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Government of Nepal

**Ministry
Of
Physical Planning & Works**

**Department of Roads
Road and Traffic Unit**

**Road Safety
Business Plan**

January 2010

Road Safety

1. *Development Context and Background.*

Broad based economic growth is one of the four pillars of Poverty Reduction Strategy Paper (PRSP). To bring about economic growth and sustain activities that contribute to growth - equitable growth - the country needs to increase access to the beneficiaries, both social and economic capital. In the road sub-sector, the objective of PRSP is not only to develop and manage transport network, economic assets in cost effective way; but, also to support socio-economic development towards poverty reduction.

Year	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2004	2010
Length in KM	376	600	1150	2049	2504	3173	4940	5925	7330	10724	15905	17192	30000

Towards this end, PRS seeks to expand strategic road network, improve access between rural production centers and market, and manage existing assets to provide efficient road services to the people. In this context the issue of road accident and traffic safety can have significant importance as the loss due to accident amounts The road accident cost for year 1994/95 alone was estimated to be more than £ 9 million (0.4% of GDP).(Reported in study carried out in 1994/95). This Business Plan concentrates on safety issues basically along the Strategic Road Network (SRN) which however is equally valid for Local Road Network too

Nepal's road network (National Highways, Feeder Roads, District and Urban) consists of about 16,834 km¹ of roads - 4780 km (28%) of black top, 4519 km (27 %) of gravel, and 7533 km (45 %) of earthen roads. In addition, 22,000 km roads have been identified as village roads which are mostly seasonal and include short non-through roads linking single villages to roads of a higher class. In order to administer and manage the development of roads, roads are classified into Strategic Road Network (SRN) and Local Road Network (LRN). SRN comprises of National Highways, Feeder Roads and strategically important urban links and its responsibility lies with DoR LRN comprises of District, Urban and Village Road Networks and its responsibility lies with respective District Development Committees/Municipalities/Village Development Committees under the coordination of Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR).

Among the South Asian Countries, Nepal has a very low road density not only in terms of serving the population but also in providing accessibility to various parts of the country. However, it has one among highest accident rate not only among its neighbors but also among the worlds. The situation thus demands a serious consideration to be taken for the road safety issues so that further deterioration on the situation can be prevented timely or if not be reduced.

1.1 Vehicle Population

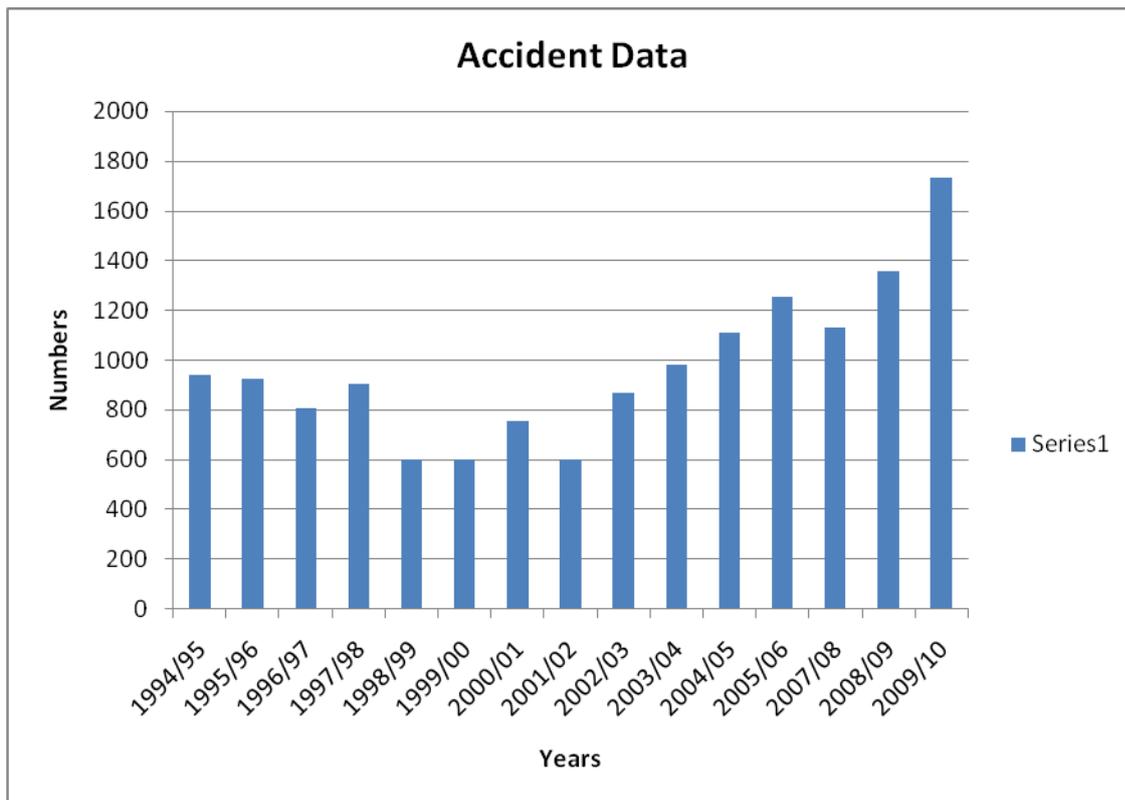
First vehicle entered Kathmandu Valley in year 1942 on shoulders of men. At present more than 1015271 motorized vehicles are registered in the country with highest share of motorized two wheelers (73.353%). Light vehicles (Cars/ Jeep/ Van) share the second highest with

