



# Department of Roads

# HMIS News

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## HIGHWAY MANAGEMENT INFORMATION SYSTEM UNIT

### Introducing E-procurement in DOR's Public Bidding Process through Road Sector Development Project

First time in the Department of Roads and probably in the construction industry of Nepal, the DOR has started to use electronic media for submission and opening of bids. Under the World Bank financed Road Sector Development Project, Invitation for Bids for first two Contracts for Satbhanjha – Tripurasundari - Jhulaghat Roads were invited with provision of submission of bid, electronically. First electronically submitted bid was opened on 27th January 2008 at DOR's meeting hall using the Computer, Printer, and Screen to show the bid opening to representatives of Bidders and other officials in DOR.

#### Introduction

To make the public procurement system more efficient, effective to achieve transparency, non-discrimination to bidders, equality of access, open competition, value for money the Government has developed and enacted a separate Public Procurement Act, 2063 and Regulation, 2064. The provision of act clearly specifies that electronic medium could be used in the public procurement by notifying it in the Nepal Gazette.

Government of Nepal and the World Bank agreed to start e-submission and e-opening of bids for Road Sector Development Project (RSDP), in pilot basis. Accordingly, the Government published the notice intending to use electronic medium in procurement process for RSDP in Nepal Gazette dated 2064/8/24.

To facilitate the requirement of the customized use of e-procurement web portal for DOR, a separate e-procurement module was designed for the followings;

- tender notice publication by Buyer,
- electronic submission of bids (e-submission) by Bidder, and
- opening of electronically submitted bid (e-opening) by Buyer.

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### Road Sector Development Project (Grant no. H339—NEP) Press Release on Project Launch Workshop, 10 March 2008

Financing agreement between the Government of Nepal (GON) and International Development Association (IDA) was made on 31st January 2008 to finance various road works under Road Sector Development Project.

The main objective of the Project is to provide all-season road access for residents of beneficiary districts to reduce travel time and improve access to economic centers and social services. It is expected that there will be 6% increase in the number of people with all season road access and 35% decrease in travel time for target population

The major components of the Project are Road Development and Institutional Strengthening Component. The Road Development Component consists of upgrading of about 297 km of existing dry-season roads to all-season standard with low cost sealed gravel pavement (Otta Seal). Planned road sections for upgrading are Tripurasundari- Satbhanjha (25 km), Satbhanjha- Gokuleswor (54 km), Khodpe- Kalinga Bridge (Chainpur) (62 km), Surkhet- Khidkijyula (Kalikot) (128 km), and Talodungeswor- Dailekh (28 km ) which shall improve the connectivity of Darchula, Baitadi, Kalikot, Dailekh, Bajhang, and Surkhet. Further, Periodic Maintenance in about 450 km length of Strategic Roads and Road safety works for improvement of black spot area in Strategic Roads are also part of Road Development component.

Institutional Strengthening Component of the Project supports the Department of Roads, Roads Board Nepal, and Ministry of Physical Planning and Works to sustain and deepen institutional development activities. Under this component various institutional strengthening activities are planned under Human Resource Development; Geo-technical, Environmental, and Social Development; Information Technology and Management Information System; Road Safety Plan and Policy; Road Asset Management; and Quality Management

The total project cost is planned to be US\$ 50.6 million. Out of total, the IDA has agreed to provide total grant amount equivalent to US \$ 42.6 millions. Government of Nepal has to contribute US\$ 8 million for the periodic maintenance works. The project period is effective from 21 February 2008 up to 30 June 2012.

## System Access

The e-procurement system is accessible through the E-procurement section link in the official website of DOR-<http://www.dor.gov.np>. All prospective Bidders and members of the public have access to this site which contains information on tender notices in which bids could be submitted, electronically. All posted tender notices, bidding documents, notifications of amendments, clarifications, information about already awarded contracts, frequently asked questions (FAQs) about electronic bidding process, procedures, and online guidelines for using e-submission and registration are available in this section. The system access is all free and anybody can access through website using internet or intranet facility.

## Tender Notice Advertising and Communication

Advertisements of tender notices, related documents, and other supplementary bidding information are posted in the website under Tender Notices. Besides in the website, the tender notice is also published concurrently on National daily newspapers. The bidding period is counted from the date of publication of specific tender notice in newspaper and the same shall be published, electronically.

Clarification and amendments of the bidding documents are also posted simultaneously in that particular tender notice. All amendments and clarifications and documents will be added as a new record in chronological order and will not replace the original bidding information and document. During evaluation of bid, the required clarification and other communications between Buyer and Bidder shall be through traditional correspondence methods.

## Bidding Documents

Standard Bidding Documents (SBDs) have been prepared with provision of electronic bid submission as well as hard copy submission. Instruction to Bidders provides the necessary information about preparing the submission of responsive bid either in electronic as well as in conventional manner. Bidding documents in hard copy has to be purchased by the interested bidders who choose to bid in the particular tenders though it is also kept in the website along with the Tender notice. Interested bidders or any person may download the bidding documents for their information purpose but could not bid without purchasing the hard copy of bidding documents from the Buyer's office, as specified in the tender notice.

## Submission of Bids

Bids may be submitted by a Bidder either using electronic submission through DOR's website or in hard copy in conventional manner. For e-submission the interested bidders are required to register themselves as Bidder in e-procurement section of DOR's website. Information regarding registration process and facility is available in the website to all interested bidders.

It is to note that the Bidder's registration shall be complete only after the Bidder confirms his registration by clicking the link that specified in the automated generated e-mail from the DOR's e-procurement section. Once registered, a Bidder can login to the DOR's e-procurement section using his user name and password, and submit his bid, electronically.

Once a Bidder submits his bid, electronically the Bidder may submit Substitution bid or submit Withdrawal or Modification of bid using the same bidder registration. Receipt of bids is automatically acknowledged by e-procurement system through auto generated e-mails. The system is time sensitive and automatically rejects the bids and do not allow bid submission after end of bid submission deadline. The time applicable is Nepalese standard time in the hosting server of DOR.

For the purpose of electronic bid submission, the bidders are required to fill and complete important part of bidding document such as Bidder's information on Eligibility,

Qualification, Price schedule, Bank guarantee letter and further it needs to be scanned in PDF format. For security reason, the Bidders are also required to protect the PDF Bid files with their own password such that the bid files are opened only using Bidder's password. Once a Bidder prepares his bid files in PDF format and protected with his password, the Bidder can submit his bid by clicking in Bid Now.

Passwords that used to protect the bid files shall be submitted separately to the Office of Auditor General in a sealed envelope, before the end of bid submission time.

