807	Bhojpur-Tyamke(Chakhewa) (Midhill)
H1808	Tyamke(Chakhewa)-Diktel (Midhill)
H1809	Diktel-Halesi (Midhill)
H1810	Halesi-Jayaramghat(District Border) (Midhill)
H1811	Jayaramghat(District Border)-Hilepani (Midhill)
H1812	Hilepani-Ghurmi(District Border) (Midhill)
H1813	Ghurmi(District Border)-Nayasthan (Bhadaure Khola) (Midhill)
H1814	Nayasthan (Bhadaure Khola)-Haibar (Midhill)
H1814	Haibar-Khurkot (Midhill)
H1815	Baglung-Kharbang-Burtibang (Midhill)
H1816	Burtibang-Partihalna(District Border)
H1817	Partihalna(District Border)-Rukumkot
H1818	Rukumkot-Musikot
H1819	Musikot-Chourjhari-Kudu(District Border) (Midhill)
H1820	Kudu(District Border)-Swedada (District Border)
H1821	Swedada(District Border)-Dailekh bazar
H1822	Dailekh bazar-Chhamgad R-Dullu
H1823	Dullu-Lainchaur-Jambukandh-Ramgad R-Sattala- Shahijyula (District Border)
H1824	Belkhet (District Border)-Mangalsen (Midhill)
H1825	Mangalsen-Safebagar (Midhill)
H1901	Shabha(MRM)-Bramhadev
H2001	Kathmandu (Outer Ring Road) - Chhaimale
H2002	Chhaimale - Kulekhani - Budune - Shreepur - Jaspal
H2003	Jaspal - Nijgadh(Kathmandu -Terai Fast Track)
H2101	Bhutkhel-Tokha-Changunarayan(KTM Outer Ringroad)
H2104	Changunarayan-Suryabinyak-Lubhu(KTM Outer Ringroad)
H2106	Lubhu-Thaiba-Bhutkhel(KTM Outer Ringroad)
F00101	Birtamod (MRM)-Chandragadhi
F00201	Damak-Gauradaha Dipu
F00202	Gauradaha Dipu-Gaurigunj
F00301	Bhardaha-Inaruwa
F00302	Inaruwa-Rajbiraj municipality boundary
F00303	Rajbiraj municipality boundary-Rajbiraj
F00401	Rupani-Rajbiraj municipality boundary
F00403	Rajbiraj-Rajbiraj municipality boundary
F00404	Rajbiraj municipalityboundary-Malhaniya Chok- Kunauli
F00501	Chauharwa-Siraha
F00502	Siraha-Madar
F00601	Nawalpur-Malangwa municipality boundary
F00602	Malangwa municipality boundary-Malangwa
F00603	Malangwa-Sonbarsa (IB)
F00701	Chandranigahapur-Gaur municipality boundary
F00702	Gaur municipality boundary-Gaur
F00703	Gaur-Bairganiya (IB)

F00801	Bardaghat-Pratappur
F00802	Pratappur-Surajpura
F00803	Surajpura-Harpur border
F00901	Sunwal-Parasi
F00902	Parasi-Maheshpur (IB)
F01001	Jitpur-Taulihawa municipality boundary
F01002	Taulihawa municipality boundary-Bank Chauraha
F01003	Bank Chauraha-Taulihawa municipality boundary
F01004	Taulihawa municipality boundary-khunuwa
F01101	Taulihawa-Gorusinge
F01102	Gorusinge-Patharkot
F01103	Patharkot-Kapilvastu district border
F01104	Kapilvastu district border-Thada Jugena
F01105	Thada Jugena-Angure Ghumti
F01106	Angure Ghumti-Sandhikharka
F01201	Chanauta-Bahadurgunj
F01202	Bahadurgunj-Krishnanagar