¹ Source: Nepal Road Statistics 2002, Department of Roads

motorized vehicles but are highly susceptible for cause of the road accidents due to no proper safety features.

1.3 Road Accidents in Nepal

It is difficult to identify the number of road accident as many accidents, including ones where people are injured, are not reported to the Police or under reported. Only those accidents with high injury or property damage or with disputes are reported and recorded in the police office. A study for the road accident costs in year 2009/2010 showed that there was 13,247 road traffic accidents and among them 1734 was fatal, 41,30 injury, and 7383 were damage only accidents. Considering the 1734 fatality in road traffic accidents and having about 1015271 motorized vehicles in the country the fatality rate was 17 per 10,000 vehicles is the highest rate in Asia as well as one of the highest in the world. However, now the number of vehicle has gone up to 1015271 with 13247 accidents among which 1734 fatalities, 7383 injuries and 4130 serious injuries. This comes to about 17 fatalities per 10,000 vehicles. This still is on the higher side.



Similar to other developing countries Nepal also has mixed type of traffic. The distance traffic in Nepal is composed of mostly by buses and trucks. Usually the vehicles are old and public transport and cargo trucks drivers are illiterate and most of them have not received proper education on road safety too.

The types and nature of accident in the urban roads and the National Highways are found to be different. Road accident reports (1995-1996) clearly indicates that one of the major highway connecting the capital city Kathmandu (Mugling- Naubase) the common types of accident are;

- Pedestrian hit by the vehicle

- Single vehicle overturning
- Head on collision

However, for the vehicles in Kathmandu valley the common types of accidents are;

- Pedestrian hit by vehicle
- Rear end collision

After the establishment of formal process of registering of the motorized vehicle in 1958 BS, the Traffic Police detachment established in 2000 and the 1990 the Kathmandu Valley Traffic Police was established. The system of road sign was formally introduced from 1978 and the Vehicle and transportation management regulation was introduced in 1997.

1.4 Road Accident situation

The mass transportation (Buses and Trucks) fatality is high in Nepalese highway. General findings about road accidents in Nepal, from the road accident data and studies made so far, are listed as;

- Pedestrians are the largest group of victims in road accidents.
- Young people of age group from 15 to 40 years are high percentage in road accident casualties, compared to population group, followed by elder people above 50 years.
- Bus (carrying passengers in long routes) accidents are a major problem as they account for 13.09% of the people killed and 31.17% of the people seriously injured. In comparison to the accident record of 1994/1995, the fatality rate is decreased by 25.91% and seriously injured person rate is decreased by 28.83 %. This is due to some awareness activities and road furniture construction at black spot site.
- In city and urban areas, accidents of two wheelers account high.
- Trucks and buses have high accident rates on rural roads.
- About 30 to 40% of the accidents happen after sunset, when the traffic volume is less.
- In most of the road accidents poor road user behavior such as bad driving, drinking and driving, parking at road side, careless crossing by pedestrian are the main factors.
- Accidents are found to cluster at road intersections in urban area.
- In highways accident cluster are concentrated in near bridge approaches, intersections, and road side built-up area.
- Road accident cost calculation for a single year alone showed at least NRs. 764 million (about 9 million £) which is a significant loss to the nation's resources (0.4% of GDP).
- Loss in road accidents can be reduced and large amount of nation's loss could be saved by investing an effective road safety measures.