## Bid Securities

Bidders are required to prepare the Bid security in the form of Bank Guarantee letter as in conventional manner. For e-submission the Bidder shall submit scanned PDF file for his bid security paper. In addition, the Bidder is also required to submit original bid security paper to the office of Auditor General along with his password for e-submitted bid files.

## Bid Opening

Date, time, and place for opening of electronic bids and bids in hard copy are same. Before starting the bid opening process the Buyer collects the sealed envelope containing Bidder's password and original Bank guarantee letter from the office of Auditor General. At first, the sealed envelope containing Bidder's password and Bank guarantee letter shall be opened in the presence of Bidder's representatives. The Buyer shall then open the Buyer's section and check for e-submitted bid files. E-submitted bid files shall be down loaded and then opened using the Bidder's password. Once opened the e-submitted PDF bid files, all the files shall be read (prices, offered discounts, and pertinent information), printed, and recorded with signature of representatives from Buyer and Bidders, who choose to attend the bid opening process.

## Bid Evaluation and Contract Award

Bid evaluation process and preparation of report shall be prepared in conventional manner. Clarification or any other information required during evaluation shall be sought by the Buyer through written letters. Once the contract award is decided, the Buyer shall notify all the bidders through letters and electronic notice as per prevailing rules. Once the particular contract award is made and signed, the Buyer publishes the contract award information under the Awarded Contracts in e-procurement section. Information regarding awarded contracts are mainly Contract name, Awarded to, Contract date, Completion date, and Contract amount.

## Security Management

Access to the specific e-procurement module is restricted to authorized Site Administrator of DOR, who is responsible to check and record all the activity in the e-procurement section. Though the Site Administrator could view the registered list of Buyers and Bidders, and the login record, the Site Administrator neither can enter in to the particular Buyer or Bidder's section nor can he view or amend any information posted by the Buyer and Bidder.

Only authorized Buyer that registered by the Site Administrator can login and post tender notices in e-procurement section. Buyer's login security is provided with his specific user name and password. Buyer's password could be changed by the Buyer. Accordingly, once a Buyer publishes a particular notice in webpage only that particular Buyer can issue clarification and addenda, and view and open the electronically submitted bid at bid opening time.

Interested bidders are required to register in e-procurement section with their company profile and contact address where e-mail address is must. Bidders registering in e-procurement section needs to confirm their registration by clicking the specified link in automatically generated e-mail from the e-procurement section. Only after this confirmation the system shall enable the Bidder to use his user name and password to enter into the bidding section.

All bidding information are stored in database and in binary format with no change. Passwords used by the Site Administrator, Buyer, and Bidders for their login is stored in encrypted form and not able to view by any party.

For additional security and to develop confidence of bidders in e-submission, the Bidders are also required to protect their PDF Bid files with their own password such that during bid opening process the electronically submitted bid files are opened using Bidder's password. For minimizing the risk of handling the security of bidder's passwords for bid files it is required to be submitted in a sealed envelope to the Auditor General's Office. Sealed envelope containing bidder's passwords is delivered to the Buyer only after end of bid submission time and is opened by the Buyer in the presence of Bidder's representatives and other officials at the bid opening time.

Further, due to time sensitive system in server the Buyer can not view the e-submitted bid or even do not know whether a bid has been submitted in e-submission or not till the end of bid submission closing time. Only after end of bid submission closing time the Buyer can view the list of e-submitted bid. Again, the Buyer can download the e-submitted bid only after start of bid opening time and could be opened only using the Bidder's password.

#### **User Friendliness**

The proposed system has been designed to be in acceptable standard practices and interactive user friendly concept. Once entered into the e-procurement section it gives an overall picture and guides the person about each section. Home page has all information regarding e-procurement information, tender notices, bidding documents, awarded contracts, most frequently asked questions, facility for new registration of bidder, and login facility. Once login by a Buyer or Bidder it guides them to use the facility in simple manner. To use the facilities effectively and efficiently User's manuals for Bidder, Buyer, and Site Administrator has been also provided in the respective sections. Besides, to be more specific for each user's activities, additional information like what can be done and what can not be done by a Bidder, Buyer, and Site Administrator has been also provided in each section.

Besides preparing a team for handling the e-procurement section the DOR has also disseminated the details information about the system to the related line agencies and the members of Federations of Contractor's Association of Nepal. To enable the interested bidders, special presentations and demonstration about e-submission and opening system was conducted in the DOR during pre-bid meetings.

#### **Limitation**

Most effective and efficient way to adopt a complete e-procurement system is to allow the bidders to pay the charges for bidding documents, electronically and submit their bids without necessary for buying the hard copy from the Buyer's office. At present, due to limitation of electronic payment procedures, the proposed facility does not allow the bidders to pay charges for bidding documents, electronically. Further, the system also does not incorporate the bid evaluation steps.

#### **Conclusion**

Considering the increasing events about bidding difficulties, physical obstruction during bid submission, resulting conflicts and problems in public procurement it is high time that the public entities should go for e-procurement. It will not only facilitate the bidders to bid from their own office or any where but also enhances transparency, competition, and efficiency in the public procurement. In the absence of ability to use complete features of Bolpatra.com facility in the public procurement the proposed system allows the bidders to submit their bid, substitution bid, modification or withdrawal through, electronically.

The e-procurement system has been recently tested in the bidding of two National Competitive Bidding contracts for World Bank supported Road Sector Development Project. With this initiation the DOR is a step towards going to e-bidding in public procurement. It is to note worthy that the Federations of Contractor's Association of Nepal has not only welcomed this system but also participated in this system by bidding, electronically. As a record milestone towards going for e-procurement in public bidding in Nepal the first two bids in e-submission have been already opened on 27<sup>th</sup> January 2008.

This pilot initiation and success shows that the public procurement could start with enhancing the transparency and competition, and of course, to avoid the various problems regarding bid submission in hard copy. News about start of e-bidding in DOR and all information regarding the e-procurement system could be assessed in the DOR's website <http://www.dor.gov.np>.