F01301	Bhalubang-Ganaha Khola bridge
F01302	Ganaha Khola bridge-Chakchake
F01303	Chakchake-Rolpa district border
F01304	Rolpa district border-Rolpa, Liwang
F01305	Liwang-Madichaur-Darbot(Junction SahidMarg)
F01401	Pyuthan-Chakchake
F01402	Devisthan-Loharpani
F01403	Loharpani-Ghorahi
F01501	Lamahi-Tribhuvannagar municipality boundary
F01502	Tribhuvannagar municipalityboundary- Tribhuwannagar
F01503	Tribhuvannagar-Tribhuvan municipality boundary
F01504	Tribhuvannagar-Tulsipur municipality boundary
F01505	Tulsipur municipality boundry-Tulsipur
F01601	Bhuregaun-Junction, road to
F01602	Junction, road to -Gulariya
F01603	Gulariya-Murtihawa
F01701	Junga-Junction, road to Tikapur
F01702	Junction, road to Tikapur-Sati
F01703	Sati-Rajapur
F01704	Rajapur-Bhimapur(IB)
F01801	Birgunj-Bara district border
F01802	Bara district border-Kalaiya municipality boundary
F01803	Kalaiya municipality boundary-Kalaiya
F01901	Bhaise-Bhimphedi
F02001	Palung-Kulekhani
F02101	Tripureshwar-Ring road
F02102	Ring road-Balaju Bypass
F02103	Balaju bypas-Nagarjun

F02104	Nagarjun-Thulo Khola
F02105	Thulo Khola-Kakani
F02106	Kakani-Tadi Khola
F02107	Tadi Khola-Batar
F02108	Batar-Gerkha Khola
F02109	Gerkha Khola-Phalankha Khola
F02110	Phalankha Khola-Dhunche
F02111	Dhunche-Shyaphru
F02112	Shyaphru-Rasuwagadhi(IB)
F02201	Balkhu-Chovar
F02202	Chovar-Chhaimale
F02203	Chhaimale-Kulekhani
F02301	Satdobato-Sunakothi
F02302	Sunakothi-Junction, road to Lele
F02303	Junction, road to Lele-Tikabhairab
F02401	Satdobato-Karmanas bridge
F02402	Karmanas bridge-Godavari
F02403	Godavari-Phulchoki (Lalitpur)
F02404	Godavari-Phulchoki (Kabhrepalanchowk)
F02501	Lainchaur-Maharajgunj
F02502	Maharajgunj-Bansbari
F02503	Bansbari-Budhanilkantha
F02601	Chabahil (Ktm Ring road)-Pipalbot
F02602	Pipal Bot-Sankhu
F02603	Sakhu-Lapsephedi-Bhotechaur
F02604	Bhotechaur-Chhapeli(Junction To Sindhu Access Road)
F02605	Chhapeli(Junction To Sindhu Access Road)- Bahunepati(Junction To F03)
F02606	Melamchi(Junction to F03)-Chautara
F02701	Jorpati-Sundarijal
F02801	Bhaktapur-Army camp
F02802	Army camp-Nagarkot
F02901	Banepa-Punyamata bridge
F02902	Punyamata bridge-Panauti
F02903	Panauti-Khopasi
F03001	Panchkhal-Dhad Khola
F03002	Dhad Khola-Melamchi
F03003	Melamchi-Helambu
F03101	Dolalghat-Chautara
F03201	Lamosangu-Ningaledanda
F03202	Ningaledanda-Charikot
F03203	Charikot-Tamakoshi (Junction road to Jiri)
F03204	Tamakoshi-Milti Khola
F03205	Milti Khola-Kirnetar
F03206	Kirentar-Khimti Khola
F03207	Khimti Khola-Ramechhap

F03301	Tamkoshi-Jiri
F03401	Malekhu-Dhading Besi
