

PUBLIC WORKS DEPARTMENT

Government of Uttar Pradesh, India

UTTAR PRADESH STATE ROADS PROJECT Under IBRD Loan No. 4684-IN

Technical Assistance for Implementation of Institutional Reforms in the Road Sector of Uttar Pradesh

REPORT ON ESTABLISHING A DEDICATED PWD ROAD SAFETY PLANNING AND ENGINEERING UNIT AT HEAD QUARTERS (FINAL)

Report No. 12

April 2007



LEA International Ltd., Canada

in joint venture with

LEA Associates South Asia Pvt. Ltd., India

in association with

Ministry of Transportation of Ontario, Canada

TABLE OF CONTENT

1.	INTRODUCTION.....	1
2.	SAFETY ASPECTS: ROAD SECTOR – A PERSPECTIVE.....	1
3.	INDIA AND UTTAR PRADESH – ROAD SAFETY CONCERNS.....	2
4.	ROAD SAFETY AND ACCIDENTS – SOME FACTORS.....	3
5.	NEED FOR AN EXCLUSIVE UNIT FOR ROAD SAFETY IN PWD	5
6.	WORLD BANK FOCUS.....	6
7.	INITIATIVES ON ROAD SAFETY	6
7.1	ROAD SAFETY STUDIES	6
7.2	STATE INITIATIVES AT POLICY LEVEL (NATIONAL POLICY/ STATE COUNCILS)	7
7.3	REFORMS & RECOMMENDATIONS OF STUDIES.....	7
8.	CRUCIAL INGREDIENTS OF A ROAD SAFETY PLAN FOR UP	8
8.1	AREAS OF IMPORTANCE	8
8.2	THE INFORMATION SYSTEM.....	8
8.3	ROAD SAFETY.....	9
8.4	RESOURCES FOR ROAD SAFETY	9
9.	STATUS OF ROAD SAFETY PLANNING AND ENGINEERING IN UP.....	10
9.1	GENERAL.....	10
9.2	MULTIPLE DEPARTMENTS AND INITIATIVES	10
9.3	ROLE OF UPPWD – A PERSPECTIVE IN THIS REGARD	11
10.	ESTABLISHING UNIT AT THE HEAD QUARTERS.....	11
10.1	SOME VIEWS ON STRUCTURE AND RESPONSIBILITY	11
10.2	PROPOSED LOCATION IN THE NEW STRUCTURE	12
10.3	STRENGTH AND STRUCTURE	12
10.4	ROLES AND RESPONSIBILITIES	12
10.5	COORDINATION AND ESTABLISHMENT	14
11.	PREREQUISITES TO ESTABLISHMENT OF THE UNIT	15
12.	VIEWS OF THE FOCUS GROUP.....	16
13.	ACTION PLAN.....	16
14.	PRESENTATION TO PROJECT STEERING COMMITTEE	19

ANNEXURES

- Annexure-1 : Uttar Pradesh Road Safety Study
- Annexure-1-1 : Proposals for Institutional Coordination and Institutional Capacity Building for Road Safety in Uttar Pradesh
- Annexure-2 : Road Safety – Review of Past Efforts
- Annexure-3 : Abstract – Institutional Strengthening Action Plan (ISAP) – Formation of Road Safety wing in PWD – Orders Issued (Government of Kerala)
- Annexure-4 : Reviews of Road Safety in Various Agencies
1. Andhra Pradesh
 2. Fiji Islands
 3. Kenya
 4. Cyprus
- Annexure-5 : Road Safety Country Profile - Cyprus

Glossary

ADB	Asian Development Bank	NITHE	National Institute for Training of Highway Engineers
ADT	Average Daily Traffic	NH	National Highway
AE	Assistant Engineer	NHAI	National Highway Authority of India
BOOT	Build Own Operate Transfer	ODR	Other District Road
BOT	Build Operate Transfer	PAC	Public Accounts Committee
CBR	California Bearing Ratio	PCC	Project Coordinating Consultant
CE	Chief Engineer	PCI	Pavement Condition Index
CEO	Chief Executive Officer	PCU	Passenger Car – equivalent Unit
CRF	Central Road Fund	PICUP	Pradeshya Industrial & Investment Corporation of UP
CRRRI	Central Road Research Institute	PMS	Pavement Management System
CSR	Civil Service Reforms	PRI	Panchayat Raj Institution
DAO	Divisional Account Officer	PWD	Publics Works Department
DASP	Diversified Agriculture Support Program	RES	Rural Engineering Services
DBC	Dense Bitumen Concrete	RIDF	Rural Infrastructure Development Fund
DRDA	District Rural Development Authority	RMMS	Road Maintenance Management System
EE	Executive Engineer	RSPEU	Road Safety Planning and Engineering Unit
E-in-C	Engineer in Chief	RSC	Road Safety Cell
GNP	Gross National Product	SDBC	Semi Dense Bitumen Carpet
GO	Government Order	SE	Superintending Engineer
GOI	Government of India	SH	State Highway
GoUP	Government of Uttar Pradesh	SRF	State Road Fund
GSDP	Gross State Domestic Product	SRP-II	State Road Project-II
HDM	Highway Design Model	SRB	State Road Safety Board
HGV	Heavy Goods Vehicle	SRSC	State Road Safety Council
HQ	Head Quarter	SRSF	State Road Safety Fund
HR	Human Resource	TA	Technical Assistance
HRD	Human Resource Development	ToR	Terms of Reference
HRM	Human Resource Management	TNA	Training Needs Assessment
IBRD	International Bank for Reconstruction and Development	UP	Uttar Pradesh
IDS	Institutional Development Strategy	UPRNN	Uttar Pradesh Rajkiya Nirman Nigam
IDSP	Institutional Development And Strengthening Plan	UPSBCC	Uttar Pradesh State Bridge Construction Corporation
IRC	Indian Road Congress	UPSRTC	Uttar Pradesh State Road Transport Corporation
IT	Information Technology	UPSRP	Uttar Pradesh State Road Project
ISAP	Institutional Strengthening Action Plan	UPSHA	Uttar Pradesh State Highway Authority
ILO	International Labour Organisation	UNDP	United Nations Development Programme
JE	Junior Engineer	VOC	Vehicle Operating Cost
MDR	Major District Roads	VR	Village Roads
MLA	Member of Legislative Assembly	WB	World Bank
MIS	Management Information System	WBM	Water Bound Macadam
MOST	Ministry of Surface Transport		
MoSRTTH	Ministry of Shipping, Road Transport & Highways		
MoRTH	Ministry of Road Transport and Highways		
MSS	Mixed Seal Surface		
NABARD	National Bank of Agricultural and Rural Development		

1. INTRODUCTION

The Government of Uttar Pradesh (GoUP), Public Works Department (PWD), is implementing Uttar Pradesh State Road Project (UPSRP) with loan assistance from the World Bank. In order to aid in the implementation of this project, PWD initiated a Technical Assistance project for the implementation of reforms in the road sector as part of the effort on “Institutional Development and Strengthening (IDS) Services”, in order to transform itself into an agency equipped to meet present and future challenges.

Towards this goal, both the GoUP and the World Bank endorsed IDSP which is currently under implementation. Part of this mandate includes the establishment of a dedicated PWD Road Safety, Planning and Engineering Unit at headquarters which has already been endorsed by IDSP. This draft report undertakes a review of the establishment of a Safety Planning and Engineering Unit.

2. SAFETY ASPECTS: ROAD SECTOR – A PERSPECTIVE

Throughout the world, roads are bustling with cars, buses, trucks, motorcycles, mopeds and other types of two and three wheel vehicles. By making the transportation of goods and people faster and more efficient, these vehicles support economic and social development in many countries. But while motorised travel provides many benefits, it can also inflict serious harm unless safety is made a priority. Pedestrians and cyclists using roads are particularly at risk. Crashes are also frequent and death and serious injuries tend to be common.

If current trends continue, the number of people killed and injured on the world's roads will rise by more than 60% between 2000 and 2020. Most of these injuries will occur in developing countries where more and more people are using motorised transport. In these countries, cyclists, motorcyclists, users of public transport, and pedestrians are especially vulnerable to road traffic injuries.

There are, nevertheless, solutions to the road safety problem. A wide range of effective interventions exist and experience in countries with long histories of motorised travel has shown that a scientific, “systems approach” to road safety is essential to tackling the problem. This approach addresses the traffic system as a whole and looks at the interactions between vehicles, road users and the road infrastructure to identify solutions.

There is, however, no single blueprint for road safety. Interventions and strategies that work in one setting may need to be adapted for use elsewhere. The WHO has published the following interesting facts that are worth noting;

- Speed contributes to at least 30% of road traffic accidents and deaths.
- For every 1km/hr increase in speed there is a 3% increase in the incidence of injury crashes and a 5% increase in the risk of a fatal crash
- Pedestrians are eight times more likely to be killed by cars travelling at 50km/h than 30km/h

Key interventions suggested are:

- setting and enforcing speed limits
- designing roads according to their function (e.g. highways, suburban roads)
- speed cameras or stationary enforcement
- traffic calming measures, such as speed bumps and traffic circles
- education and public information

3. INDIA AND UTTAR PRADESH – ROAD SAFETY CONCERNS

The number of deaths per year/10,000 motor vehicles in India, is 10 to 15 times more than that in advanced countries. Motor vehicle fleets are growing day by day with this being a sign of an improving country economy. It is a sad truth, however, that the growth of the vehicle fleet will generally also add to accidents on roads. The inability to provide enough funds to widen roads, and/or construct new roads, in proportion to the increase in the vehicle population can also result in the perpetuation of this.