The road accident data for past 12 years shows number of deaths in road accidents increased from 941 in 1994/95 to 11734 persons in year 2009/10 (Figure 3). Considering the recent data on fatality numbers and present numbers of vehicles the fatality rate is estimated to

be 17 per 10,000 motorized vehicles which is higher in comparison to other developing countries.

1.5 Road Accident cost

The study under taken for the overall cost of National Road Accident in year 2094-2095 was estimated as follows;

- Fatal accidents: 724
- Injury accidents: 369
- Damage only accident: 12275

The total cost of all road accident in year 2051/52	764,000,000 NRS
Average cost of road accidents (all types)	47,000 NRs
Average cost of fatal accident	299,000 NRs
Average cost of an injury accident	66,000 NRs

The study under taken for the overall cost of National Road Accident in year 2009-2010 was estimated as follows;

- Fatal accidents: 1734
- Injury accidents: 4130
- Damage only accident: 7383

The total cost of all road accident in year 2009/10	387,733,544.00 NRS
Average cost of road accidents (all types)	66121.00 NRs
Average cost of a fatal accident	500,000 NRs
Average cost of an injury accident	66,000 NRs

1.6 Road Accident Recording

Local Traffic Police used to keep the first hand information about the road accident in Nepal. Before 1995 Road accident recording format was one page information sheet which only gives the details of the vehicle or person involved in accident, their location, date, time and type of injury and vehicle.

The Traffic Engineering and Safety Unit was established in year 1993 in the Department of Roads with the grant assistance of the Government of UK, then only new accident recording format was developed with collaboration with the Police and systematic accident **recording system started.**

On one side the Department does not have updated information and the system of recording data need to be established once again on the other side it is necessary to build the capacity to collect, manage and analyze the information. Such present situation has led to a condition which demands immediate interventions as soon as possible to have strong curative as well preventive measures and action plan for future.

1.7 Road Safety initiatives in DoR

The increase in road accidents in Strategic Roads a Road Safety Review was undertaken by DOR in 1992 to review of road accident and traffic safety measures applied in the various completed roads and ongoing road projects. Based on the data available a Road Safety Strategy, 1994, was prepared with an aim “to reduce road accidents in Nepal by introducing a coordinated multi sectoral program of road safety actions”.

DOR, in its policy of 1995, envisaged its duty to provide safety for all road users including pedestrians and took initiatives for carrying out the necessary road safety activities in close coordination with the Department of Transport Management (DOTM) and Traffic Police Office (TPO). DOR set up a separate Traffic Engineering and Safety Unit (TESU) to deal the road safety engineering aspects and necessary coordination with other agencies. The Traffic Engineering Unit in the Department of Roads has developed several guidelines, specifications, Safety audit system, and identification of black spots, traffic safety campaign etc. However, it could not be continue for long after the termination of the support form the DFID. The Department in fact was unable to continue in sustainable manner. At present none of the mentioned activities are carried out in a planned manner. Furthermore, most of then existing trained manpower have left the Department and no effort has been made to neither train other neither manpower nor any attempt to enhance skill and new technologies as well as methods. However, after the establishment of Traffic Engineering and Road Safety Unit in the Department, some uniform standard specification and documents were published such as

- Standard Specification for Road Marking and Traffic Sign
- Accident recording format and data compilation using MAAP
- Introduction of Road Safety audit during design
- Traffic counting in major urban roads and National Highways
- Identification of accident black spot and treatment
- Road safety campaign jointly with Traffic Police

The collection of road accident information was initiated in July 1995 with help of Traffic Police Office (TPO). Initially it covered Kathmandu Valley and Naubise - Mugling section of the Prithvi Highway (part of AH 42 with high accident rate). DOR helped the TPO to design their own simple Road Accident Data System for nation wide accident database, which basically provides accident statistics but do not provide the necessary detailed information for accident analysis.

Further to this DOR started implementing the planned maintenance consisting of routine, recurrent, and periodic works. A separate Highway Management Information Unit (HMIU) was established for maintaining road database on condition, road roughness, and traffic data for the purpose of implementing the road maintenance works, effectively. Planned maintenance has resulted in more than 84% of strategic roads in good to fair condition in this year 2006/7.