F03501	Anbukhaireni (PRM)-Marshyangdi River
F03502	Marsyangdi River-Gorkha
F03601	Dumre(PRM)-district border
F03602	District border-Besisahar
F03603	Besisahar-Ghermu
F03604	Ghermu-Sattale
F03605	Sattale-Chame
F03701	Bharatpur Bypass Road
F03801	Fikkal-Pasupatinagar
F03901	Biratnagar-Singhiya bridge
F03902	Singhiya bridge-Rangeli
F04001	Hile-Gunrase
F04002	Gunrase-Chitre
F04003	Chitre-Basantapur
F04004	Basantapur-Tehrathum
F04101	Pokhara-Sarankot
F04201	Pokhara-Bindebasini
F04202	Bindebasini-Yamdi bridge
F04203	Yamdi bridge-Sandh bridge
F04204	Sandh bridge-Kaligandaki bridge
F04205	Kaligandaki bridge-Baglung
F04206	Baglung-Myagdi district border
F04207	Myagdi district border-Beni
F04208	Beni-Pairothapla
F04209	Pairothapla-Jomsong
F04210	Jomsong-Ghoktang
F04301	Bartung (SRM)-Batase Danda
F04302	Batase Danda-Harthok
F04303	Harthok-Ridi bridge
F04304	Ridi bridge-Ghumti
F04305	Ghumti-Tamghas
F04306	Tamghas-Wamitaxsar
F04401	Bhairahawa-Bhairahawa municipality boundary
F04402	Bhairahawa municipality boundary-Lumbini Juction
F04403	Lumbini Junction-Padaria Chok
F04404	Padariya Chok-Kakrahawa
F04501	Lumbini-Kothi bridge
F04502	Kothi bridge-Taulihawa municipality boundary
F04503	Taulihawa municipality boundary-Taulihawa
F04601	Nepalgunj-Nepalgunj municipality boundary
F04602	Nepalgunj municipality boundary-Man bridge
F04603	Man bridge-Gulariya
F04701	Chinchu-Raikar

F04702	Raikar-Devasthal
F04703	Devasthal-Chedaghad Khola
F04704	Chhedagad Khola-Jajarkot
F04705	Jajarkot-Tribeni
F04706	Tribeni-Dunai
F04801	Surkhet-Dailekh district border
F04802	Dailekh district border-Siyakot-Dailekh
F04901	Khodpe-Bithad
F04902	Bithad-Kalangagad
F04903	Kalangagad-Deura
F04904	Deura-Tamail
F04905	Tamail-Chainpur
F05001	Satbanj-Baitadi
F05002	Baitadi-Jhulaghat
F05101	Silgadhi-Chaukhutte Bajar
F05102	Chaukhutte Bajar-Sanfebagar
F05201	Mirchiya (MRM)-Jyamire (District Border)
F05202	Jyamire (District Border)-Katari
F05203	Katari-Harkapur (Sunkoshi)
F05204	Harkapur (Sunkoshi)-Okhaldhunga
F05205	Okhaldhunga-Mudhe Bisana
F05206	Mudhe Bisana-Salleri
F05301	Basantapur-Deurali(District Border)
F05302	Deurali(District Border)-Mudhe Shanishchare
F05303	Mude-Chainpur
F05304	Chainpur-Sawa Khola
F05305	Sawa Khola-Khandbari
F05306	Khandbari-Kuwapani
F05307	Kuwapani-Num
F05308	Num-Kimathangka
F05401	Duhabi (KRM)-Inaruwa
F05501	Lahan (MRM)-Bhagwanpur
F05502	Bhagwanpur-Thadi
F05601	Jhumka (MRM)-Chatara(F057)
F05602	Chatara(F057)-Barahachhetra
F05701	Dharan - Chatara
F05702	Chatara-Phattepur-Murkucha-Gaighat-Katari
F05703	Katari(F052)-Baireni