The rapid development and expansion of the road network and the increase in number of motor vehicles has led to a substantial rise in the levels of both passenger and freight movement, concomitant with which, safety related issues have emerged. With road accidents and fatalities growing in recent years, there is a clear necessity for concerted and multi-disciplinary preventive and remedial efforts.

With road accidents involving roads, vehicles and humans, the preparation of a National Road Safety Policy is underway which will attempt to address road safety issues under such items as; road engineering, traffic signs, vehicle design, road user education and, most importantly the enforcement of traffic safety measures, on a holistic basis. It is also recognised that regardless of jurisdiction, both Central and State Governments have a joint responsibility in reducing the incidence of road accidents and fatalities.

In the light of this, the Government of India has considered it relevant to frame a National Policy on Road Safety to cover both preventive, and post accident aspects of Road Safety. Both of these require to be encompassed within the initiatives of public policy, as well as implementation, whilst also taking into account the responsibilities of the various stakeholders.

Recent studies undertaken in 2004 indicate that about 18,000 accidents were reported in Uttar Pradesh which resulted in some 9,500 fatalities and 12,500 injuries. The economic loss from these accidents has been estimated to be around Rs. 90 Crore¹.

¹ Consultancy Services for Institutional Support and Technical Assistance to the Road Safety Sector in the State of Uttar Pradesh - SPAN Consultants – September 2006

The Uttar Pradesh Road Development Policy, 1998, consists of thirteen basic objectives. Four of these objectives, namely: the keeping of roads free of potholes and patches; ensuring quality in construction and maintenance of roads; checking ribbon development, encroachment, and, conservation of the environment, partially converge on some of the dimensions of road safety. However, focus on integrated road safety is lacking and many of the crucial aspects of road safety are not addressed.

4. ROAD SAFETY AND ACCIDENTS – SOME FACTORS

Road safety covers wide variety of aspects that need to be addressed, such as;

- Raising awareness about road safety issues
- Providing enabling legal, institutional and financial environment for road safety
- Road safety information database
- Safer road infrastructure
- Safer vehicles
- Safer drivers
- Safety for vulnerable road users
- Road traffic safety education and training
- Traffic enforcement
- Emergency medical services for road accidents
- HRD & research for road safety

Nevertheless, it does not require any specialised knowledge to understand that road accidents generally occur for one of the following four main reasons;

1. Vehicle defects e.g.; tie rods breaking in a moving vehicle, the bursting of tyres, wheel nuts loosening or brake failures. Should any of these occur whilst a vehicle is in motion the driver is liable to lose control of the vehicle and an accident invariably results.
2. Driver error e.g.; overtaking in the wrong place; turning abruptly or stopping without signaling, which can cause a collision with a following vehicle; driving too fast through villages and/or exceeding speed limits; falling asleep at the wheel; overturning due to excessive speed around a curve, and, driving whilst intoxicated etc.,
3. The road environment e.g.; driver error from other vehicles such as: bullock carts, cycles, rickshaw, and; 'jay walkers', pedestrians, school children cattle or dogs etc., being run over.
4. Road design defects and inefficient road markings and signs, this being the area in which PWD can make a significant contribution.

Various studies have concluded that there are significant instances where improved design could help avoid accidents within the States of India, and include such items as:

- a.) Where a road rises to a summit and then slopes down and where the driver cannot therefore see the road ahead over any distance, this can be considered to be dangerous. This is even more so when the road curves immediately after the summit. In such instances a driver will not know which way the road turns after the brow of the hill.
- b.) At the summit of a rising gradient, which in turn is followed either by a good horizontal stretch or a downward gradient, this can also become an accident location. It has been observed that vehicles usually 'bunch' when they travel along a road. These groups of vehicles can comprise both heavy and faster/lighter vehicles. As soon as the group commences climbing a gradient, heavy trucks slow considerably and the lighter and faster vehicles immediately attempt overtaking manoeuvres. This often takes place near the summit where sight distance is generally deficient. At the same time, vehicles in the opposite direction are past the summit and on a downward gradient and are therefore, travelling fast. With a two lane carriageway these factors create a potentially dangerous situation.
- c.) Another potentially dangerous location is a level stretch between two long downward gradients. Vehicles travelling downwards from both directions can meet at high speeds in the small level stretch which may well only be a two lane carriageway.
- d.) Trees and shrubs at the road side can also be hazardous to traffic, for example: on the inside of curves they can reduce sight distance; along straight stretches where vehicles may be travelling fast, tree branches projecting close to the carriage way at heights of less than 6 meters can cause heavy trucks or large buses to deviate towards the centre of the road. When vehicles travelling in both directions adopt similar tactics, a dangerous situation, can occur leading to a possible head on collision. Many accidents are also seen to occur where vehicles crash into large trees growing close to the carriageway which, in many instances, results in a fatality.
- e.) In some instances the depth of cut has been reduced. This can lead to long downward gradients ending in fairly high sided embankments or, may possibly lead onto a two lane bridge. Vehicles travelling at speed down such slopes and experiencing driver error or mechanical failure, can find manoeuvring to avoid either the embankment or access to the bridge, difficult.
- f.) When a village has its facilities, such as: sources of water; schools; areas of employment etc., located on the opposite sides of the road, villagers must cross the road to reach these and are therefore exposed to fast moving vehicles.
- g.) It has been noted that advance direction signs, indicating both direction and destinations of branch roads are, in many instances, missing. Vehicles may therefore brake suddenly on the realisation that they are required to turn off a road thus creating a dangerous situation for vehicles that are following.

- h.) At some locations it has also been noted that shoulders are in a poor condition. Where a road 'takes off' from a main road, the shoulders are often deteriorated with the adjoining shoulders often much lower. This is a dangerous situation, particularly for 2 wheelers, small vehicles or heavily loaded vehicles, when they are forced on to these shoulders at night. In other instances it has also been noted that on curves, whilst the road is in 'super elevation', the outer shoulder has an adverse camber. This can also be dangerous where a vehicle, travelling slightly faster than the permissible limit, can overturn if its outer wheels cross the edge of the pavement.
- i.) In the case of National and State Highways, traffic intensity is high and may be in excess of capacity. This can create difficulties in overtaking, especially on two lane roads. It also creates a danger when there is no lane divider and two large and heavily laden vehicles cross at speed. When shoulders are also in poor condition the potential for an accident is compounded.
- j.) In many villages there are no specially created bus laybys and so buses therefore stop on the carriageway to both 'pick-up' and allow passengers to disembark. With bus exits at the rear of the bus, any alighting passenger wishing to cross the road will generally do so from behind the bus. In so doing they are hidden from view to any on-coming vehicle in the opposite direction and may therefore step in the path of any such on-coming vehicle.
- k.) Trucks parked near dhabas, petrol pumps and octroi naka, located close to a carriageway, can leave only a narrow lane for passing traffic which can result in accidents from people trying to cross the road or from head on collisions. It would be better if adequate parking space be acquired by the owners of these facilities to ensure that there is enough off road parking inside their compound. In the case of Octroi Naka it would also be helpful if they were to streamline the operation of octroi collection in order that the number of vehicles required to be parked is reduced.

Good road design and construction can take care of most of root causes of accidents sited above. However, it is imperative that the road design agency gives the necessary and adequate importance to these issues of road safety as they have much wider implications once the road is being used.

5. NEED FOR AN EXCLUSIVE UNIT FOR ROAD SAFETY IN PWD

One of the objectives of the IDS plan is '*sustainable GoUP road safety planning and engineering capability*'. The recommendations given by the study clearly indicate that a Road Safety Cell requires to be created at both State and District levels. It also identifies the broad functions of the Road Safety Units (discussed later).

The recommendations of the IDS study were endorsed by GoUP and a list of action mile stones identified accordingly. Establishing a dedicated PWD Road Safety Planning and Engineering Unit at headquarters is first amongst these mile stones. Others include 'Initiation of a GoUP multi agency Road Safety Improvement Study to identify the necessary proposals for institutional

coordination and capacity building for road safety within the state. This study has been completed and its recommendations have been used in preparing this report. The other two action mile stones include; implementation of current MoRTH road design standards and policy on traffic and road user safety and, establishing road safety monitoring roles and resources in HQ and field units.

6. WORLD BANK FOCUS

The World Bank addresses road safety challenges as a part of the transport projects it finances, and demonstrates that this can also be an effective component of primary health care, education and social development projects.

Under its intentions of 'Reforming Institutions', the World Bank has supported projects in South Asia having focused on helping regional governments improve policies and regulations and the establishment of road safety agencies. In India, the Bank has assisted government agencies in developing comprehensive road safety action plans at both the national and state level. The Bank has also assisted in projects which include the development of manuals for safety audit, accident black spot investigations, road signs and markings, and computerised accident recording and analysis systems.

Under its initiatives for better and safer engineering, the Bank's technical assistance has focused on designing and constructing better and safer roads. In India, the Bank has assisted in improving hazardous locations on National and State Highway networks, as well as, the installation of safer road features and devices. In the Indian States of Uttar Pradesh, Karnataka, Gujarat, Kerala and Andhra Pradesh, it has provided funding for improvements of accident blackspots and, the installation of reflective traffic signs and road markings. The ongoing UPSRP has separate allocations for institutional reforms and, proposals for setting up a Road Safety Unit in the road agency PWD is one of the many recommendations given by the IDS study to be carried out under this reform head.