-SDE DMS Shrestha

## **Glimpses of GEO-ENVIRONMENT AND SOCIAL UNIT's Activities- F/Y 064-065**

#### **Completed activities**

- Three year Business plan of the unit including ADB, RSDP and DROs has been approved.
- Guidelines Preparation
  - Environmental and Social Management Framework (ESMF) has been prepared with fund assistance from WB (IDA) and approved on 064/3/12 by ministry level
  - "Interim guidelines on Enhancing Poverty Reduction Impact of Road Projects "(EPRIRP) has been prepared with Technical Assistance of ADB (TA-4760) and approved by ministry level on 2064/05/21
- EPRIRP has been translated into Nepali with Technical Assistance of ADB (TA-4760)
- English and Nepali versions (including Brochures in both languages) of EPRIRP guidelines has been printed for dissemination with Technical Assistance of ADB (TA-4760)
- Orientation and Trainings
  - 3 days Training on "Environmental and Social Aspects of Integrated Road Development"- 25 Engineers from DoR, MoPPW, DoLIDAR and different consultants were trained
  - 3 days Orientation on "Interim guidelines on Enhancing Poverty Reduction Impact of Road Projects (EPRIRP)" in Staff College- 50 Engineers from DoR, MoPPW and DoR Consultants were oriented in two different Groups and schedules
  - 4 days Training of Trainers (TOT) on "Interim guidelines on Enhancing Poverty Reduction Impact of Road Projects (EPRIRP)" in Staff College- 25 Engineers from DoR, MoPPW and DoR Consultants were trained
  - 5 days trainings on "Economic Analysis in Feasibility Study and Environmental Appraisal"- 36 Engineers from DoR and MoPPW were oriented in three different Groups and schedules
- IEE Studies of following Roads:
  - Dhalkebar-Janakpur-Bhittamod
  - Satbanjh-Gokuleshwor
  - Satbanjh-Baitadi-Jhulaghat
  - Khodpe-Jhota
  - Sanfebagar-Martadi
  - Sanfebagar-Malgansen
  - Tulsipur-Salyan
  - Chhinchu-Jajarkot
  - Narayanghat-Mugling Highway
  - Tulsipur-Purandhara-Bhotechaur
  - Lower Dhungeshwar-Siyakot-Dailekh

- Martadi-Kolti
- Malgansen-Belkhet
- Salyan-Musikot
- Gokuleshwor-Dharchula
- Sunkoshi-Okhaldhunga
- Chandranigahapur-Gaur
- Bhedichaur-Shakhar-Bokhar
- Chakchake-Libang
- Surkhet- Siyakot
- EIA Studies of following Roads:
  - Saljhundi-Juthepauwa-Sunguredhunga
  - Syafrubesi-Rasuwegadhi

#### **Ongoing Activities**

- Three years procurement plan for RSDP in line with the approved three years business plan
- Selection of NGOs for implementation of Awareness Developing Activities on HIV/AIDS for road workers & road neighbors in RSDP Roads in Mid and Far Western Development Region
- Hiring a Environmentalist and a Sociologist for the Unit
- IEE Studies of following Roads:
  - Bhalubang-Pyuthan
  - Hilepani-Diktal
  - Surkhet-Jumla
  - Kalikot-Manma
  - Jhota-Chainpur
  - Putalikhet-Karkineta-Kushma
  - Ekadigad-Barjugad
  - Bhairahawa-Taulihawa
  - Bhaktapur-Changunarayan
  - Harkapur-Okhaldhunga
  - Okhaldhunga-Salleri
  - 19 Roads under Terai Road Project
- EIA Studies of following Roads
  - Nagma-Gamgadhi
  - Dumkibas-Tribeni
  - Betrabati-Dhunche-Syafrubesi
  - Bhurigaon-Telpani-Surkhet
  - Kathmandu-Terai (North-South Fast Track)
- EIA Studies of following Causeway and Bridges
  - Riu khola vented causeway
  - Aurahi Bridge
  - Gumnaha Bridge
  - Geotechnical Investigation Studies of SRN
  - Damauli landslides
  - Baglung-Beni Road slope failure as pilot site for Research & Development
  - Lumle Settlement of Pokhara-Baglung
  - Bhedetar loop of Dharan-Dhankuta
- Translation of ESMF into Nepali
- Printing
  - English and Nepali version of ESMF
  - ROADSIDE GEOTECHNICAL PROBLEMS: A PRACTICAL GUIDE TO THEIR SOLUTION

#### **Pipe line activities**

- Seminar
  - International Seminar on Landslide Risk Management (RECLAIM II -Asian Disaster Preparedness Centre)
- Trainings
  - ESMF
  - ROADSIDE GEOTECHNICAL PROBLEMS: A PRACTICAL GUIDE TO THEIR SOLUTION
  - Bio-Engineering
- RAP, EMAP Compliance Monitoring of different Road Projects of ADB, RSDP and DROs
- Monitoring of Bio-Engineering Works and Nurseries under DROs

-GESU, DoR

## **Road User Satisfaction Survey**

For the first time in Nepal, Roads Board Nepal (RBN) has conducted Roads Users Satisfaction Survey (RUSS) under Policy Component of Road Maintenance Development Project funded by World Bank. The objective of the study was to reach at issues and concerns raised by the road users that can contribute in the improvement of road transport services delivered to them. The outcome of the study also contributed to develop the level of understanding among senior managers who are involved in policy making and project formulation in GoN line agencies involved in roads sector.

In order to enhance the road service and win public support, these issues and concerns have to be addressed in future. The study had covered 1000 km of Strategic Road Networks, District and Urban Roads. It has incorporated 40 study centers based on Average Annual Daily Traffic and interacted with the users group and other stakeholders. The study centers are distributed amount development regions and ecological zones.

The major findings of RUSS are as follows:

#### **Drivers' Perception on Important Factors for Safe Traveling**

Important Factors for Safe Traveling	Heavy Vehicle Drivers	Light Vehicle Drivers
Proper Repair and Maintenance of Roads	95.75%	92.15%
Road Signs	82.25%	74.90%
Road Crossing Places to Pedestrians	84.15%	82.65%
Widen High Traffic Roads	83.35%	80.35%
Effective Police Patrolling	57.55%	49.50%
Non-Consumption of Alcohol by Driver While Driving	94.55%	93.35%
Checking Overload / Passengers	62.40%	60.05%
Two Drivers at Night	59.70%	49.85%
Checking High Speed and License	64.85%	58.65%

#### **Drivers' Perception on Comfort ability while Driving**

Comfort causing factors	Heavy Vehicle Drivers	Light Vehicle Drivers
Due to Condition of Road Surface	65.10%	61.70%
Due to Less Number of Turning	54.20%	60.20%
Due to the Minimum Chances of Accident	62.50%	66.40%
Due to Less Checking Points	44.60%	51.70%
Due to availability of Petrol Pumps and Workshops	78.00%	72.50%
Due to the Provision of Rest Taking Places	78.00%	66.20%
Due to Low Traffic Density	69.00%	69.90%

#### **Pedestrians Perception on Degree of Discomfort while Traveling**

Discomfort causing factors	Pedestrians Respondents
Unsurfaced Roads (Graveled/ Earthen)	65%
Narrow/Poor Shoulders (footpaths)	92%
Reckless driving	79%
Overspeed	73%
Drunk-driving	77%
High Pedestrian-density	46%
Footpath encroachment by street-vendors	60%
Footpath encroachment by construction Materials	70%
Lack of Hand-rails	54%
Lack of refuge-shelter (rest/monsoons)	54%
Lack of street-lighting	66%