DOR started implementing various road safety treatment measures in unsafe bends and approaches of bridges in Naubise to Mugling section of Prithvi Highway. Ten important intersections in Kathmandu valley, with high accident rate, were improved with assistance from Japan. Performance evaluation of such treatment and junction improvement works showed a success of up to 80% reduction in accidents and over 1000% Rate of Return for the First Year.

The experiences from the road accident studies and practical implementation in various sections of strategic roads, the DOR published a number of road safety related notes (Annex -1). These

road safety notes have been extensively used to promote road safety engineering among Engineers of DOR and Consultants. Existing highway design standards is also under review and is expected to address considering roadside drainage, bridge approach, roadside delineators, road markings etc.

The concept of Road safety audit was introduced in 1995 with the following key principles;

- Design of road for all road users,
- Provide a clear and consistent message to the driver and other road users,
- Encourage appropriate speeds and behavior through design and traffic signs,
- Reduce conflicting points in the road junctions and intersections,
- Make allowance in design for the bad or impaired driving,
- Create a forgiving road,

Road safety audit is a compulsory activity for all roads under construction or rehabilitation. TESU, with the help from concerned project personnel, audited major strategic roads and about 1,200 km of National Highway. The road safety audit has contributed very fruitful safety improvements, especially in road sections with higher rate of accidents. Based on the road safety audit experiences, performance evaluation, and feedback from the field results a detailed Road Safety Audit Manual was published in April 1997.

To implement the road safety enforcement, specific training courses to the police personnel on traffic signs, driving, accident management and analysis, and enforcement were conducted by DOR through specialists under TESU. Training manuals were developed with intention that the trained persons would be able to train others - i.e. cascade training. The frequent transfer of police personnel has demanded a regular training activity is needed in the TPO.

Road safety education has been found to be effective means to reduce the accident rate. In some cases it has been observed that road safety education program has successfully reduced the accident rates by 75%. However, it should be a continuous activity to sustain the effect.

Nevertheless, the design of roads for all users has been stopped since fiscal year 2009/10. The budget is not allocated for this Unit for this work. Only some budget is allocated from World Bank Component.

2 Road and Traffic Safety Unit

The Road & Traffic Safety Unit is functional in the Department of Roads under Design and Planning Branch. The basic function of this Unit is to work for Road Safety Related issues right from the beginning of the road planning to the post-construction level. The following are the scope of works of this unit.

- Conduct Detailed Engineering Design of Roads
- Conduct Road Safety Audit
- Conduct Road Safety Monitoring
- Coordinate and implement Road Safety Related planning, design, construction and maintenance as well as post-construction activities.

Conduct Study for improvement of Road Safety.
 Coordinate with other stakeholders in Road Safety related issues.
 Coordinate and conduct Road safety Campaigns along the newly constructed roads and other roads.
 Conduct analysis to identify Black spots and work to improve such black-spots.

3 Organization of Road and Traffic Safety Unit

The Road and Traffic Unit under the Planning and Design Branch of Department of Roads has following organization

Senior Divisional Engineer	1
Engineer	1
Nayab Subba	1
Computer Operator	1
Kharidar	1
Peon	1

Along with the mentioned manpower the unit has following logistics

Jeep	1 (old not reliable for long distance travel)
Motorcycle	None
Computer	5 (Only two in good condition)
Printer	2
Scanner	1
Photocopy Machine	1

However to conduct the proposed activities according to the business plan the existing structure of the Road And Traffic Unit's organization needs to be reviewed. Considering the activities of data analysis, monitoring and evaluation as well as safety audit at various stages, implementation of remedial measures and detailed engineering design the following shall be the organization of Road and Traffic unit

Senior Divisional Engineer	1
Engineer	3
Overseer	3
Computer Operator	1
Draft person	1
Nayab Subba	1
Driver	2
Peon	1

Following are the proposed logistics for the Road and Traffic Unit for smooth handling of its business.

Jeep	1 (Should be reliable for long travel)
Pick up	1
Motorcycle	3
Computer	5 (3 new reliable ones)
Laptop computer	1

Multimedia Projector	1
Printer	3 (one new)
Scanner	1
Photocopy Machine	1
Software for data analysis	1

4 Vision

The vision of the Road and Traffic Safety Unit is: **“To manage roads in safer ways and substantial reduction in accident cost”** and support the vision of the Department “Managing roads for national integration and socio-economic development” for the people of Nepal. The overall goal is to reduce present level of accident rate, work for the preventive measures to reduce accident and prevent people from pain and suffering from the accident and also to help towards saving national losses due to the accident. That is to support the overall goal of the Department to reduce the present level of poverty through socio-economic development by providing equitable, safe and affordable public road infrastructures for growth and national integration. This is to be achieved through building and managing road network within the country while keeping the total transport cost (combination of investment, maintenance and road user costs) to a minimum.