7. INITIATIVES ON ROAD SAFETY

7.1 ROAD SAFETY STUDIES

As mentioned above, one of the action mile stones identified under the IDS study recommendations was the 'Initiation of a GoUP multi agency road safety improvement study to have necessary proposals for institutional coordination and institutional capacity building for road safety in the state.' This study², and the World Bank Aid Memoire, indicates that the Road safety policies put forward in the study have been discussed by UP Road Safety Council and

² Consultancy Services for Institutional Support and Technical Assistance to the Road Safety Sector in the State of Uttar Pradesh - SPAN Consultants – September 2006

cleared. The study provides a strategy and action plan to implement the approved policy. A summary of the study is given in Annexure-1. It should be noted that the U. P. Road Safety Policy addresses the same eleven issues as given in the Draft National Road Safety Policy.

The SPAN study has analysed six departments / agencies namely the PWD; Transport Department; Home Department; Urban Development department; Medical & Public Health Department and; the Education Department, all of which are involved with the delivery of road safety subtasks. Furthermore, it has also developed proposals for both institutional coordination and capacity building. Thus it has clearly indicated the role of UPPWD in road safety in connection with road planning and engineering.

7.2 STATE INITIATIVES AT POLICY LEVEL (NATIONAL POLICY/ STATE COUNCILS)

A number of initiatives have been taken by GoUP in the past to overcome the problem of unsafe roads. These efforts are presented in brief in Annexure-2.

The Government has approved the proposal to create a Road Safety wing within PWD in order to bring effective and visible improvement in road safety as a part of the Institutional Strengthening Action Plan (ISAP) as identified within the Government Order.

7.3 REFORMS & RECOMMENDATIONS OF STUDIES

Road safety is a key issue in IDS reforms, as a low level of safety on the road network is not only socially unacceptable, but the high cost of accidents, injuries and deaths places an undue economic burden on the State. Raising the levels and standards of safety over the road network is a matter of producing significant improvements in the following-

- Laws, rules and regulations governing road use
- Highway design
- Road maintenance [surface, drainage, signs, signalling, marking]
- Vehicle maintenance
- Driver licensing, education and training
- Driver and other road-user discipline
- Law, rule and regulation enforcement [by traffic police and judiciary]
- Post-accident emergency services

The conclusions of IDS [2001] on road safety matters included the following:

- There was no monitoring of safety related aspects on the highway network
- Incorporation of safety measures was limited to rail-road crossing improvements.

- There were no standardised or compulsory procedures in place to receive feedback from either police, road transport organisations or hospitals, on road accidents
- Accident black spots were not identified or recorded.
- There were insufficient, substandard and non maintained road signs, lights and markings on all sections of the State road network.

It was also observed that despite the presence of many Authorities within the road sector, the important issue of ownership of roads remained unclear. Consequently, agencies that constructed roads displayed a lack of responsibility for their maintenance and the safety of the road users. The agencies involved were also not accountable to road users with the users never being involved in any of the decisions regarding construction, operation or maintenance of the roads in question.

8. CRUCIAL INGREDIENTS OF A ROAD SAFETY PLAN FOR UP

8.1 AREAS OF IMPORTANCE

The three basic areas in which the different road agencies in Uttar Pradesh need to act to deal effectively with the issue of road safety, include:

- a. Information System: to provide comprehensive picture of the current situation and provide data on how effective existing actions have been
- b. Road Safety Action Plan: to develop an action plan based on available data / information on accidents, the actions taken and, their impact and the accident response system.
- c. Resources: to fund and sustain the proposed action plan

8.2 THE INFORMATION SYSTEM

This should provide accurate and reliable information on: where the accident occurred; when it occurred; those involved and, what happened. This information should be readily available to road infrastructure agencies (i.e., PWD, Urban Development Agencies), traffic enforcement agencies (Traffic Police), traffic planning agencies (Transport Department) and, health management agencies (emergency medical care and trauma centres), in order that they can initiate rescue; health management; compensation, and initiate remedial actions for the causes of accidents.

As a part of their responsibility for traffic enforcement and law and order, the Police collect information on fatal and serious accidents. However, since there is no specialised traffic cadre in Uttar Pradesh, the police personnel in the field are not trained to fill in all the details required for necessary future action to be taken. The data collected and held at Police Stations is also not transmitted to other agencies due to the lack of any electronic data collection, compilation, processing, filing, analysis and retrieval systems. There is an urgent need to train Police personnel in accident data reporting and the setting up of a computerised data collection system

that can be shared by all concerned agencies. The Ministry of Transport and Highways, Government of India, has decided to introduce the UNESCAP road accident data reporting system all over the country. The State of Uttar Pradesh should therefore initiate specific action to bring the State in line with this national initiative.

8.3 ROAD SAFETY

A road safety action plan is the key to reducing the high incidence of accidents. It should be realistic, achievable and cost effective. To be effective, the annual action plan should have measurable objectives and should be in the public domain and given wide publicity. It should be evaluated annually and the results should be disseminated. It should cover all the issues related to highway improvement (identification of black spots and their improvement), vehicle safety (should concentrate on tyres, brakes, lights, reflectors, road safety furniture), education, training and publicity (key measures to improve behaviour and safety awareness of key road users including pedestrians), legislation and enforcement (laws on wearing helmets, seat belts, speed control and drinking and driving) and, emergency services (prompt action in the 'golden hour' can save many lives). Legislation and proper and visible enforcement of traffic laws have resulted in marked reduction in road accident rates worldwide. This has, however, been an area that has been neglected in Uttar Pradesh. Some laws are certainly in place, but enforcement is minimal and road users are rarely brought to task after violating traffic rules. Stricter enforcement and a higher pecuniary penalty regime would send a message to errant road users that deviant behaviour will not be tolerated. Stricter enforcement is likely to change the behaviour of substantial number, if not all, errant road users which may well reduce the accident rates significantly.

8.4 RESOURCES FOR ROAD SAFETY

There is an urgent need to provide sufficient resources to implement the road safety plans. There are several ways in which funding for road safety could be made available. Funds could be raised through the appropriation of a part of road user charges, taxes, insurances fees (insurance companies would be the first beneficiary of reduced road accidents and may contribute to implementing a road safety action plan) and fines (collected by both the Transport and Police Departments). Private sector sponsorship, public-private partnerships and NGOs might also be asked to join in if they are involved in the planning and monitoring process (i.e. IRTE has contributed vehicles to detect violations). In addition, multi-lateral and bi-lateral agencies may also be prepared to assist in this - GRSP has been set up by public and private funding which provides technical and financial resources for implementing road safety actions.

The institutional coordination and institutional capacity building for road safety in Uttar Pradesh, is well documented in the report 'Consultancy Services – Institutional Support and Technical assistance to Road Safety Sector in state of Uttar Pradesh' and the relevant sections are appended to this report. The detailed proposal for 'Institutional coordination and institutional capacity building for road safety in Uttar Pradesh' covering the State Road Safety Council, State Road Safety Board, and similar councils at district and city level are also included in the Annex

9. STATUS OF ROAD SAFETY PLANNING AND ENGINEERING IN UP

9.1 GENERAL

While delivery of road safety related tasks and sub tasks comes under at least six major departments and agencies of the State, the Planning and Engineering tasks with respect to the road sector come exclusively under the remit of PWD. All other service providers in the road sector should follow PWD instructions and it should remain the nodal agency for all road construction related work within the State, as detailed in the UP Road Policy, 1998. The same status should be continued in the currently being revised UP Road Policy, 2007, under IDSP. Significant review and attention to major design, planning and engineering related causes of accidents on roads, as mentioned in section 2, may go a long way in achieving the ultimate goals of road safety.

9.2 MULTIPLE DEPARTMENTS AND INITIATIVES

It would appear to have now become the norm for any project subject to have multiple agencies working on the various tasks, which can have both beneficial and detrimental effects. Even for Road Safety, the State has multiple agencies delivering inputs. These include: PWD; Transport Department; Home Department; Urban Development department; Medical & Public Health Department and, the Education Department. The recently completed study on Multi Agency Road Safety Improvement Study, by SPAN consultants, provides a comprehensive list of tasks and activities with respect to each of the agencies as reproduced in the Table below.

Department	Activities
PWD	Formulation of road network projects, construction, maintenance; physical marking of extent of encroachment of road space (for removal by urban development institutions).
Home(Police)	Enforcement of intra and inter city, inter-district and inter-state traffic on local roads, state and national highways; checking of vehicles and drivers for compliance of MV act and rules; road safety education; rescue, first aid, and transport of accident victims to emergency and trauma care facilities; filing of FIRs, accident investigation and pursuing prosecution in road accident cases.
Transport	Registration of different types of vehicles; licensing of different categories of drivers; collection of road tax, and fee, passenger and goods transport, issuance of permits for special purpose and specific destination commercial vehicles; checking of compliance of Rules and regulations under MV Act and road-worthiness of the vehicles; planning and operation / overseeing of inter-state, intra-state, inter-city, intra-city public / commercial / public-private mix road transport systems; road safety education.
Urban Development (Municipal and urban development institutions)	Prevention and removal of encroachment; planning, construction and maintenance of roads within their areas of jurisdictions; provision and maintenance of parking, pavement and pedestrian space; planning, installation and maintenance of traffic signaling infrastructure and traffic regulation / channelisation signage / marking and their periodic repainting / repair

Department	Activities
Medical & Public Health	Post-accident emergency and trauma care of the accident victims
Education	Providing road safety education to the school children.

Although some tasks are exclusive to a particular agency others, such as: awareness campaigns, road safety information database, safety for vulnerable road users, road traffic safety education and training and, HRD & research for road safety, can overlap and therefore require coordination between the agencies.