F05704	Baireni-Bhiman(H06)
F05705	Sindhulibazar-Gurji
F05706	Gurji-Hetauda (Partly Kathmandu-Terai Fast Track)
F05801	Bhedetar (KRM)-Kopche
F05802	Kopche-Dadabazar-Ekrate Bhanjyang
F05803	Ekrate Bhanjyang-Rabi
F05804	Rabi-Ranke(MERM)

F05901	Birtamoad (MRM)-Sanischare-Budhbare
F06001	Bardanga-Urlabari (MRM)
F06002	Urlabari (MRM)-Madhumalla
F06003	Madhumalla-Daregaunda
F06101	Rangeli-Kanepokhari
F06102	Kanepokhari-Dandagaun
F06103	Dandagaun-Budhabare
F06201	Ghinaghat (MRM)-Biratchok
F06301	Inaruwa (MRM)-Kaptanganj
F06401	Phattepur-Kanchanpur
F06402	Kanchanpur-Rajbiraj
F06403	Rajbiraj-Sakhada-Gobindapur
F06501	Kathauna (MRM)-Pato (IB)
F06601	Kalyanpur(MRM)-Barsain-Subhrapatti (IB)
F06701	Dhangarhi (MRM)-Vidyanagar-Bariyarpatti
F06801	ICD (Pokhariya)-Parwanipur
F06901	Galchhi (PRM)-Baghmara
F06902	Baghmara (PRM)-Debighat
F07001	Khurkot (H06)-Manthali
F07101	Panchkhal (ARM)-Palanchok Bhagawati
F07201	Gwarko-Lubhu-Lankuri Bhanjyang
F07202	Lankuri Bhanjyang-Panauti-Namobudha-DSRM (H06)
F07301	Bakhundol(ARM)-Bogatigaun(Ktm University Road)
F07401	Damki-Phalante (Nuwakot Darbar Access Road)
F07501	Kalimati-Bahiti
F07502	Bahiti-Sitapaila
F07503	Sitapaila-Bhimdhunga
F07504	Bhimdhunga-Dharke
F07601	Ringroad-Tinpipale
F07602	Tinpipale-Okarpauwa-Kolpu
F07701	Budhanilkantha-Dandagaun(KVRR)
F07702	Gurje-Kuwapani
F07703	Kuwapani-Kakani-Kaulethana(F21)
F07801	HalChok-Narayanthan(KVRR)
F07901	Thulo Bharyang (Ring Road)-Raniban Post
F08001	Balaju-Nepaltar-Sangla Bazar
F08101	Baniyatar-Samakhusi Chok-Lainchaur (Ascol) (KVRR)
F08201	Samakhushi Chok-Tokhagaun- Chandeshwarigaun(KVRR)
F08202	Chandeshwarigaun-Dandagaun(KVRR)
F08203	Dandagaun(KVRR)-Gurjebhanjyang
F08204	Gurjebhanjyang-Chhahare-Tadi
F08205	Tadi-Gangate (F21)
F08301	Kapan-Mandikatar-Damaged Bridge South
F08401	Chuchchepati-Mahankal-Kapan- Dandagaun(KVRR)
F08402	Dandagaun-Gamcha(KVRR)

F08501	Mahankal-Atterkhel
F08601	Jadibuti (ARM)-Sinamangal
F08602	Sinamangal-Manohara-Thimi-Sallaghari
F08701	Pepsikola-Gothetar(KVRR)
F08801	Gokarna-Jorpati-Gothatar(KVRR)
F08901	Pepsicola-Karkigaun(KVRR)
F09001	Thimi (SOS)-Lokanthali (ARM)
F09002	Lokanthali (ARM)-Dharmeshwar
F09003	Dharmeshwar-Tikathali-Manohara (KVRR)
F09101	Kausaltar-Balkot-Sirutar-Biruwa(KVRR)
F09201	Thimi (ARM)-Bode-Karkigaun(KVRR)
F09202	Karkigaun-Mulpani-Gokarna(KVRR)
F09301	Sallaghari (Bhaktapur)-Duwakot(KVRR)
F09401	Byasi (Bhaktapur)-Changunarayan
F09501	Mulpani-Phuyalgaun
F09502	Phuyalgaun-Changunarayan
F09503	Changunarayan-Phedigaun
F09601	Nagarkot-Kattike
F09602	Kattike-Sankhu