5 Road Safety Strategy and Activities

The Road safety strategy and activities can be broadly divided in to four target groups, namely Safer People, Safer Roads, Safer Vehicles, and Safety Management. It has been observed that the effective implementation of strategy and proposed activities for each target group has potential to reduce the road accidents up to 70%.

Safer People

The error by road user is one of the major factors in road safety issue and dealing with such issues has remarkable potential for reducing accidents. It has been observed that accident reduction up to 35% has been achieved with implementation of education, training, publicity, improved driving test, and strict enforcement of traffic rules. The different target group and associated strategy and activities are shown in the table below.

Table 1: Safer People Target Group and Proposed Strategy and Activities

Target Group	Proposed Strategy and Activities
Young	To coordinate with Ministry of Education for Road safety education in primary schools. To coordinate to run Road safety education/ awareness program to road neighbors (especially women and children) by Road management agencies under its programs.
Young people	To coordinate and advocate for the enforcement of rules as well as good driver's training, and awareness program from Traffic Police and other

	concerned authorities.
Publicity of traffic rules	To work for better coordination on regular road safety campaigns through popular media and enforcement on Pedestrian Crossing, Speed limit, No parking, No driving in influence of alcohol, Use of helmets for motorcycle rider, Wearing seat belts needs to be implemented on road. Regularly publish statistics and information on road accident and traffic violation in popular media like (FM radio station).
Driver training	To coordinate and advocate for close monitoring and enhancing the better driving quality driving school for training and training facilities through DOTM and TPO.
Driver test	To advocate for the development of standard driving tests to encourage proper training and good behavior of driver on road. Enhance the skill of the supervisors examining driver's test and their knowledge on traffic safety and vehicle roadworthiness through DoTM.
Enforcement	To advocate and coordinate for better enforcement of traffic rules, strengthening of TPO organizations and expansion of Highway Patrol Service. Encourage the introduction of measures to control moving offences such as speeding, drunk driving, driving without lights, etc. and implementation of effective punishment/ fine to the offenders.
Strengthening traffic legislation	To advocate and work towards the clearer VTMAAct and Regulations on role and responsibility for prosecuting traffic offenders and charging on-the-spot fines. Encourage use of specified equipment to substantiate the evidence for offences such as speeding and drunk driving including necessary tests.
Control on driving hours	To encourage the concerned authorities such as DOTM, TPO for the provision of allowable driver's driving hours in public transport.

Safer Roads:

To look into the contribution of roads in Safety Engineering design, road parameters, and condition of roads could be a contributing factor to road accidents. It has been observed that the concept of safer roads has potential to reduce accidents by 20%. In most of the cases engineering solutions for reducing the road accidents has often been found to be cheaper and effective than conducting training to various road users.

Table 2: Safer Roads Target Group and Proposed Strategy and Activities

Target Group	Proposed Strategy and Activities
Engineering remedies	To ensure effective application of suitable warning, regulating, and engineering means to influence safe behavior of road users.
Roads for bad Drivers	To ensure effective execution of design and construction of roads accommodating the behaviors of bad drivers with introduction of appropriate road safety measures.
Safety in Design Standards	To incorporate and ensure incorporation of road safety factors in the standard design and drawings.
Road safety audit	To conduct an independent road safety audit for all roads.
Safer work sites	To ensure use of proper and adequate traffic signs, lights, and safety management to be applied by all service oriented agencies, while working on roadsides.

Accident remedial programs	To ensure further continuation of regular study on road accidents, diagnosis causes, application of remedial measures, performance monitoring, and evaluation.
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Safer Vehicles

As many accidents have been caused due to improper condition of vehicle, Vehicle shape, size, and mechanical condition are also equally important factor in road accidents, Studies have shown that improvements in vehicle roadworthiness test and enforcement for vehicles plying in roads have contributed to reduce the road accidents by 10%.