9.3 ROLE OF UPPWD – A PERSPECTIVE IN THIS REGARD

The Road Safety Study identifies specific proposals for the building of institutional capacity within PWD for the handling of road safety sub-tasks, as listed below:

- a.) Allotting a main budget head for road safety within the Department and a separate allocation of funds for the execution of road safety projects
- b.) Establishment of a library and information resource centre on road safety
- c.) Establishment and activation of a Road Safety Cell [RSC]

The UPPWD as the basic road service provider can act as the nodal agency for road construction and design related issues. As per the outline structure suggested in Road Safety Study, the PWD Road Safety Cell should work as directed by the State Road Safety Council and Board. A State level effort is therefore immediately required to set up the council and the board, as well as the district and city level organisations. However, there still remains significant work that will continue to be the responsibility of, and can only be implemented by, UPPWD exclusively. This requires that a comprehensive approach be established to avoid any potential overlap with other related agencies.

10. ESTABLISHING UNIT AT THE HEAD QUARTERS

10.1 SOME VIEWS ON STRUCTURE AND RESPONSIBILITY

UPPWD as an organisation handles all road sector works in the State. Many other agencies are also involved in road construction within the State but as given in the road policy 1998, PWD remains the nodal agency and other agencies are required to follow the design and construction criteria set out by UPPWD. Furthermore, UPPWD is the sole agency responsible for the maintenance of the road network in the State. Although there remains doubt as to whether or not this is being followed, and to what extent, UPPWD can act as the nodal road design and construction standards approval organisation for all other agencies. Any road safety elements incorporated by PWD in its own final designs can therefore only enhance accident reduction resulting from bad highway design and road maintenance.

10.2 PROPOSED LOCATION IN THE NEW STRUCTURE

One of the most significant items under the scope of work of IDSP is the PWD organisational structure related “report on implementing progressive PWD restructuring and staffing re alignment, including ongoing internal staff communication on all major aspects”. At present the organisational structure attempts to cover the entire State but this structure is functionally too weak. As has been mentioned in the IDS study, the structure has been altered over time in response to specific functional needs. The changes that have occurred to the PWD organisational structure have largely been both organic and spontaneous, which has consequently lead to lose clarity. The proposed Road Safety Planning and Engineering Unit should be located as shown in Figure 10.1.

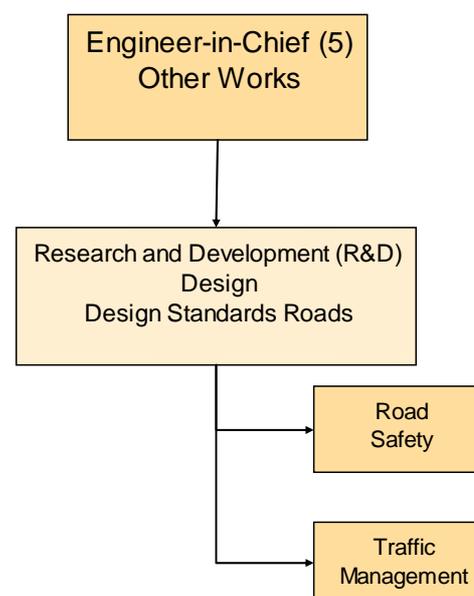


Figure 10-1

10.3 STRENGTH AND STRUCTURE

To bring about a significant, effective and visible improvement in road safety within the State, a functioning Road Safety Planning and Engineering unit (RSPEU) within UPPWD becomes a prerequisite. Similar to that of the State of Kerela, Government has approved the proposal to create a Road Safety wing in PWD in order to bring about effective and visible improvement of road safety as part of the Institutional Strengthening Action Plan (ISAP), as directed under GO (MS) No.77/2004/PWD dated 6-7-2004, as shown in Annexure 3. The GoUP should also consider issuing the same type of directive.

Personnel: The engineers staffing the RSPEU within PWD should comprise a composite team consisting of some senior, middle level and some young engineers. These would be identified on the basis of their aptitude towards this type of assignment, their temperament and willingness to expand their professional knowledge and skills. No fresh recruitment is recommended. The entire staffing of RSPEU staff should come through an exercise of reallocation from within the Department. The entire team will need to be provided training at suitable institutions and in different sub-modules of road safety. Team members should be encouraged to opt for sub-areas of specialisation. The UPPWD should begin by taking the necessary steps to create a position of Executive Engineer (Road Safety) under a Chief Engineer.

10.4 ROLES AND RESPONSIBILITIES

The duties and responsibilities of the Road Safety Planning and Engineering Unit have been categorised under two heads, macro and micro responsibilities.

(a) At Macro Level

- To carry out road safety appraisal of all new road up gradation projects being undertaken by the PWD and all other agencies in the State
- To identify deficiencies of existing roads by undertaking road safety audit, and suggest mitigating measures
- To oversee the execution of work at projects implementing black spot mitigating measures.
- Development of IRC type safety standards for road projects or the adopting of IRC standards for the state of Uttar Pradesh

(b) At Micro Level

- i) To consider and approve/deny approval for 'road cut, for utilities and, to establish safety installations.
- ii) To take immediate action to rectify any damage to the carriageway which may affect road safety, such as, improperly restored road cut for utilities,
- iii) To carryout by specifying a time-limit, the actions required for the eviction of encroachers and removal of materials from the road side.
- iv) To arrange training³ of highway engineers and town planners in road safety, in coordination with the PWD Training Cell.

The PWD Road Safety cell should work in close coordination with the Road Safety cell of the department of Road Safety and Highways under the Ministry of Shipping, Road Transport and Highways, Government of India. This central unit acts as a Nodal Unit in all matters relating to National Road Safety Planning. At the State level, the cell should work in coordination with the State Road Safety Council (the State level policy maker) and the State Road Safety Board (the lead state level implementer).

Other areas in which the Unit at HQ may have full or partial involvement, and/or require close coordination with other departments in order to obtain information etc., may include:

- enabling of appropriate legal, institutional and financial environment for raising road safety standards
- reporting of accidents
- provision of a road safety database
- road and road infrastructure design

³ Training should be made mandatory for all middle level engineers/planners in PWD (and Urban Town Planning/Urban Development Departments) irrespective of whether or not the concerned personnel is engaged in only formulation or execution of road projects.

- ensuring maintenance of roads for safety reasons
- enhancing the safety of vulnerable road users
- emergency medical services for road accidents
- human resources for reforming road safety
- research into road safety.

There will also be the need for other Authorities, such as Home Affairs Department, Transport Department, Urban Development institutions, Medical and Public Health Department, Education Department and the Police Department to also be involved in these issues.

The Schemes that should be administered by the Road Safety Council but which may seek involvement from other departments may include:

- **Publicity Programmes:** Public awareness campaigns via Electronic/Print Media through Directorate of Audio and Visual Publicity (DAVP) viz. Printing of calendar depicting road safety messages, broadcasting of radio 'jingles'. Telecasting/Broadcasting of T.V./Radio spots on Road Safety on National Network of Doordarshan/All India Radio
- Grants in aid of Voluntary Organisations for organising road safety programmes
- **Uttar Pradesh State Roads Accident Relief Service Scheme:** to enable speedy evacuation of road accident victims to nearest medical aid centre and for removal of vehicles involved in accidents on state roads (core network to start with). Shall involve procurement of ambulances and cranes as per the schemes.
- Observing Road safety weeks in coordination with other agencies involved such as PWD, Transport Department and Traffic Police, State Governments Voluntary Organisations, Vehicle Manufacturers, State Road Transport Undertakings etc.

10.5 COORDINATION AND ESTABLISHMENT

The State Road Safety Council should be responsible for all road safety matters within the State, under which there should be the State Road Safety Board. The Road Safety Council at the district and city level, along with the Road Safety Planning and Engineering unit of UPPWD should work under the guidance of the State Road Safety Council.

11. PREREQUISITES TO ESTABLISHMENT OF THE UNIT

It is to be noted that the various tasks listed under other areas of involvement, are actually linked to the efficient functioning of PWD's other wings and operational offices, such as: planning, surveys, data collection and compilation, computerisation, training, research and design. The Road Safety Unit should attempt to instil enthusiasm for its work in other offices in its attempt to implement its road safety objectives. The establishment of a Unit without any support from other wings within PWD will only create more confusion rather than solving the problems.

Along with the establishment of the PWD Road Safety Planning and Engineering Unit, efforts must also be started at the State level for the establishment of the UP State Road Safety Council and UP State Road Safety Boards, under whose guidance the PWD Safety unit will operate.

It is understood that the Chief Engineer, World Bank, PWD, has already requested the State reconstitute the State Road Safety Council⁴. The various guidelines, formats and information necessary for the taking up of road safety related activities is available on the MoRTH website under the road safety heading. The list covers the following heads:

- Rescue of Accident Victims
- Guidelines for National Awards Scheme for Road Safety
- Guidelines for Grant of Financial Assistance for Administering Road Safety Programmes
- Guidelines for Assistance of Ambulances and Cranes
- Guidelines for Setting up a Training Institute
- Guidelines for Grant of Financial Assistance for Administering Refresher Training to HMV Drivers
- List of NGOs sanctioned Grants-in-Aid under Road Safety Programmes
- List of States/NGOs to whom Cranes and Ambulances provided under National Highways Accident Relief Service Scheme
- Road Safety Campaign -Public Service Advertisements

⁴ The initiatives were made based on the recommendations of multi department Road Safety Sector study for UP done under Technical assistance and institutional support. The report has been sent to all concerned departments but a concerted effort to work together is still missing.