F09701	Chyamasingh-Amaldol
F09702	Amaldol-Nala-Banepa
F09801	Kamalbinayak-Sudal-Adikarigaun
F09802	Adikarigaun-Nagarkot
F09901	Trolly bus(ARM)-Suryabinayak- Chamelidanda(KVRR)
F09902	Chamelidanda-Bhujunge(KVRR)
F10001	Sallaghari (ARM)-Katunje-Sumlingtar(KVRR)
F10002	Sumlingtar-Lubhu(KVRR)
F10101	Manohara bridge (Balkumari)-Shankhamul
F10102	Shankhamul-Teku Dobhan-Balkhu
F10201	Satdobato (Ring Road)-Dhapakhel - Thecho(KVRR)
F10301	Jayanepal-Thapathali(KVRR)
F10302	Thapathali-Tikabhairab(KVRR)
F10401	Kashibazar-Kirtipur-Machhegaun-Tinthana(KVRR)
F10501	Nagdhunga(TRP)-Tankeswor(KVRR)
F10601	Charikot-Dolakha
F10602	Dolakha-Lamabagar-Lapchegaun (IB)
F10701	Birendrabazar (MRM)-Yadukuha-Mahinathpur
F10801	Janakpur-Yadukaha
F10901	Dharapani (MRM)-Dhanusadham-Janakpur
F11001	Janakpur (H06)-Jatahi
F11101	Jaleswor(H06)-Mattihani
F11201	Janakpur(H06)-Basbitti
F11202	Basbitti-Manara
F11203	Manara-Bathanaha
F11301	Janakpur-Kurtha-Mahadaiya

F11302	Mahadaiya-Samsitola-Samsi
F11401	Bardibas (MRM)-Jaleswor
F11501	Maithan (MRM)-Gaushala-Samsi
F11601	Phuljor (MRM)-Bayalbas-Bhelahi
F11602	Bhelahi-Tribhuwannagar
F11701	Nayan Road (MRM)-Barathhawa-Madhuwan
F11801	Tamagadhi (MRM)-Simraungadh (IB)
F11901	Manmat (MRM)-Kalaiya-Matiarwa (IB)
F12001	Hetauda-Makawanpur Gadhi(Kanti Rajpath)
F12002	Makawanpur Gadhi-Bagmati R (District Border)(Kanti Rajpath)
F12003	Bagmati R (District Border)-Tikabhairab(Kanti Rajpath)
F12101	Pharping(Dakshinkali)-Pakhelchaur
F12102	Pakhelchaur-Kulekhani
F12201	Bhimphedi-Kulekhani
F12301	Dhading Besi-Aarughat
F12302	Aarughat-Dharapani-Gorkha
F12401	Tandi, Ratnanagar (MRM)-Sauraha
F12501	Bharatpur-Meghauli Airport
F12502	Meghauli Airport-Dhruwa(PR)
F12601	Aauptari (H05)-Devghat
F12701	Dumre (PRM)-Bandipur
F12801	Damauli (PRM)-Jyamiretar(Byas Marg)
F12802	Jyamiretar-Neupanebesi(Byas Marg)
F12803	Neupanebesi-Bhorletar(Byas Marg)
F12901	Talchok (PRM)-Khudimuhan (Beganas Lake)
F13001	Bhumahi (MRM)-Parasi
F13002	Parasi-Amawa
F13003	Amawa-Bhairahawa (H10)
F13101	Malunga (SRM)-Mirmi(Kaligandaki NS Corridor)
F13102	Mirmi-Setibeni (Kaligandaki-Kushma)(Kaligandaki NS Corridor)
F13103	Setibeni-Gupteswor(Kaligandaki- Kushma)(Kaligandak NS Corridor)
F13201	Ridi-Rudrabeni-Wami Taksar
F13301	Maldhunga-Beni
F13401	Tamghas-Neta Gaun
F13402	Neta Gaun-Sandhikhark
F13403	Sandhikharka-Asurkot-Lamdanda
F13404	Lamdanda-Bhedikhore-Pyuthan
F13501	Ramapur (MRM)-Lumbini
F13601	Shivgadhiya-Padariya(Lumbini-Circumambulatory)
F13602	Padariya-Shivgadhiya(Lumbini-Circumambulatory)
F13701	Pipara(MRM)-Pakadi(F04502)