Table 3: Safer Vehicles and Proposed Strategy and Activities

<i>Target Group</i>	Proposed Strategy and Activities
Improved Testing centers	To advocate and coordinate with DOTM towards establishing a network of properly equipped vehicle-testing centers (presently only 12) with necessary facility, trained manpower, and equipment.
Vehicle fitness standard	To create, advocate and coordinate with DOTM to develop and publish an objectively verifiable safety oriented vehicle fitness standard for checking vehicle fitness such that uniform judgment for all examiners.
Vehicle testing requirements	To advocate and coordinate with DOTM for the development and implementation of effective inspection process for annual vehicle fitness test, such that the number of defective vehicles plying in roads can be reduced.
Overloaded vehicles	To coordinate with TPO and DOTM for initiating program to enforce the vehicle loading regulations.
Conspicuity of parked vehicle	To coordinate with DOTM for regulations to display of reflective rear plates and parking lights for all buses, trucks and construction equipment.

Safety Management

The complexity and challenges is road safety management is associated with the factors like mixed traffic, increasing vehicle fleets, pedestrians, two wheelers, fast moving vehicles, non motorized vehicles, low literacy rate etc. It has been observed that the better management of road safety by using safety engineering aspects, coordination among related agencies, education and training to road users, and enforcement of traffic rule and regulation has resulted in reduction of road accidents by 5%.

Table 4: Safety Management and Proposed Strategy and Activities

Target Group	Proposed Strategy and Activities

Approval and Implementation of NRSPlan	To work towards the preparation of National Road Safety Plan (NRSP) and approved by the Government to develop awareness, set common goals, objectives, and to define clearly the authorities and responsibilities for all stakeholders.
Functioning of NRS Committee	To work for effective functioning of National Road Safety Committee (NRSC) towards effective coordination with all stake holders working towards improving road safety.
Skill development	To work towards development and enhancement of skills and knowledge of the key personnel working on road safety as well as agencies involved for implementation.
Improved accident recording	To works towards effective management for recording and expanding coverage of road accident recording system to all road networks. Accident recording shall be further developed to incorporate the additional information that required analyzing the accident. Further a close coordination with Traffic Police shall be developed towards enhancing the recording system and data and as well as data sharing and monitoring for the further improvement in this system.
Working with the Civic Society	To encourage working with Civic society (drivers' unions, bus entrepreneurs' associations, NGO, commercial agencies or local communities) towards achieving a win-win situation, participation, and wider dissemination of safety knowledge

6 Key Objectives and Outcomes

The key objective as expressed in Tenth Plan is to develop and manage transport network to support socio economic development effort. Confining to the targets and expected out comes, achievements in the coming three years and the likelihood of achieving the targets and outcomes are presented below.

Key objectives and Outcome

Sub Sector	Indicators	Base Year FY 2010/2011	Target FY 2011/2012	Target FY 2012/2013	Likelihood of Achieving Target	
Road Safety	Study and Recording of Road Safety condition along all network	Initiate the study on road safety condition and accident recording in scientific way (implement in few pilot road sections 500 Km), Update the prevailing road accident cost analysis.	Carry such study along more road sections (2000 Km)	Carry such study along all SRN(5000 Km)	Can be achieved	
	Intuitional capacity building for Traffic accident recording and analysis (along with traffic volume, capacity, road condition survey)	Need analysis and initiate the recording and analysis for 500 Km of road	Traffic accident recording and analysis for 1000 Km of road	Traffic accident recording and analysis for 2000 Km of road	Can be achieved	
	<u>Engineering Measures</u>					
	Treatment of identified black spots	Identification and treatment of black spots along Prithvi Highway (Naubase Mugling section)	Identification and treatment of black spots along 2 highway sections	Identification and treatment of black spots along 5 highway sections		
	Road Safety audit	All new roads designed 200 Km of existing road	All new roads designed 400 Km of existing road	All new roads designed 400 Km of existing road		
	Safety monitoring	500 Km of SRN	1500 Km of SRN	2500 Km of SRN		
	Improvement of Junctions with installation of signal	Study for the junction improvement	Junction improvement in Kthmandu Valley as recommended by study	Junction improvement in various parts of the country as recommended by study		

Key Objectives and Outcome (Contd.)