12. VIEWS OF THE FOCUS GROUP

The Focus Group, at its meeting on 27th March, 2007, agreed the following:

1. There is gross negligence of all safety aspects in the design and construction of roads. It was therefore felt that the Division that checks the estimates should ensure that there is sufficient provision made for safety both in the design as well as in construction. The current MoRTH road design standards and polices on traffic should be implemented.
2. There was agreement on the location of the proposed Road Safety Unit at Head Quarters with it being placed under the Chief Engineer or Engineer in Chief in charge of planning. However, following discussion with the IDS cell it was proposed to move the unit to that shown in Figure 10.1
3. The Road Safety Unit should be headed by a Superintending Engineer at Head Quarters.
4. There should be an Assistant Engineer in each zone to look after road safety issues.
5. Road Safety could be combined with Traffic Studies and Surveys at Head Quarters.
6. As an alternative, at the zonal level the Superintending Engineer (Quality Management) might also be entrusted with the responsibility for Road Safety. Similarly, at the district level, the Executive Engineer (Quality Management) could also handle Road Safety.

It was the opinion of the Focus Group that Road Safety is too important an issue not to warrant both immediate and concrete action. Pending the final agreement as to the location of the cell, the difficulty faced in establishing a full-fledged Road Safety Unit and, the assignment of the required manpower, it was felt that as a first step in this direction, a post of Executive Engineer (Road Safety) should be created under Chief Engineer HQ. This could later be upgraded to that of Superintending Engineer (Road Safety) at Head Quarters, with the organisation being expanded to the zonal level. A gradual phased approach was considered an acceptable solution.

13. ACTION PLAN

Some specific recommendations of the IDS study and the State Road Safety study should be considered and taken up urgently, as follows:

- The establishment of a State Road Safety Council [SRSC], supported by a State Road Safety Board [SRSB] and possibly District RSC's
- Planning and implementation of a road safety education programme to all categories of road user, highlighting traffic regulations
- The adoption of the Indian Road Congress Design, Construction and Maintenance Codes and Standards for highways
- Comprehensive training of highway engineers

- The allocation of annual budget funds dedicated to road safety measures

The establishment of the unit itself is vital, hence, it is recommended that a Government Order (GO) for the establishment of the Unit be given immediate priority.

The EE's first order of business should be to undertake a review of all new road upgradation projects to identify any aspects of a highway design that may give rise to road safety concerns, and suggest appropriate changes in the design to improve safety. In this task, the Engineer may seek guidance from the attached Checklist from the UK Highway Authorities Design Manual for Bridges and Roads and, the following publications:

1. MORTH : Manual for Safety in Road Design
2. Definition of Road Safety Policy and Development of Action Plans, Report of Study for Ministry of Road Transport and Highways and National Highway Authority of India, Span Consultants, New Delhi, 2003.
3. IRC : SP : 44-1996 Highway Safety Code
4. IRC : Technical Papers - International Seminar on 'Highway Safety Management & Devices', New Delhi, 6-7 November, 1998
5. IRC : Preliminary Publication – International Seminar on Road Safety, Seminar, Std. 17-18, 1986
6. IRC : SP : 27 – 1984 Report Containing Recommendations of IRC Regional Workshops on Highway Safety.
7. IRC : SP : 31 – 1988 New Traffic Signs (under revision)
8. IRC : SP : 32 – 1988 Road Safety for Children (under revision)
9. IRC : 35 – 1997 Code of Practice for Road Markings (with Points) (First Revision)
10. IRC : 39 – 1986 Standards for Road – Rail Level Crossings (First Revision)
11. IRC : 65 – 1976 Recommended Practice for Traffic Rotaries.
12. IRC : 67 – 2001 Code of Practice for Road Signs (First Revision)
13. IRC : 79 – 1981 Recommended Practice for Delineators
14. IRC : 80 – 1981 Type Designs for Pick-up Bus Stops on Rural (i.e., Non-Urban) Highways
15. IRC : 92 – 1985 Guidelines for the Design of Interchanges in Urban Areas
16. IRC : 93 – 1985 Guidelines on Design and Installation of Road Traffic Signals
17. IRC : 103 – 1988 Guidelines for Pedestrian Facilities

If so desired by PWD, and once the position of Executive Engineer (Road Safety) has been assigned, the TA Consultants would be willing to procure and supply the above-mentioned documents, at cost.

Another important document which the Executive Engineer should study, and be thoroughly familiar with, is the “Report of the Committee on Road Safety and Traffic Management”, February, 2007 [S.Sundar], as this will be the basis for the future ‘drive’ from both National and State level, as it relates to road safety. The report is available on the internet at, road_safety_sundar_report9117457104.pdf.

In addition, the Executive Engineer should also be sent for immediate training in road safety at courses offered by NITHE and Staff College of the Institution of Engineers, Hyderabad.

Once the Unit is established the post of Executive Engineer (Road Safety) at Head Quarters should be upgraded to Superintending Engineer (Road Safety) with the staff in the zones being appointed after this.

ACTIVITY	MONTH					
	1	2	3	4	5	6
Establish SRSC and SRCB followed by District RSC's						
Develop & Plan road safety education programme						
Implement road safety education programme						
Adopt and implement use of IRC design, construct & maintenance codes & standards						
Commence procedures to provide dedicated budget allocation for safety						
Create Unit at HQ						
Create Positions EE & AE & recruit						
Identify & implement training of Units officers						
Review all upgradation projects & others as applicable						
Develop implementation plan for IRC standards						
Develop zonal implementation plans for safety units						
Select and appoint zonal engineers safety						
Arrange training for zonal engineers						

14. PRESENTATION TO PROJECT STEERING COMMITTEE

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ



Both the UP Government & the World Bank have endorsed the IDSP recommendations for the establishment of a dedicated Road Safety Planning & Engineering Unit within PWD

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

PWD FOCUS GROUP - J	
Sri Ram Avtar	Chief Engineer [NH], IDS & Computerisation
Sri Umesh Chandra Agarwal	Maha Prabandhak, UPSBC
Sri Gauri Shanker Thakur	EE MD-1 Lucknow
Sri Martand Kumar Singh	EE Barabanki
Sri Parvez Ahmad Khan	Ty DCU [NH] Lucknow
Sri Anil Khare	Maintenance Division-III Lucknow
Sri Sandeep Saxena	AE, IDS Cell
Sri Anay Kunar Srivastava	AE, IDS Cell
LEA International Ltd & LEA Associates South Asia	
Mr Anand Prakash	Deputy Team Leader

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

There is, however, no single “Blueprint” that can be used for road safety, but the WHO has suggested key areas of intervention, namely;

- Setting & enforcing speed limits ☞ **Police /Safety Council**
- Designing roads according to their function ☞ **PWD/Police/Safety Council**
- Stationary enforcement eg., speed cameras ☞ **Police/Safety Council**
- Traffic calming measures ☞ **Safety Council/Police/PWD**
- Education & public information ☞ **Safety Council**

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

- In India, the number of road deaths per year/10,000 vehicles is some 10 to 15 times greater than that of more developed countries.
- In UP in 2004, studies have indicated that there were some 18,000 reported road accidents which resulted in some 9,500 fatalities and 12,500 injuries, the net economic loss from which has been further estimated at Rs 90 Crore
- One of the objectives of the IDS plan is “... *sustainable GoUP road safety and engineering capability.*” Given that there was no road safety monitoring, it was therefore recommended that Road Safety Cells be created both at the State & District levels.
- As a part of the GoUP endorsed recommendations of the IDS study, **the first action milestone** is ***the establishment of a dedicated PWD Road Safety Planning & Engineering Unit at Head Quarters***
- Other important action milestones include, amongst other things;
 - A multi agency Road Safety Improvement Study to identify institutional coordination & capacity building within the State
 - Implementation of MoRTH road design standards and policy on road user safety
 - Establish road safety monitoring roles

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

Reforms & Recommendations of Studies

Improvements to be made in;

1. Laws, rules and regulations governing road use
- 2. Highway design**
- 3. Road maintenance**
4. Vehicle maintenance
5. Driver licensing, education and training
6. Enforcement of laws and regulations
7. Post accident emergency services

Conclusions of IDS [2001];

1. No monitoring of safety related aspects on the network
2. Incorporation of safety measures limited to road/rail crossing improvements
3. No standardisation or compulsory procedures in place for feedback on accidents from the police, road transport organisations, hospitals etc.
4. Accident 'black spots' are identified/monitored to some degree
5. Road furniture was either insufficient or sub standard
6. 'Ownership' of roads remains unclear resulting in a lack of responsibility for maintenance and user safety

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

Establishing a Unit at Head Quarters

• Responsibility

Whilst many agencies are involved in road construction, PWD is the given nodal agency for such and, is the sole agency responsible for the maintenance of the network. PWD could therefore act as nodal agency for design & construction incorporating road safety measures

• Location under the new Structure

Under the Engineer in Chief [Other Works], as a functional head with traffic management , or, as a separate department of the functional head of R&D, Design & Design Standards

• Staffing

Staff should comprise a composite team of some senior, middle and junior engineers identified and selected from officers within PWD who show an aptitude towards the assignment and a willingness to expand their knowledge

• Roles & Responsibilities

Carry out safety appraisal of all new upgradation projects and identify safety deficiencies of existing roads

Oversee implementation of mitigation measures at accident 'black spots'

Review existing and develop IRC type safety standards for road projects, or, adopt IRC standards

Review approvals for utility installations and safety measures to be applied

Review encroachments and establish time table for removal on the grounds of safety

Arrange training for zonal road safety unit highway engineers as well as town planners in association with PWD training cell

• Coordination & Establishment

The State Road Safety Council should be responsible for all road safety matters. The Unit should work under the guidance of the Safety Council