### Drivers' Perception on Irritating Factors while Driving

Irritating Factors/due to	Heavy Vehicle Drivers	Light Vehicle Drivers
Bad Road Conditions	92.40%	88.65%
Careless Driving by Others	77.95%	78.30%
Unsafe Overtaking	81.55%	80.25%
High Traffic Jam on Road	70.90%	75.80%
Overload/Passenger Vehicle	64.10%	58.50%
Narrow Road	76.85%	70.75%
Road Crossing by Pedestrians/Animals	82.40%	78.25%
Pollutions	68.15%	69.80%
Roadside Parking	73.40%	57.25%

### Drivers' Perception on Insecure ness while Driving

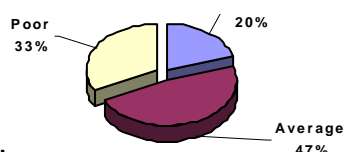
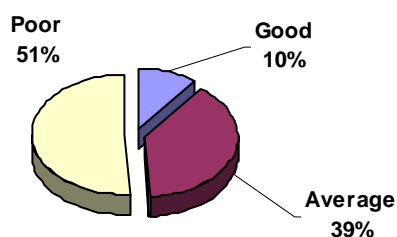
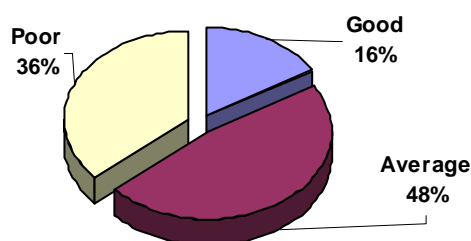
Insucureness Causing Factors/due to	Heavy Vehicle Drivers	Light Vehicle Drivers
Using road as Home Yard	83.85%	76.35%
Stock Piling of Construction Materials Along Road Side	80.80%	77.25%
Rainfall	71.10%	56.85%
Driving at Hilly Road	53.90%	46.20%
Driving at Long and Straight Road	24.65%	22.30%

### Road Condition/Physical Features

Condition/Physical Features	% Satisfied (Good to Fair)		
	Strategic Roads	District Roads	Urban Roads
Bridge Widths	63%	50%	70%
Bridge/Culvert Condition	56%	32%	60%
Sufficiency of Traffic Signs	56%	18%	76%
Sufficiency/Condition of Bus/Taxi Stands/Stops	45%	42%	73%
Sufficiency/Condition of Bus Parks/Terminals	25%	33%	43%
Sufficiency/Condition of Parking Facilities	30%	23%	62%

### Users' Overall Satisfaction- Road Conditions/ Physical Features

#### Users' Satisfaction -Strategic Roads



### Road Conditions

- Satisfied" for Present Road Condition
- 40% rated bridges as "Good to Satisfactory"
- 70% stated roads not repaired on time

-Roads Board Nepal

### DOR VEHICLE NEED

Vehicles are one of the most vital logistic support necessary for smooth operation of different units and offices of Department of Roads (DoR). There are 140 vehicles currently in use within the department. It does not include, vehicles of projects, vehicles used by Ministry and other agencies for long period. Out of 140 vehicles, only 77 vehicles are reliable while 63 vehicles are unreliable. Number of reliable vehicles in DoR is remarkably inadequate.

World Bank has assisted continuously to procure supervision vehicles. A big lot of 25 Toyota Hilux double cab pickup vehicles were procured in 1988. Out of that, only 11 vehicles are running now. They are also not reliable but they are still more dependable vehicles in most of the divisions. Some single cab Mitsubishi pickups were purchased in 1990s under Debt Relief Fund (DFR). Strengthened Maintenance Division Program supported more vehicles under SDC grant. Last lot of vehicle purchased under SDC grant was in 2001. Vehicles returned from ADB project supported the civil divisions after 2001 and no new vehicles have been purchased for civil divisions since 2001. 20 vehicles that were badly damaged during Maoist movement were mostly new and it also made an adverse effect in reliable fleet holding of DoR..

It is seen from present fleet analysis, vehicles that are more than 15 years old and that have run more than 3 lacs kilometer are unreliable. On the other hand, vehicles that are less than 15 years old and that have run less than 3 lacs km are reliable. The vehicles in DoR, in an average, run about 17,500 km per year.

The requirement of vehicles has been assessed on the basis of type of vehicles and its user such as units in the head office, regional directorates, civil divisions, heavy equipment divisions, mechanical offices.

Two options have been proposed for need assessment of civil divisions. Option 1 is based on number of engineers working in each division offices. Option 2 is based on the length of Strategic Road Network (SRN), location such as terai or hill and some other factors. Total number of vehicles necessary as per Option 1 is 179 whereas as per Option 2, total number of vehicles necessary is 144.

During ARMP Workshop, 2007, a set of questionnaire was distributed to the participants. 31 participants answered the questionnaire. 67 % of the respondents answered that vehicle should be allocated to each engineer working in the civil divisions.

As per Option 2, 144 vehicles are necessary for regular offices of DoR. To keep a reliable fleet of 144 vehicles, 28 vehicles need immediate replacement and 75 vehicles in total need to be replaced within 10 years. It needs an estimated budget of Rs. 22,50,00,000. As per Option 1, 179 vehicles are necessary. Additional 35 vehicles are necessary to be procured in initial few years. Total estimated budget to procure 114 vehicles in 10 years is Rs. 34,20,00,000. In an average, Rs. 20 to 30 millions is necessary every year.

There has been continuous demand of reliable vehicles by most of the civil divisions. The department should seriously consider replacing unreliable vehicles. If vehicles that are very old and unreliable are not replaced in near future, there will be very big shortage of reliable vehicles and will have adverse detrimental effect in effectiveness and efficiency of the department.