Sub Sector	Indicators	Base Year FY 2008/2009	Target FY 2009/2010	Target FY 2010/2011	Likelihood of Achieving Target
	Induction and improvement of footpath in urban areas	Study for the improvement of footpath	Study for the improvement of footpath	Study for the improvement of footpath	
		Footpath improvement in Kathmandu valley	Footpath improvement	Footpath improvement	
	Introduction of proper road sign and road marking paints	Study to identify the road sign and road marking paints	Study to identify the road sign and road marking paints	Study to identify the road sign and road marking paints	
		Installation and application of road marking paints along Urban areas	Installation and application of road marking paints along one NH section	Installation and application of road marking paints along 2 NH sections	
	Educational Measures Preparation of Safety Education Program and material	Development of road safety education material and program	Evaluation and improvement of road safety education material and program	Evaluation and improvement of road safety education material and program	
		Road Safety Campaigns 25 Schools along SRN and Urban areas	Road Safety Campaigns 50 Schools along SRN and Urban areas	Road Safety Campaigns 100 Schools along SRN and Urban areas	
	Safety education to School Children Drivers Designers	Safety education program in DoR projects and Divisions 5 no	Safety education program in DoR projects and Divisions 10 no	Safety education program in all DoR projects and Divisions	

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Key Objectives and Outcome (Contd.)

Sub Sector	Indicators	Base Year FY 2008/2009	Target FY 2009/2010	Target FY 2010/2011	Likelihood of Achieving Target	
	<p>Enforcement</p> <p>Axle load enforcement awareness program</p> <p>Pollution level awareness program</p> <p>Traffic rule enforcement awareness program</p> <p>Enforcement awareness program</p>	<p>2 places</p> <p>2 places</p> <p>Interaction activities for enforcement of traffic rules 2 places</p> <p>Coordinated program for awareness development with traffic Police, DoTM, schools and all section of road users.</p>	<p>2 places</p> <p>2 places</p> <p>Interaction activities for enforcement of traffic rules 2 places</p> <p>Coordinated program for awareness development with traffic Police, DoTM, schools and all section of road users.</p>	<p>2 places</p> <p>2 places</p> <p>Interaction activities for enforcement of traffic rules 2 places</p> <p>Coordinated program for awareness development with traffic Police, DoTM, schools and all section of road users.</p>		

7 *Monitoring and Evaluation*

A Monitoring and Evaluation (M&E) is an integral part and is equally applicable even for the road safety related issues. The Road and traffic safety unit within the Department of Roads needs to be strengthened in monitoring and evaluation of the road safety related issues. A serious consideration needs to be taken to address the necessity in terms of capacity building as well as resource mobilization as well as necessity of high level of motivation to carry out such activities for the successfully addressing the road safety related issues. In this process DoR needs to address safety issues in its project process, progress, quality of works and outcomes, with the objective of generating analytical information on the project's performance, and disseminating this information among stakeholders to enable them to effectively address safety issues during the project implementation phase, and revise/refine the implementation approach as and when needed. DoR is in the process of developing monitoring plan, procedure and reporting format for all the levels of monitoring.

8 *Key Challenges*

- *Raising sustainable fund for road safety and accident prevention:* GoN has recently established an autonomous Roads Board and Road Fund to provide stable funding for road maintenance from user fees. Roads Board is expected to generate about NRs. 2 billion a year to suffice total road network maintenance in the country including rural and urban roads. However, it does not clearly spells about its funding in the field of road safety and road accident reduction. This issue thus needs to be addressed so as to generate sustainable funds for its utilization in the field of road safety and road accident reduction.
- *Increasing and Prioritizing Investment:* It is estimated Nepal need to invest about 2% its GDP (about US\$115 million a year) on expanding its road network to remove transport impediments to economic growth, and another 1% of its GDP (about US\$60 million a year) on maintaining its current road assets together with upgrading and necessary rehabilitation. However, no estimate is available to address the road safety and accident reduction issues a serious consideration and study has to be taken to identify and determine the measures as well as funds requirement for coming days. Thus, arranging such resources in the present context is one of the critical challenges.
- *Promoting coordinated effort among all stakeholders of road safety :* Apart from the necessity of enabling legislation and regulations, credible and efficient judiciary system, proper institutional arrangements, environmental and social protection, and possibly financial guarantees, a coordinated effort of all the stakeholders such as road users, DoR, DoTM, Traffic Police, Educational Institutions, NGOs, INGOs needs to be addressed and consolidated to not only avoid the duplication of work but also to have coordinated effort to achieve the goal of road safety as this goal could not be achieved with the effort of one party only.
- *Capacity building of Road and traffic Safety Unit:* Capacity building and keeping moral high of the staffs of the unit has been a challenging task and will remain in near future too. The capacity building of the staff through training, observation tour, and short term coursed as well as their attendance in various workshop and seminars should be seriously initiated and facilitated. Further to this unit needs to be strengthened with better logistics which should include better vehicle, computer and other equipments.