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

Recommendations of IDS study & State Road Safety study

- The [re]-establishment of the State Road Safety Council supported by a State Road Safety Board and, possibly, District Road safety Councils
- The planning and implementation of a road safety education programme
- The adoption of IRC Design, Construction & Maintenance standards for highways
- The provision of a comprehensive training programme on for highway engineers
- The inclusion of an annual budget allocation for road safety improvement measures

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

Implementation Action Plan

- Create the Road Safety & Planning Unit at Head Quarters
- Create position of Executive Engineer [Road Safety] under the Engineer in Chief [Other Works]
- Create positions for two/three Assistant Engineers under the Executive Engineer [Road Safety]
- Identify training for the EE and AE's in road safety at NITHE & Staff College of the Institute of Engineers, Hyderabad
- The Unit to review all upgradation project design in respect of improved road safety
- The Unit to develop implementation plan for adoption of IRC standards for design, construction & maintenance
- The Unit to develop implementation plan for expansion of unit to the zonal level wherein HQ become the managers and the zonal units the implementers of safety
- Appoint Engineers for road safety in each of the zones
- Arrange training for the zonal Engineers, road safety

REPORT N° 12 – Establishing a dedicated PWD Road Safety Planning & Engineering Unit at HQ

Action Plan Implementation Time Table

ACTIVITY	MONTH					
	1	2	3	4	5	6
Establish SRSC and SRCB followed by District RSC's						
Develop & Plan road safety education programme						
Implement road safety education programme						
Adopt and implement use of IRC design, construct & maintenance codes & standards						
Commence procedures to provide dedicated budget allocation for safety						
Create Unit at HQ						
Create Positions EE & AE & recruit						
Identify & implement training of Units officers						
Review all upgradation projects & others as applicable						
Develop implementation plan for IRC standards						
Develop zonal implementation plans for safety units						
Select and appoint zonal engineers safety						
Arrange training for zonal engineers						

Annexure-1 : Uttar Pradesh Road Safety Study

**Annexure-1-1 : Proposals for Institutional Coordination
and Institutional Capacity Building for
Road Safety in Uttar Pradesh**

ANNEXURE 1: UTTAR PRADESH ROAD SAFETY STUDY

EXECUTIVE SUMMARY

Background

1. This project is part of the World Bank assisted U. P. State Roads Project. The full title of the project is "Consultancy Services for Institutional Support and Technical Assistance to the Road Safety Sector in the State of Uttar Pradesh". The title is often abbreviated to the "U.P. Road Safety Study". Work commenced on April 11th, 2005.
2. In 2004, 17,879 accidents were reported which resulted in 9,463 people being killed and 12,546 people being injured. It has been estimated that the economic loss from road accidents in 2004 was nearly Rs 9,000 millions.
3. U.P. Road Safety Policy: The Draft U.P. Road Safety Policy was developed from the Draft National Road Safety Policy and was presented to the first Stakeholders' Workshop on July 24th 2005. The Workshop was attended by over 170 people. There were no direct comments on the policy statements themselves, but many views on what should be done to improve road safety in the state were put forward. The draft policy was amended. The State Road Safety Council approved the draft policy at its meeting on September 20th, 2005; the first meeting of the SRSC for eight years.
4. The U.P. Policy addresses the same issues as the Draft National Road Safety.

Policy

- Raising Awareness about Road Safety Issues.
- Providing enabling legal, institutional and financial environment for road safety.
- Road safety information database
- Safer road infrastructure
- Safer vehicles
- Safer drivers
- Safety for vulnerable road users
- Road traffic safety education and training
- Traffic enforcement
- Emergency medical services for road accidents
- HRD and research for road safety

Framework for Road Safety

5. The Framework for Road Safety was considered under the three headings Institutional and Organisational, Legal and Financial.

Institutional and Organisational

6. The following six departments! agencies were identified as having a significant role in the delivery of road safety :
- Public Works Department
 - Home Department (Police)
 - Transport Department
 - Urban Development Department
 - Medical and Public Health Department

Education Department

The road safety related sub-tasks! activities handled by the above are set out below.:

Department	Activities
PWD	Formulation of road network projects, construction, maintenance; physical marking of extent of encroachment of road space (for removal by urban development institutions).
Home(Police)	Enforcement of intra-dty, inter-city, inter-district and inter-state traffic on local roads, state and national highways; checking safety education; rescue, first aid, and transport of accident of vehicles and drivers for compliance of MV act and rules; road victims to emergency and trauma care facilities; filing of FIRs, accident investigation and pursuing prosecution in road accident cases.
Transport	Registration of different types of vehicles; licensing of different categories of drivers; collection of road tax, and fee, passenger and goods transport, issuance of permits for pedal purpose and specific destination commercial vehicles; checking of compliance of Rules and regulations under MV Act and road- worthiness of the vehicles; planning and operation / overseeing of inter-state, intra-state, inter-dty, intra-city public / commercial / public-private mix road transport systems; road safety education.
Urban Development (Municipal and urban development institutions)	Prevention and removal of encroachment; planning, construction and maintenance of roads within their areas of jurisdictions; provision and maintenance of parking, pavement and pedestrian space; planning, installation and maintenance of traffic signaling infrastructure and traffic regulation / channelisation signage / marking and their periodic repainting repair!

Department	Activities
Medical and Public Health	Post-accident emergency and trauma care of the accident victims
Education	Providing road safety education to the school children.

7. On the basis of in-depth analyses of each department a matrix of their strengths and weaknesses was compiled. From the analysis of the organizational charts and the manner of delivery of road safety sub-tasks by different Departments in Uttar Pradesh touching their strengths and weaknesses, the following major conclusions emerge:

- The country might have emerged as a very buoyant economy in the globalized world. However, culturally its population has not brought about attitudinal and behavioural changes required for synchronization and compatible with high speed driving as yet.
- Structural changes incorporating the emergent and newer road safety tasks that should have come about in all the Departments connected with various aspects of road safety are not on the mind sets of the policy planners of these Departments. Visualization of a future perspective/scenario of say twenty/thirty years from now is just not there. Road safety at the moment is more of a loosely handled activity perceived differently by different players. Consequently, it is no surprise to find contradictions in the goals and objectives set and being pursued by different players. There is also no good fit between the goals set and the instrumentalities being used to achieve them.
- Road safety is not accorded the priority that it urgently needs. In fact, it is still perceived to be a task needed to be undertaken only in the urban areas of the state: Traffic Police even do not have the mandate to enforce traffic in the rural areas. While some of the road safety tasks are left unattended, certain others are being carried out unsatisfactorily.
- The distribution of road safety tasks among different players is illogical, highly fragmented and thoroughly uncoordinated. Those connected with the physical part do not necessarily build roads and traffic signaling infrastructure some thing that is exactly needed to meet the road safety requirements. There is also a conflict of turf control between the Transport and the Police Departments handling similar tasks. All the Departments / agencies jointly responsible for road safety tasks work in their separate, watertight domains and do not maintain effective coordination with each other to achieve the common goal.
- Among many small and big players engaged in the task of road construction, amazingly enough road safety is not built in to the very process of project formulation and appraisal. This is true as much in the case of the main institution of the PWD as about minor players such as the Municipal Corporations, Rural Engineering Service and the Mandi Parishad. The latter generally do not always bother about road maintenance.
- The distinctiveness of the task of traffic regulation and enforcement planning has been recognized very hazily. The Home (Police) Department is yet to establish a separate Traffic Police Cadre and has not provided adequate number of traffic personnel,

equipment, and funds commensurate with the task. Its facilitation suffers due to subordination of the traffic personnel to the Civil Police looking after the tasks of maintenance of law and order. Starved of functionaries, funds and facilitation, the Traffic Directorate does not find itself in a position to prepare specific traffic action plans for specific areas: these are left to the competence and imagination of the local level Traffic /Civil Police officers. An environment in which efficiency does not always get rewarded also hampers the quality and efficiency of traffic enforcement.

- The main concern of the Transport Department is generation of revenue, and not necessarily providing efficient transport facilities to the public. It is very lax in issuing licenses for different categories of drivers. Compliance checking that does not punish driving incompetence, rashness, irresponsibility and total unconcern about road safety further compounds this leniency.
- Urban bodies such as the Municipal Corporations emerge as the greatest culprits. Instead of solving road safety problems, they seem to be adding volumes to them by their inaction in preventing appropriation of road space, encroachment of open spaces, footpaths and other spaces, not planning parking, not preventing high FSI buildings in the already choked central business district areas and not relocating specialized markets to other areas and merrily building traffic signaling infrastructure as they see it, not relating it with the requirements of traffic load, mix, destination and certainly not maintaining them satisfactorily.
- Post-accident critical care of the accident victims is highly inadequate from the time the accident takes place to the point the victim gets in the specialized medical facility. In fact, the operationalisation of the critical care facilities, in particular through the teaching hospitals, is so made as to make it only a loosely arranged institutional care.
- Road safety education is being handled as a very generalized, and sporadic task by two Departments, Traffic Police and Transport, that have a negative image. Road safety education by them lacks credibility, continuity, and specificity. The funds allocated to the three Departments - Education, Transport and Traffic Police - are a drop in the ocean. They are not specific target group-oriented and extension strategies being used are inappropriate.
- The public is not very much involved in the road safety tasks.

Proposed Improvements

8. The State Road Safety Council (SRSC) should be reconstituted with the Chief Minister as chairman, as is the case in Tamil Nadu. It is only in this way that the required co-ordination between departments can be achieved. It is also the only way that the paradigm shift in road safety that is very urgent can be achieved (Annexure-1.1).
9. The SRSC should be supported by a State Road Safety Board (SRSB). The composition of the SRSB would be Executive director, Road Safety Audit specialist, Traffic Policing specialist, Accident data recording and analysis systems specialist, Traffic Engineering specialist and an Education and training specialist.