-Mechanical Branch DoR

## Annual Program for Fiscal Year 2064/65

### 1. Physical Targets:

S. No.	Particulars	Unit	Target
1	Construction of Earthen Roads	Km	200
2	Road improvement, rehabilitation up-gradation to blacktop standard	Km	475
3	Up-gradation to gravel standard	Km	35
4	Periodic maintenance	Km	350
5	PBMC maintenance	Km	280
6	Construction of Bridges	No.	30
7	Link to additional district HQs (Bhojpur, Sankhuwasabha, Khotang, Mustang, Jajarkot, Solukhumbu and Bajhang)	No.	7

### 2. Annual Program:

(Rs in 000)

S. No.	Budget Head	Name of the Project	Budget allocation						Priority
			Government of Nepal			Foreign		Total	
			Total	Current	Capital	Grant	Loan		
1	2	3	4	5	6	7	8	9	10
Regular Budget									
	48-3-120	Roads Department	55420	55420				55420	1
	48-3-121	Regional Roads Directorate	15686	15686				15686	1
	48-3-122	Divisional Road offices	121240	121240				121240	1
	48-3-150	Heavy Equipment Divisions (includes Mechanical Offices)	109638	109638				109638	2
	48-3-160	Mechanical Training	4381	4381				4381	2
	48-3-161	Central Laboratory	3435	3435				3435	2
			309800	309800				309800	
Development Budget									
1	48-4-201	Sagarmatha Rajmarg (Gaighat - Diktel Section)	40000		40000			40000	1
2	48-3/4-202	Bishweshwor Prasad Koirala Marg (Banepa-Sindhuli-Bardibas)	12749	8622	4127	245000		257749	1
3	48-3/4-203	Rapti Rajmarg (Amiliya - Tulsipur - Salyan Blacktop)	5000	3000	2000		95000	100000	1
4	48-3/4-204	Karnali Rajmarg (Surkhet - Jumla Section)	58900	2900	56000			58900	1
5	48-4-205	Mahakali Rajmarg (Baitadi-Darchula - Tinkar Section)	15000		15000			15000	1
6	48-4-206	Kanti Rajpath	7500		7500			7500	2
7	48-4-249	Central Level Various Road Construction	491000		491000			491000	2
8	48-3/4-255	Naradmuni Thulung Marga (Hile - Leguwaghat - Bhojpur)	33628	3628	30000	60000	40000	133628	1
9	48-4-262	Gurjebhanjyang - Chhahare - Tadi	20000		20000			20000	2
10	48-4-264	Ganeshman Singh Marga (Thankot - Chitlang)	4000		4000			4000	2
11	48-4-270	Baglung - Beni - Jomsom	90000		90000			90000	1
12	48-4-272	Chhinchu - Jajarkot	60000		60000			60000	1
13	48-3/4-273	Surkhet - Ranimatta - Dailekh (up grading )	5000	3000	2000		84000	89000	1
14	48-3/4-275	Jayaprithiv Bahadur Singh Marga (Khodpe - Bajhang)	4900	1400	3500			4900	2
15	48-3/4-277	Sanfebagar - Martadi	7202	3702	3500		125000	132202	1
16	48-4-278	Sanfebagar - Mangalsen (Blacktopped)	3000		3000		47000	50000	1

S. No.	Budget Head	Name of the Project	Budget allocation						Priority
			Government of Nepal			Foreign		Total	
			Total	Current	Capital	Grant	Loan		
1	2	3	4	5	6	7	8	9	10
17	48-4-282	Gangate-Labdh-Samundratar - Galfubhanjhyang Road	20000		20000			20000	2
18	48-4-283	Basantpur- Terethum (RAP)	1000		1000	50000	50000	101000	1
19	48-4-284	Chakrapath - Tokha - Jhor	10000		10000			10000	2
20	48-4-295	Karnali Corridor	10000		10000			10000	1
21	48-4-296	Vyas Marga	10000		10000			10000	2
22	48-4-297	Regional Roads	50000		50000			50000	2
23	48-3/4-298	Terai Roads (Upgradation)	9000	4000	5000	289500		298500	1
24	48-4-299	Postal Roads Upgradation and Maintenance	20000		20000			20000	2
25	48-4-302	Damak - Chisapani	10000		10000			10000	2
26	48-4-315	Chatara - Gaighat - Katari - Sindhulibazar - Hetauda	40000		40000			40000	2
27	48-4-358	Talodhungeshwor- Satkhamba - Dullu - Pipalkot, Dailekha	10000		10000			10000	2
28	48-4-364	Devstal - Kanaidanda - Chaurjahari - Dolpa	15000		15000			15000	2
29	48-4-368	Gumi - Patihalnachaur (Surkhet)	10000		10000			10000	2
30	48-3/4-375	Syaprubesi - Rasuwagadhi	9613	1613	8000	100000		109613	1
31	48-4-376	Tanakpur Link road	4000		4000	80000		84000	1
32	48-4-386	Musikot - Burtiawang	10000		10000			10000	2
33	48-3/4-393	Hilepani - Diktel	3887	2137	1750		96000	99887	1
34	48-3/4-394	Road Upgradation (Bhaluwang - Pyuthan, Chandranigahapur - Gaur)	2777	1777	1000		120000	122777	1
35	48-4-399	Mirdi - Kyakmi - Bhimad	10000		10000			10000	3
36	48-4-400	Putalikhet- Karkineta- Kusma	10000		10000			10000	3
37	48-4-401	11 Kilo - Chepetar - Bhaluswara - Barpak	30000		30000			30000	2
38	48-4-402	Sahid Marga (Ghorahi - Nuagaon - Tila - Ghartigaon - Thawang - Musikot)	80000		80000			80000	1
39	48-4-403	Mid Hill Roads	50000		50000			50000	1
40	48-4-404	Nagma Gamgadi	30000		30000			30000	1
41	48-4-405	Jajarkot - Dunai (Dolpa)	40000		40000			40000	1
42	48-4-406	Kathmandu - Terai Fast Track Project	3200		3200	20000		23200	2
43	48-3/4-407	Road Sector Development Project	50000	3172	46828		540000	590000	1
44	48-3/4-408	Kathmandu - Bhaktapur Road Improvement	30000	1387	28613	50000		80000	1
45	48-4-500	Kathmandu Valley Urban Roads	160000		160000			160000	2
46	48-4-502	Other Urban Roads	55000		55000			55000	2
47	48-4-503	Kathmandu Valley Road Extension Project	220000		220000			220000	2
48	48-4-555	Maintenance of various Roads	20000		20000	180000		200000	2
49	48-3/4-557	Road Maintenance and Development Project	4455	2255	2200		35000	39455	1
50	48-3/4-558	Sub Regional Transport Facilitation Projects	149676	4601	145075		480000	629676	1
51	48-3/4-559	Road Connectivity Project	47675	2275	45400	254425		302100	1
52	48-4-575	Arniko Rajmarg Rehabilitation Project	35000		35000			35000	1
53	48-4-579	Besishar - Chame	70000		70000			70000	1