- *Rural Roads, Decentralization and capacity of Local Bodies:* Local bodies are still very weak in capacity for planning and implementing local road development and management. Capacity building and effective and efficient public spending by local bodies is another major issue of confrontation. Local bodies receive financial resources in numerous headings of the GoN budget for local infrastructure development. Most of the local bodies spend substantial resources in fragmented form of road construction works without proper studies and engineering design. The roads constructed in such after the rainfall of first monsoon, such roads are either washed away or not in serviceable condition resulting in wastage of resources, which will be controlled through consolidation of budget heading for infrastructure development of the local bodies.
- *Urban Transport:* Urban Transport is one of the neglected sub-sector because of fragmented responsibilities and weak fiscal and implementation capacities of local bodies. The main problem in urban transport is traffic congestion and constrained transport infrastructures and increasing road accidents. With the present trend of rapid urbanization, if it is not timely addressed such problem will become more and more complex.
- *Institutional Reforms and strengthening:* The Ministry of Physical Planning & Works (MPPW), the Department of Roads (DOR), the Ministry of Local Development (MOLD), the Department of Local Infrastructure Development & Agriculture Roads (DOLIDAR), Municipalities individual District Development Committees (DDC) are entities responsible for regulating, developing and managing transport sector in the country. One more ministry, the Ministry of Labor and Transport Management is another actor in the sector. Apart from these the various stakeholders from the road users' side are also integral part in managing the road safety issues. Thus the instructional reforms and their strengthening issues need to be addressed properly in such a way by accommodating the smooth functioning of all the above mentioned stakeholders. DoR is expected to play a lead role in such issues too.
- *Development of National Road Safety Policy and Action Plan*

To address the road safety issue there is no clearly spelled policy as such, National Road Safety Council has been established, and however its smooth and effective functioning needs to be ensured.

S.No	Core Business Activities	Activities	Unit	FY 2010/11		FY 2011/12		FY 2012/13	
				Target	Amount	Target	Amount	Target	Amount
1									
a	Improved Road Safety and accident Reduction	Assessment of Policies and institutional capacity for road transport safety	Nos			1	2000		
b		Conduct "Study for Road Safety Policy and Institutional Capacity" including updating of Road Accident Costs, Institutional capacity includes accident recording, analysis, identification of black spots and possible remedial solutions.	Nos					1	15000
c		Transport management Plan for Kathmandu Valley						1	15000
d		Conduct study on traffic congestion and necessary improvement works in Kathmandu Valley	Nos			1	1500		
e		Study and Recording of Road Safety conditions along all SRN	Nos	1	1000		1000		1000
			Engineering Measures						
a			a. Road Safety Monitoring of the operational roads and workshop						
			i. Biratnagar	Nos	1	200		200	200
			ii. Kathmandu	Nos	1	200		200	200
			iii. Pokhara	Nos	1	200		200	200
			iv. Nepalgunj	Nos	1	200		200	200
		b.Road Safety Audit			1000		1000	1000	

1. Road Safety audit of roads under feasibility stages							
i. 5 roads under feasibility studies to be taken for RSA		5	300	5	300	5	300
2. Road Safety audit of roads under Design Stages	No	2	300	3	300	4	300
i. 2 new roads under Detailed design to undergo RSA	No						
ii. All RSDP roads to under go RSA	No						
3. Road Safety audit of roads under Construction Stages		2	200	3	300	4	300
i. 2 roads under construction to undergo RSA	No						
ii. All RSDP roads to under go RSA	No						
iii. All roads under Connectivity project to under go RSA							
4. Road Safety audit of roads under operation and maintenance stages	No	2	200	2	200	2	200
i. High traffic and high accident roads identified and under go RSA	No	1	200	1	200	1	200
Treatment of identified Black spots, junction improvement, installation of traffic signals, introduction of footpath in urban and settlement areas, introduction of proper road sign and road marking paints	Some		12500		15000		15000
Educational Measures			1000		1000		1000
Preparation of Safety awareness program, material, mechanism etc.							
Safety campaign and education program to							
1. School Children							
i. Within Kathmandu Valley	Nos	4	100	5	150	7	200
ii. Out of Kathmandu valley	No	8	200	8	200	8	200
2. Drivers							
i. Workshop/ campaign to be conducted as pilot program		1	100	2	200	2	200