10. District Road Safety Councils should be constituted. They would be chaired by the District Magistrates! Divisional Commissioners.
11. Proposals for improving PWD include:
 - Establishing a Road Safety Cell
 - Training of Highway Engineers
 - Adopting current IRC Standards for road design, construction and maintenance
 - and for improving the Transport Department include :
 - Increasing the resource allocation to the RTOs to have more reliable testing of drivers and vehicles
 - Amending UP. Motor Vehicle Rules
 - Acquiring a positive image
 - and for improving the Home(Police) Department
 - Establish a Traffic Police Cadre and increase the number of traffic police in the state.
 - Build the capacity of the Traffic Directorate
 - Provide the Traffic Police with more equipment eg alcohol breath testers, speed guns,
 - Developing traffic management skills.
 - Acquiring a positive image
 - and for improving Urban Development Urban Municipalities include:
 - Encouraging resident welfare associations to approach the courts and the Divisional Commissioners to discipline the erring officials of urban bodies.
 - Encouraging NGOs to come forward and undertake road safety task .and for improving Medical and Public Health include:

Establishing emergency accident relief centres at intervals of 50 km on National and State Highways.

Establishing higher level trauma centres and for improving the Education Department include:

- Establishing and activating a liaison mechanism for curriculum development and constant refinement, training of teachers in road safety.
- Periodic screening of audio-visual material at all educational facilities

Legal Matters

12. A comprehensive review was undertaken of legislation that impacts on Road safety was undertaken - Constitutional Issues, Motor Vehicle act, Central Motor Vehicle Rules, State Motor Vehicle rules.
13. The changes recommended to the U.P. Motor Vehicle Rules include :
 - Helmets to be worn by all pillion passengers
 - A special provision of law should be included to ensure the safety of children.
 - Current IRC Standards should be used throughout the state.
 - Speed limits by type of road should be introduced.
 - A duty of care should be placed on drivers while crossing a railway crossing
 - A speed limit of 20 km/h should be imposed on tractors.

In addition the wearing of seat belts by drivers and front seat passengers should be enforced.

Financial

14. Regarding the present financial provisions it may be pointed out that the State Budget does not mention any specific and earmarked allocation of funds for road safety measures either as a major head sub-head or minor head. It appears that the non-recognition of 'Road safety Measures' as a distinct functional category of infra structural activity is responsible for the absence of any clear cut allocation in the budget of the State Government. It has been observed that GoUP has made a very small budgetary provision for financing road safety measures for the Department of Transport.
15. The table below gives details of the State Road Fund.

Details of State Road Fund

Sl. No.	Financial year	Available amount from Sales Tax (Rs. crore)			Amount given to State Road Fund (Rs. crore)			Budgetary Provision (Rs . crore)
		Petrol	Diesel	Total	Petrol	Diesel	Total	
1.	2001-02	400	1200	1600	120	240	360	221
2.	2002-03	452	1357	1809	136	271	407	230
3.	2003-04	497	1491	1988	149	298	447	300
4.	2004-05	-	-	-	-	-	-	480
5.	2005-06	-	-	-	-	-	-	300

Source: PWO. Government of Uttar Pradesh

The provision of Road safety Measures under World Bank Loans is shown in the table below:

Sl. No.	Component	Indicative costs (US \$ million)	Percentage of Total	Bank Financing (US \$ million)	Percentage of Bank Financing
1.	Civil works & consultancy for upgrading of about 1000 km of state roads, as well as social & environmental safeguard management	355.94	57.9	282.49	57.96
2.	Civil works & consultancy for rehabilitation of about 2500 km of state roads	227.40	37.0	181.91	37.3
3.	Provision of technical assistance, consultant services & logistical support in relation to Institutional Development Strategy, plus pre-investment studies to be determined.	13.47	2.2	9.49	1.9
4.	Road safety & traffic operations, civil works	13.16	2.1	9.23	1.9

Resource Mobilisation : Potential and Future Perspective

16. The recovery of Penalty by Traffic Department in U.P. is below:

Year	Amount (Rs. Lakh)
2000-01	243.85
2001-02	209.70
2002-03	308.77
2003-04	377.62
2004-05	406.68
2010-11	654.83
2020-21	1148.41

Source: Directorate of Traffic, Government of Uttar Pradesh.

And collection of penalties on vehicles is below:

Year	No. of chalans	No. of settled disputes by courts	Penalty recovered by courts (Rs. lakh)	No. of disputes settled by department	Recovery of penalty (Rs lakh)
2000-01	131051	23352	146.08	71492	2754.22
2001-02	133751	20968	145.69	69769	2351.65
2002-03	143234	23283	148.68	74934	2075.98
2003-04	159149	38596	163.12	88940	2638.77
2004-05	1336812	23018	133.68	75926	3209.40
(Dec, 2004)					

Source Directorate of Transport. Government of Uttar Pradesh.

The revenue collected by Transport Department in U.P. is below:

Potential sources of Additional Revenue are given below:

<u>Additional Sources</u>	<u>Role</u>	<u>Observations</u>
Additional Tax on Fuels Petrol & Diesel (ind.	User charges	This bears a strong correlation with road use, high revenue generation, a tax base that grows with

State Road Safety Fund

17. It is recommended that a State Road Safety Fund should be established along the lines of the Tamil Nadu Road Safety Fund. It should be funded from the receipts from spot fines and compounding fees. The main heads of expenditure under the State Road safety Fund would include :

- Survey, installation and maintenance of road traffic signaling

18. The projected expenditures above are based on the presumption that GoUP would boldly embark upon the task of creating Road Safety fund and also,. Road marking, installation of traffic sign, cats--eye reflectors etc.

- Purchase of barricades, cones and other traffic equipments.
- Establishment of traffic education parks.
- Preparing literature, education materials and communication package.
- Maintenance of ambulance and patrol vehicles
- Meeting out emergency expenses at Trauma centres and their maintenance.
- Creating database related to traffic statistics and its analysis.

- Organizing educational programmes for disseminating information related to traffic rules and regulations.
- Advertising and disseminating information pertaining to traffic rules and road safety. Organizing road safety week and seminars, workshops, training etc. on road safety measures.
- Purchase of equipments of electronic monitoring of traffic and detection of offenders. Engineering measures to improve road geometries and inter-section to reduce accidents.
- Improvement of lighting of road junctions.
- Secretarial and other infrastructural services etc.

Accident data Collection and Analysis

19. The primary source for road traffic accident data are the police department. Other sources are insurance company records, hospital records, tow vehicle operators and special research studies. The table below shows the road accidents reported in U.P. over recent years.
20. Police at the accident site are faced with these immediate tasks
 - To control the mob which has gathered;
 - To clear the traffic on the roads;
 - To dispose the vehicle and the victim in case of serious and fatal accidents In addition to collecting details of the accident.
 - To control the mob which has gathered
21. The accident details are recorded on a First Information Report. The Traffic Directorate have issued a checklist to be used when reporting accidents.
22. Police at the accident site are faced with these immediate tasks
23. However, even after this initiative, the quality of details is not encouraging.
24. Improving detail is best obtained by the police completing a form such as the India Road Accident Report Form. Our first task was to develop a Hindi version of the form, in fact a bi-lingual version Hindi and English. Training in the filling up this form was given to police from various districts.
25. In order to make the best use of the accident data collected computerization is required. This can take a number of forms - in-house developed systems, spreadsheets and commercial packages such as MAAP in use in Karnataka or IBS in use in Kerala.

26. At this stage the most important task for the Police is to record accidents on . India Road Accident Report Form. Accidents in U.P., except with the exception of those involving fatalities are grossly under-reporting.
27. Black spots Accident Prone Areas
28. The level of detail currently reported in the accident records whilst sufficient to L - identify locations is not sufficient to warrant in-depth analyses as a means of determining the possible solutions
29. However having identified accident prone areas such areas should be prioritized for implementing standard traffic engineering measures such as traffic signs, road markings, channelisation and clear indication of who has the right of way at junctions. All of which features are absent on most roads through out U.P.
30. The approach to the Road Safety Reviews was to follow the following basic steps:
 - Keep the motorized vehicle in the traffic lane.
 - Separate the road users on the basis of speed.
 - Warn the road users with signs and road markings.

Provide a forgiving roadside to errant vehicles.

The most common actions were Treatment at intersections, line marking, guide posts, RRPM's, warning signs, trees within the clear zone (formation width of road), narrow culverts (parapets within the clear zone and/or formation width of road).and narrow bridges.

31. Many of the safety items identified by the Road Safety Reviews of Major maintenance Projects are common to all projects. They are generic in nature and have common solutions that rely on consistent application of standard treatments
32. The most common issues involve improvement of delineation at bridges, culverts and curves including the widening of culverts. Narrow or single lane bridges are major potential concerns that can only be successfully addressed by provision of wider bridges.
33. Listed below is a range of topics that have not been dealt with specifically on each project, instead they are noted as general items.
 - In towns and villages (built-up areas) along the road, water-ponding observed on shoulders due to bad drainage. Thus, pedestrians and slow vehicles are forced to use the main carriageway (traffic lane) and at the same time parking of vehicles on the carriageway.
 - Provide edge line throughout the project road.
 - Hoardings along the road that over span or impinge on the shoulder or traffic lane should immediately be removed. Also, hoardings, which attract the vision of the drivers and are within the clear zone should be relocated.