S. No.	Budget Head	Name of the Project	Budget allocation						Priority
			Government of Nepal			Foreign		Total	
			Total	Current	Capital	Grant	Loan		
1	2	3	4	5	6	7	8	9	10
54	48-3/4-582	Chakchake - Liwang (Blacktopped)	4710	3710	1000		100000	104710	1
55	48-3/4-584	Road Network and Development Project	265600	15600	250000	301742	955937	1523279	1
56	48-4-650	Bridge Constructon	750000		750000			750000	2
57	48-4-660	Protection of Bridges, Culverts etc.	35000		35000			35000	2
58	48-4-661	Detailed feasibiliy survey of Roads and Bridges	20000		20000			20000	2
59	48-4-664	Land Acquisition	20000		20000			20000	3
60	48-4-670	Machine and equipment maintenance	17000		17000			17000	1
61	48-4-671	Procurement of heavy equipments and Inspection vehicle	8000		8000			8000	2
62	48-4-673	Protection of Enchrment of Roads	10000		10000			10000	1
63	48-4-681	Planning, Monitoring, Geo-environmental study, Dispute Resolution, SMD etc	40000		40000			40000	1
64	48-3/4-695	Roads Board	760000	14500	745500			760000	1
<b>Total</b>			4438272	393079	4045193	1630667	2767937	8836876	

-SDE Bijendra Bade Shrestha PMEU, DoR

### Traffic, Surface Distress and Road Roughness Surveys on SRN- 2007

The Department of Roads, Planning and Design Branch, HMIS Unit had conducted Traffic, Surface Distress and Road Roughness Surveys on SRN in the year 2007. The Road Roughness Survey was carried out on 3600 Km Blacktopped Road while Surface Distress Survey was conducted on 4100 Km Blacktopped and Graveled Roads of SRN except those under construction. The Traffic count stations comprised of 110 conventional and 5 new stations resulting into a total 115 stations. The survey was started on 14<sup>th</sup> February 2007 and was completed on 21<sup>st</sup> July 2007. Summary of the findings of the survey is presented below.

#### Five Roads with High AADT

S.N	DoR Station No.	Station Name	Road Name	Link Name	AADT (Including MC & Rickshaw)
1	82	Manohara Bridge	Araniko Highway	Manohara Bridge-Sallaghari	21590
2	25	Satdobato Junction South	Satdovato-Godawari-Phulchoki	Satdobato-Karmanasa Bridge	9601
3	119	Hanumante Culvert	Araniko Highway	Sallaghari-Hanumante Culvert	7072
4	81	Nagdhunga	Tribhuvan Rajpath	Peepalmod-Nagdhunga	5582
5	63	Pathalaiya North	Mahendra Highway	Pathaliya-Hetauda	4480

#### Five Roads with Low AADT

S.N.	DoR Station No.	Station Name	Road Name	Link Name	AADT (Including MC & Rickshaw)
1	114	Satbanjh North	Mahakali Highway	Satbanjh-Gokuleshwor	29
2	120	Sanfegabar South	Sanfegabar-Mangalsen	Sanfegabar-Mangalsen	29
3	22	Palung	Palung-Kulekhani	Palung-Kulekhani	37
4	103	Ameliya North	Rapti Highway	Ameliya-Tulsipur	43
5	117	Tamakoshi East	Lamosangu-Tamakoshi-Manthali	Tamakoshi- Milti Khola	47

#### Results of Surface Distress Index (SDI) Survey

SDI Value	Length of Roads (Km)	Percentage	Road Condition
0-1.7	1434.99	35.56	Good
1.8-3	1948.53	48.29	Fair
3.1-5	651.42	16.14	Poor

#### Results of Road Roughness, IRI Survey

IRI Value	Length of Roads (Km)	Percentage	Road Condition
0-4	58.79	1.62	Good
4-6	996.68	27.52	Fair
6-8	1541.1	42.55	Poor
>8	1025.37	28.31	Bad

-HMIS, DoR



## Human Resource Development (HRD) Activities in DoR

IN COUNTRY TRAINING / Workshop				
	Name of Person	Date	Venue	Subject
1	S.D.E. Maheshwar Lal Shrestha	5 <sup>th</sup> Sep 2007	Nepal Administrative Staff College	Advanced Course on Mgmt and Development
2	S.D.E. Bed Kantha Yogal	26 <sup>th</sup> Sep 2007 - 27 <sup>th</sup> Sep 2007	Hotel Yak and Yati	Regional Development Strategy and Regional study of financial section of the project
3	S.D.E. Keshab Kumar Shurma	" "	" " "	" " "
4	D.D.G. Ram Kumar Lamsal	28 <sup>th</sup> Sep 08	Hotel Radisson	Development Fast Track Roads and Tourism Promotion in Nepal
5	Er. Karna Bahadur Ranabhat	18 <sup>th</sup> Nov 2007 - 21 <sup>st</sup> Dec 2007	Nepal Administrative Staff College	Professional course on mgmt and development
6	Er. Krishna Prasad Bhandari	09 <sup>th</sup> Jul 2007 - 09 <sup>th</sup> Aug 2007	Nepal Administrative Staff College	Project Planning and Management
7	10 Persons	11 <sup>th</sup> Dec 2007	Himalayan IT Baneshwor	AutoCAD and land development training Programme
8	Me Er. 18 Persons	10 <sup>th</sup> Feb 2008 - 2 <sup>nd</sup> Feb 2008	Nepal Administrative Staff College	Procurement of goods.
9	Er. Amulya Das Shrestha	12 <sup>th</sup> Feb 2008 - 13 <sup>rd</sup> Feb 2008	View Verkuti, Godabari (Municipal Association of Nepal)	Urban Transport Planning and management
10	Er. and Sub Er. 25 Persons	17 <sup>th</sup> Feb 2008	Birendra International Conference Center	Constituent assembly for basic infrastructure development
11	Sub Er. Bali Raj Malla	17 <sup>th</sup> Feb 2008 - 24 <sup>th</sup> Feb 2008	Nepal Administrative Staff College	Office working procedure and management
12	Er. Karna Bdr Ranabhat	20 <sup>th</sup> Feb 2008 - 5 <sup>th</sup> Mar 2008	Nepal Administrative Staff College	Strengthening M&E System
OUT COUNTRY TRAINING / Workshop				
	Name of Person	Date	Venue	Subject
1	Mec. Er. Narayan Raj Acharya	13 <sup>th</sup> Aug 2008 - 11 <sup>th</sup> Sep 2008	Pakistan	International Course on Operation and Maintenance of Construction Machinery
2	S.D.E. Indu Shurma Dhakal	17 <sup>th</sup> Sep 2008 - 21 <sup>th</sup> Sep 2008	Paris	23th World Road congress Presentation
3	DG. Tulsi Prasad Sitaula	2 <sup>nd</sup> Oct 2008	Tokyo	Strengthening Private Sector Participation and Investment in Physical Infrastructure
4	Er. Sakil Manandhar	8 <sup>th</sup> Oct 2007 - 9 <sup>th</sup> Dec 2007	Japan	Comprehensive bridge engineering
5	Er. Surya Bahadur Bhat & Er. Ananta Paudel	12 <sup>th</sup> Nov 2007 - 23 <sup>rd</sup> Nov 2007	Korea	Road Management and Transport Technology
6	DG. Tulsi Prasad Sitaula	29 <sup>th</sup> Nov 2007 - 23 <sup>rd</sup> Nov 2007	Bangkok	RETA 6335 BIMSTEC Transport Inf structure and logistic study and technical advisory committee
7	S.D.E. Naresh Shakya	28 <sup>th</sup> Apr 2008 - 2 <sup>nd</sup> May 2008	Philippines	Guinsaugon – 2008 International Conference Workshop
8	DG. Tulsi Prasad Sitaula	3 <sup>rd</sup> Mar 2008 - 8 <sup>th</sup> Mar 2008	Japan	Disaster Management in Highway
9	SDE. Bed Kantha Yogal	3 <sup>rd</sup> Mar 2008 - 16 <sup>th</sup> Mar 2008	Japan	Disaster Management in Highway
10	Er. Ajay Kumar Mool	17 <sup>th</sup> Jul 2007 - 14 <sup>th</sup> Sep 2007	Japan	Road Engineering and Administration
11	SDE. Bijendra Bade Shrestha	6 <sup>th</sup> Nov 2007 - 19 <sup>th</sup> Dec 2007	Malaysia	Road Construction and Maintenance
12	Er. Kailash Shrestha	" "	" "	" " "