F13702	Pakadi(F04502)-Chakar Chauda (IB)
F13801	Lamahi (MRM)-Koilabas (IB)
F13901	Holeri-Maichanne
F13902	Maichanne-Sworgedwari-Jaluki (Bhingri)

F14001	Sitalpati (Rapti Rajmarga)-Salyan
F14101	Tulasipur-Bijeneta
F14102	Bijeneta-Kalche
F14103	Kalche-Botechaur
F14201	Nepalgunj-Dondra
F14202	Dondra-Bagauda
F14301	Ranjha (H12) - Nepalganj Airport
F14401	Tallo Dhungeshwor - Mathillo Dhungeshwor
F14501	Hilsa (IB)-Simikot
F14601	Sanphebagar-Rakse
F14602	Rakse-Martadi
F14603	Martadi-Kolti
F14604	Kolti-Okhartola
F14701	Sati(Khairipur)-Khakraula
F14801	Muda (MRM)-Bhajani-Lalbojhi
F14802	Lalbojhi-Gulariyaghat(IB)
F14901	Sahajpur-B.P.Nagar
F14902	B.P.Nagar-Silgadhi(Dipayal)
F15001	Kaluwapur(MRM)-Shreepur-Belauri (IB)
F15101	Daiji(MRM)-Naula
F15102	Naula-Jogbudha
F15103	Jogbuda-Lamjile
F15104	Lamjile-Buddar (MKRM)
F15201	Leguwaghat-Kewabesi
F15202	Kewabesi-Sabha Khola(Boharatar)
F15301	Bastipur-Makri-Pashupatinagar(Hetauda Bypass)
F15401	Nagma-Bulbule
F15402	Bulbule-Gamgadhi
F15501	Bramhadev-Karali
F15502	Karali-Jogbuda
F15601	Phikkal (MERM)-Sriantu-Baudhadham
F15701	Ilam (MERM)-Maipokhari-Sandakpur
F15801	Damak (MRM)-Refugee Camp
F15802	Refugee Camp-Chisapani
F15901	Khurkot-Ramechhap-Sanghutar
F15902	Sanghutar-Okhaldhunga
F16001	Baldehi-Chandrapur(Janakpur Circumamulatory)
F16003	Chandrapur-Majara(Janakpur Circumamulatory)
F16101	Bhandara-Bumetar(Chepang Marg)
F16102	Bumetar-Chuniyadhara(District Border)(Chepang Marg)
F16103	Chuniyadhara(District Border)-Malekhu(Chepang Marg)
F16201	Beganastal-Ram Bajar
F16202	Ram Bajar-Bhorletar
F16301	Khairenitar (PRM)-Bhimad-Ghumarighat
F16302	Ghumarighat-Pangre-Nawalpur(Kawaswoti) (MRM)

F16401	Gagangaunda (PRM)-Begnastal
F16501	Pratapur-Raninagar-Triveni
F16601	Kagbeni-Muktinath
F16701	Gaindakot-Amalang (Kaligandaki Corridor)
F16702	Amalang-Rampur (Kaligandaki Corridor)
F16703	Rampur-Ramdi (Kaligandaki Corridor)
F16704	Ramdi-Ridi (Kaligandaki Corridor)
F16705	Ridi-Palung Khola (Kaligandaki Corridor)
F16706	Palung Khola-Maldhunga (Kaligandaki Corridor)
F16801	Bansgadhi(MRM)-Mainapokhar
F16901	Kothiya-Thakurdwara-Amreni(MRM)
F17001	Baddichour-Gutu
F17101	Bhuregaun (MRM)-Telpani
F17102	Telpani-Bangesimal(Surkhet)
F17201	Khulalu (KARM)-Patlibadi(Gadwali)
F17202	Patlibadi(Gadwali)-Kolti(Okhartola)
F17203	Kolti(Okhartola)-Boldhik(District Border)
F17204	Boldhik(District Border)-Sukhadhik-Dulya
F17205	Dulya-Simikot
F17301	Gamgadhi-Sukadik
F17401	Silgadhi-Khaptad
F17501	Patan-Pancheswor
F17601	Ugratara-Totihali
F17602	Totihali-Melauli
F17701	Jumla Khalanga-Gamgadhi
F17801	Bijulebhanjyang-Lamidanda