-RSSDU, DoR



## Do You Know?

### The list of district headquarters yet to be connected by the SRN.

1	Salleri	4	Chame	7	Gamgadhi
2	Diktel	5	Dunai	8	Martadi
3	Bhojpur	6	Simikot	9	Chainpur

The Book covering all the details of SRN, SSRN 2006/07 will be publishing very soon by DoR HMIS Unit .

## Three Years Interim Plan of Road Transport (SRN) Sector

### 1 Review of the Current Situation

The updated status of the road sector under DoR management and Targets and Progress of the Tenth Plan period is presented in the Table-1 and Table-2 below.

**Table –1: Updated Status of Roads under DoR Management**

S. No	Type of Road	Status by the end of FY 2063/64	
		Length (Km)	Percent of total
1	Sealed (Blacktopped)	5,402	30
2	Gravel	4,529	26
3	Unsealed (Earthen)	7,851	44
	Total	17,782	100

**Table – 2: Targets and Progress of the Tenth Plan**

S. No	Particulars	Unit	Target	Progress	%Progress
1	Construction of new roads (all types)	Km	1,025	805	78
2	Road up-gradation				
a	Blacktopped	Km	1,050	768	90
b	Graveled	Km	714	393	55
3	Road improvement, reconstruction and rehabilitation	Km	596	705	118
4	Periodic maintenance	Km	1,216	1324	108
5	Construction of Bridges	No.	220	112	50
6	Additional district HQs connected	No.	10	3*	30

Note\* : District Head Quarters (DHQS) connected by roads are Kalikot, Jumla and Darchula.

The Roads Board was established with the purpose of funding the maintenance requirements of both the SRN and LRN, and has been strengthened in the Tenth Plan Period. Similarly, the institutional strengthening and capacity enhancement activities for the Department of Roads have also been on going. The sector Wide Road Program in the form of 10-year Priority Investment Plan (2007-2017) has been approved and is being implemented.

### 2 Objectives

- To reduce regional imbalance and social inequality as well as to promote broad based economic growth and help alleviate poverty, transport facility will be developed through construction and up gradation of the reliable and environment friendly national road network.
- To operate sustainable, reliable and safe road transport services by preserving the road asset.
- To develop other alternative transport system.

### 3 Quantitative Targets

The targets set for the road sector in the Three Year Interring Plan TYIP are presented in Table-3 below.

**Table-3: Major Quantitative Targets of TYIP Period.**

Particulars	Unit	Target
New Road Construction (all types)	Km	780
Road upgradation, rehabilitation and reconstruction	Km	2,500
Periodic Maintenance	Km	1,450
Regular Maintenance	Km	7,300
Construction of Bridges (Under construction included)	No.	104
Additional DHQs to be connected	No.	12*

Note\*: Simikot, DHQ of Humla, will be connected to the Tibet side.

### 4 Expected Outcomes

- Twelve DHQs are connected to the road network.

- Connectivity to China and India is enhanced and the operational efficiency of Inland Clearance Depot is improved.
- Transport service to Kathmandu valley and other parts of the country is expanded and improved.
- Accessibility to the Terai and dense settlements in the hills as well as administrative, commercial and industrial centers is improved and facilitated.
- Accessibility to the transport service for the people of remote areas is improved and east-west transport facility is extended in the mid-hills.
- Through preservation of the road assets, there is an increase in safe and reliable transport facilities.
- Viability of alternative transport (railways, waterways, ropeways etc.) is ascertained.
- Private sector investment friendly atmosphere is created.
- Result based program implementation, monitoring and evaluation are institutionalized.

### 5 Assumptions and Risks

- Disbursement of estimated budget is ensured.
- Foreign assistance is continued.

### 6 Programs and Estimated Budget

During the TYIP period, a total expenditure of Rs. 33,084 million has been estimated at the constant prices of FY 2006/07 (2063/64 BS) for the Road Transport (SRN) Sector. Budget by programs is given below:

S. No	Program	Amount
<b>A.</b>	<b>Roads connecting District Headquarters</b>	
1	New Links to DHQs	1750
2	Upgrading of roads connecting DHQs	3000
<b>B.</b>	<b>North South Trade and Transit Roads</b>	2300
<b>C.</b>	<b>Kathmandu Valley Urban Roads</b>	1950
<b>D.</b>	<b>Mid Hills Road</b>	280
<b>E.</b>	<b>Other Upgrading</b>	
1	Terai Road Improvement Project (under GOI funding)	4800
2	Projects under Road Network Development Project-Fourth Road Improvement	1950
3	Road Upgradation (under GOI funding)	2650
4	Projects under Road Sector Development Project	2900
5	Projects under Road Sector Connectivity Project	3000
6	Repair, Maintenance and Improvement of Arniko Highway	74
7	Other Projects	350
<b>F.</b>	<b>New Roads Construction and Extension</b>	4000
<b>G.</b>	<b>Repair and Maintenance</b>	3500
<b>H.</b>	<b>Studies and Investigation</b>	
1	Kathmandu Terai Fast Track Project	60
2	Detailed feasibility studies of roads and bridges	60
3	Planning, Program, M & E, Geo-environmental studies and other programs	100
4	Institutional Strengthening	40
5	Detailed Engineering Design of Outer Ring Road Project	40
6	Feasibility Study of Alternative Transport (Railway, Waterways, Ropeways etc.)	30
<b>I.</b>	<b>Miscellaneous</b>	250
	<b>Total</b>	<b>3,3084</b>

## A Brief Glimpse of North-South Fast Track Project (TA 4842-NEP)



### North South Fast Track Selected Alignment

Excerpt from the draft final Report presented to ADB Directorate During the 2006 Country Programming Mission of the Asian Development Bank (ADB), Government of Nepal (GoN) requested technical assistance (TA) to carry out feasibility studies and preliminary design of a preferred alignment from Kathmandu to Pathlaiya and the TA was included in the ADB's 2007 country-assistance plan for Nepal.

The study considered 4 major alignment corridors in detail. Two of these involved major tunnels and two had only minor tunneling. Two alignments took a fairly direct route from Kathmandu to Hetauda and then made use of the existing road alignment to Pathlaiya, one took a slightly longer route to Hetauda, making use of the Bagmati valley to leave Kathmandu, then using easy terrain to connect with Hetauda, then making use of the existing road corridor, while the fourth took a more direct line to the EW Highway, with a connection to Hetauda from Shripur Village Development Council (VDC). The study recommended the fourth alignment (the Bagmati Valley alignment (3A)); and this was accepted by the GoN.

The conclusions made by the Technical Assistance (TA) study team based on their investigations and analysis are presented below

**Road Standard and Design Speed:** The new road shall be built as a high class road to international standards. It is to be constructed to Asian Highway design for a Class I road. Traffic volumes would indicate that the road will need to be four lanes from Kathmandu to Shripur by 2018. At the request of GoN, design has been carried out for both two and four lane.

**Road Access:** It is important that traffic on the project road be allowed to travel quickly and safely and that there is no interaction between through traffic and local traffic and pedestrians. Therefore the access to the new road be only at interchanges, located near traffic generation centers, and that local traffic, including tractors,

pedestrians, bicycles and animals shall not be allowed on the highway except where the highway makes use of the existing road (e.g. Nijgadth to Pathlaiya).

**Toll System:** To pay for the maintenance and operation costs and to provide debt servicing without drawing on additional Government budgets, the road shall be tolled using an open toll system with full width toll plazas close to Kathmandu and to Nijgadth and that tolls be set having regard to users willingness to pay so as not to deter traffic from using the road or diminish possible reduction in freight and passenger transport charges. Suggested tolls range from NR 800 for a car to NR 1,800 for a heavy bus or truck. Traffic traveling to and from Kathmandu and Hetauda would pay approximately 65-70 percent of the toll levied on traffic traveling to/from Kathmandu to Nijgadth. Traffic traveling from Shripur interchange to Hetauda would not be tolled, nor would traffic traveling only on the upgraded East West Highway.

**Costs:** Based on the preliminary costs the estimated cost for the four lane option is NR 55,315 million (\$ 874 million) in December in 2007 prices, including, land, design and supervision but not including contingencies or interest during construction.

**Economic and Financial Analyses:** Based on the preliminary costs the Economic Rate of Return (EIRR) of the four lane option is 30.92 percent. The financing plan for the project is not yet known but, assuming that the project would be fully funded by a combination of international and domestic loans (approximating a BOT operation), then the Financial Rate of Return (FIRR), using the suggested tolls is 14.2 percent pre-tax, about 13.2 percent after normal business taxes.

**Organization:** The report sets out a possible organizational system for the new road based on establishing a corporatized road management company to construct and operate the road or to oversee any BOT operation. The Government shall consider this structure.

**Capacity Building:** The construction and operation of this high class road will require technical and operational skills that are not yet at present in Nepal. So, as a part of the project, an extensive training program be initiated to develop these skills during construction and before the project opens. These skills would include, tunnel design and construction, operation and maintenance, toll system operation and management of private sector involvement in infrastructure projects.

### Route Description of the Selected N-S Fast Track Alignment

The alignment starts from the proposed outer ring road of Kathmandu and follows the Bagmati River in the Kathmandu valley for 7 km, starting on the left bank before crossing the river to avoid unstable ridge noses. The alignment finally re-crosses the river to the left bank which it follows as far as the confluence with the Kulekhani River. For the four lane option the carriageways are divided on either side of the river over this section. After crossing this river it continues to follow and descend the right bank of Bagmati River, crossing the Ipa Khola (river) when it gradually leaves the Bagmati river climbing to the south west. It then passes close to Thingan village through a 1.3 km tunnel and several high bridges to reach Budune village at 52 Km., where the Hetauda Connector road branches off to the west. The alignment then descends and initially follows the right bank of the Simat (Bakaiya) Khola, crosses it at several places and reaches Nijgadth on the East-West-Highway. Thereafter it follows the improved East-West-Highway to reach Pathlaiya.





Photo: Alignment crosses Bagmati River at Ch 5+000.



Photo: Road alignment passing through steep hill slope of Bagmati at Ch. 24+000.



Photo : View of Bagmati Valley between Ch. 13+000 and Ch.15+000

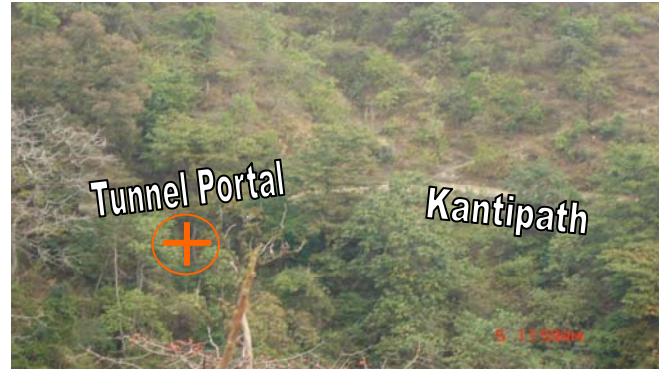


Photo: Tunnel Portal site (Ch 29+900)



Photo : Road alignment crossing Kulekhani River Ch. 16+200



Photo: Existing Road Alignment of MRM. Nijgadh - Pathaiya Section



Photo : Road alignment passing through Besitole / Malta Ch. 22+000. Future interchange planned on right bank of Bagmati River



Photo: Part of the wastewater treatment plant where the Hetauda connector joins Tribhuvan Rajpath.

### PLANNING & DESIGN BRANCH

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