F17901	Ghorahi-Khumbas(Sahidmarg)
F17902	Khumbas-Holeri(Sahidmarg)
F17903	Holeri-Thabang(District Border)(Sahidmarg)
F17904	Thabang(District Border)-Dharmashala- Khabang(Sahidmarg)
F18001	Thankot-Chitlang Bhanjyang(Ganesh M.Singh Marg)
F18002	Chitlang Bhanjyang-Chandragadhi- Markhu(Ganesh M.Singh Marg)
F18101	Tadi-Labdhu-Samundratar-Golphubhanjyang
F18201	Tallodungeshwor-Dullu
F18301	Shivanagar-Gumi-Patihalnachaur
F18401	11 Kilo(F035)-Chhepetar-Bhaluswara-Barpak
F18501	Putalikhet-Karkineta
F18502	Karkineta-Majhbeni(Kusma)
F18601	Mirdi-Chitre Bhanjyang
F18602	Chitre Bhanjyang-Bhimad
F18701	Trafficchok(MRM)-Baniniya (IB)
F18801	Banke (MRM) - Sangrampur (IB)
F18901	GadhiMai - Kawahigoth (IB)
F19001	Dumkibas (MRM) - Tribeni
F19101	Kathawa (IB)-Tribeni

F19201	Rajapur-Daulatpur
F19202	Daulatpur-Sati
F19301	Bas khola-Chaurjahari
F19302	Devisthal-Bas khola
F19401	Saljhandi- Satyawati(District Border)
F19402	Satyawati(District Border)-Badahare R (District Border)
F19403	Badahare R (District Border)-Khachi R
F19404	Sandhikhark-Sautamare(District Border)
F19405	Sautamare(District Border)-Darling(District Border)
F19406	Darling(District Border)-Dhara(MH Junction)
F19407	Dhara(MH Junction)-Dhorpatan(Uttar Ganga R)
F19501	Tikapur-Muda (MRM)
F19502	Muda(MRM)-Khimadi-Karnali R(District Border)
F19503	Khimadi-Karnali R(District Border)-Selli-Seti R(District Border)
F19504	Selli-Seti R(District Border)-Saphe Bagar
F19505	Simalkot(Saphe Bajar)-Dadakot(District Border)
F19506	Dadakot(District Border)-Gothalakhet(F049 Junction)
F19507	Chainpur(F049)-Saipal-Urai Bhanjyang-Taklakot
F19601	Benighat-District Border
F19602	District Border-Arughat
F19603	Arughat-Larke Bhanjyang(IB)
F19701	Aryabhanjyang (SRM)-Dhobadi
F19702	Dhobadi-Rampur
F19801	Birgunj Bypass
F19901	Gandhi Manamohan Marga
F20001	Kharindrapur(MRM)-Shitalpur-Bilmi
F20101	Jiri-Puma-Khahare
F20102	Khahare-Dhaule-Pekarnas
F20103	Pekarnas-Junbesi-Salleri
F20201	Jiri-Siurani
F20202	Siurani-Those-Bamti Road
F20301	Gulariya-Bagahighat-Jabdi-Rammapur
F20401	Khutiya-B.P.Nagar-Gadhasera
F20402	Gadhasera-Napani-Dipayal
F20501	Nijgadh-Hanumanganj-Khaira
F20502	Khaira-Shitalpur-Pataura-Bankul-Gaur
F20601	Gaur-Pipara-Samanpur-Santapur-Nunthar Road
F20701	Parsa Border-Parsauni-Jagannathpur-Bara Border
F20702	Bara Border-Bahuari-Parsa Border
F20703	Parsa Border-Bara Border
F20704	Bara Border-Gamhariya-Benaulichok-Rautahat Bordor
F20705	Rautahat Bordor-Bankul-Kopawa
F20801	Triveni-Sanahi-Gandak Nahar Sadak-Nawalparasi
F20901	Holangadi-Dharampani-Dhungakhani