- In towns/cities on the highway, 1.5 m strip beyond the bituminous carriageway should be clear and free of obstacles/objects. Parking of vehicles on the carriageway should be restricted.
 - At present, there are many locations where the end (batter) slope of earth fill in formation is very steep (ranging from 1:1 to 2:1). Flatter slope (preferably 4:1) or flatter should be provided where formation is in fill.
 - Replace missing warning signs at intersections (T-intersections, Y-intersections and cross intersections). Also, provide road markings on the intersections (refer IRC-35: 1997).
 - For villages along the highway, provide edge line through out the village along with Gateway treatment to the village. Safety cones along the centerline through out the village may be used as traffic management measures.
 - Hoardings on shoulders of road should be removed and relocated preferably outside the clear zone.
 - Construction material like bricks, concrete pipes, sand etc. stacked close to carriageway edge should not be allowed and preferably should be only outside the clear zone.
 - It is suggested that because of the significant mix of slow and fast road users, every opportunity to provide greater lateral separation be taken by providing asphalt on the hard shoulders and beyond, if possible.
 - Structures / isolated buildings should not be allowed within formation width of the road.
 - For road sections on high fill (bridges / culverts approaches etc.) where steep end slopes of fill exists, provide edge lines, guard fence and/ or guide posts.
34. Whilst the detailed cost of treatments is outside the scope of this project the notes below provide a relative comparison of order of cost of treatments.

Narrow (those with parapets or less than 7.0m between kerbs), culverts and bridges can be made safer by improvements to delineation - edge lines, raised reflective pavement markers, bridge width markers and narrow bridge warning signs. This work is likely to be the lower cost. However when width is restricted to single lane useage there is no better solution (or costly) than widening to provide for two normal lanes plus cle

35. The Road Safety Action Plan includes the recommendations discussed above.

Road Safety Action Plan

The main actions include:

- Re-invigorate the State Road Safety Council (SRSC) and Establish the State Road Safety Board (SRSB).

- Improve Co-ordination between the Institutions involved in Road Safety and build Institutional Capacity
- Establish Arrangements for Funding Improvements in Road Safety
- Increase the Resources to the police to Enhance their Enforcement Efforts
- Increase the Resources Available to the Regional Transport Offices for Testing Vehicles
- All highway design maintenance and construction to be based on current Indian Roads Congress (IRC) Standards.
- Develop a State-wide Policy for Setting Speed limits
- Develop a Programme for Implementing Traffic Signs and Road Pavement Markings on State Roads.

Annexure 1-1: Proposals for Institutional Coordination and Institutional Capacity Building for Road Safety in Uttar Pradesh

These are divided in to two segments. Whereas one set deals with the overall mechanisms of the task of institutional coordination, the other one focuses on institutional capacity-building in the existing Departments that are responsible for different road safety sub-tasks, The two sets of proposals are presented separately.

1.0 PROPOSED MECHANISM FOR INSTITUTIONAL COORDINATION

1.1 NATURE OF RECOMMENDED INSTITUTIONS

The institutional coordination framework for road safety at the state level should consist of the counterparts of the lynch pin organisations of National Road Safety Council (NRSC) and National Road Safety Board (NRSB) named as the State Road Safety Council (SRSC) and State Road Safety Board (SRSB). The first of these institutions, the SRSC, is visualised as a lead policy laying and advisory body whereas the second, the SRSB, is envisaged as its executive arm.

Existing SRSC in Uttar Pradesh

The GOUP has constituted a Staff Road Safety Council under Section 215(2) of the Motor Vehicle Act 1988 and 1995 [GO No. 61GI / 30-3-94-124M /95 dated 28 January 1995] to take measures to prevent road accidents, to help victims of the accidents to get assistance from different sources and to make recommendations to the government on issues pertaining to road safety. The SRSC is headed by Minister of Transport is its Vice-Chairman and the Principal Secretary. Principal Secretaries of Departments of Home, Medical and Public Health, and Urban Development, Secretaries of Departments of Basic Education, Secondary Education, Housing and Urban Planning, DGP, MD (UPSRTC), DGMPH, representatives of IMA, Insurance Companies, Transport Operators, NGOs, and enlightened citizens are its members. However, the SRSC has been dormant. It met on 20th September 2005 after eight long years,

Rational for recasting the existing SRSC

The SRSC needs to be recasted due to following reasons:

- Road Safety touches jurisdictional boundaries of many Departments/agencies and requires larger doses of resources'
- A paradigm shift on road safety requires higher level of political support.
- All lynch pin coordination mechanisms are headed by the chief political executives of the local area.
- The National Road Safety Policy recommended that the Chief Minister be the Chairman of the SRSC.
- The SRSC is headed by the CM in Tamil Nadu since 2000.

a. Composition of the Recasted SRSC

The SRSC is recommended to be a statutory autonomous apex body. The Chief Minister would head it and his Minister for Transport would serve it as its Vice-Chairman. The Principal Secretary, Transport Department would be its Member-Secretary.

Principal Secretaries of the Departments of Home, PWD, Medical and Public Health, Urban Development, Education, and their Heads of Departments (namely, Transport Commissioner, IGP (Traffic Directorate), Engineer -in-Chief of the PWD, DG of Medical and Public Health Services, Director, Basic Education, Municipal Commissioners of KAVAL towns, three road safety experts and a representative each from transporters, automobile association, reputed NGOs, educational institutions and enlightened citizens (to be nominated by the Transport Department) shall be its core Members.

The Chairman shall have the discretion of inviting such officials/professionals whose presence he feels would contribute significantly to the better realization of the objective of achieving road safety in the state.

b. Functions of the SRSC

The SRSC would have the following functions:

- To act as the main think tank of the state government on all matters relating to road safety
- To formulate policies, set goals, and objectives and indicate strategies and actions on road safety to be implemented in the state
- To approve Action Plans relating to road safety
- To allocate resources for the formulation, execution. evaluation and monitoring of the road safety programmes in the state
- To provide definitive inter-Departmental/agency coordination in respect of road safety.
- To forge close collaboration with the NRSC and road safety coordination mechanisms in other states of the Indian Union in regard to road safety measures
- To monitor effective implementation of all measures suggested and to take corrective measures if any of the concerned Departments is found wanting in executing decided steps
- To perform other such incidental functions as the state government may entrust to it from time to time.

c. Periodicity of meetings of the SRSC

Generally, the SRSC would meet twice a year. However, it can meet more than twice if the situation so requires.

d. The State Road Safety Board (SRSB)

The SRSB would be the executive arm of the SRSC. It would be located in the Transport Department. Compositionally, it is visualized as a mechanism that possesses the expertise to itself operationalize the decisions of the SRSC and, in a working partnership with the various institutional players active in various aspects of road safety sector, help, guide, and oversee the implementation of specific action plans.

e. Functions of the SRSB

The SRSB shall have the following functions:

- To execute all the decisions of the SRSC
- To organize agenda, convene and facilitate the conduct of the meetings of the SRSC
- To formulate road safety action plans for the state, city and local levels conforming to state road safety policies
- To set technical standards, regulations and guidelines of road safety measures and allocate targets to be achieved
- To operate the state road safety fund and to allocate resources/ funds to different agencies/Departments for the execution of specific road safety action plans
- To monitor and review the implementation of the road safety action plans including post accident medical care and rehabilitation of trauma victims and initiate corrective measures.
- To identify areas of research on different aspects of road safety, to appraise research proposals from carefully selected and competent research institutions/researchers and to allocate resources for their prosecution and to ensure the utilization of their findings in recalibrating road safety plans
- To select professionally competent organization for preparing specific road safety modules on different aspects of road safety and addressed to specific target groups and to appraise their content; to allocate resources to different agencies to carry out these educational campaigns
- To select competent NGOs to undertake specific road safety tasks and to allocate them resources to carry out the farmed out assignments
- To develop road safety training modules for different road safety tasks for different categories of officials and staff working at the state and city levels
- To evaluate and report effectiveness of road safety action plans and to submit proposals for newer initiatives on road safety to the SRSC
- To undertake any other road safety related responsibility on the directions of the SRSC.

f. Composition of the State Road Safety Board (SRSB)

The composition of the SRSB would be as under:

- Executive Director
- Road safety audit specialist (RSAS)
- Traffic policing specialist (TPS)
- Accident data recording and analysis systems specialist (ADRASS),
- Traffic engineering specialist (TES)
- Education and training specialist (ETS)

g. Qualification and experience

The ED shall be a very experienced professional known for his competence in the area of road safety and dynamism and preferably some one who has previous experience of similar nature. The five specialists should not only possess applicable technical qualifications but, more importantly, should necessarily possess sufficient years of technical experience of a similar nature in their sub-areas of specialization. This should also be reflected in the quality and efficiency of the projects previously handled by them.

h. Institutional incubation in the interim period

Given the infancy of the sub-discipline of road safety in India, and the nature and type of specialization that is specified for the five specialists of the SRSB here, it is quite possible that such high level of experienced professionals are not readily available for all the outlined sub-areas in the country. In such a situation, as an interim arrangement, the state should consider the possibility of hiring, at least for positions of some of the recommended specialists, from other Indian states escort consultants for a period of two to three years. The number of consultants should not exceed two and these should be such that possess genuine, not pseudo, expertise and must have the ability to quickly facilitate the Uttar Pradesh officers to acquire the needed skills and run the show on their own steam.

i. Secretariat of the SRSB

This would consist of a Chief Administrative Officer, Finance and Accounts Officer, five Programme Officers (one each attached to the five specialists), four Office Assistants, and compact number of ministerial support staff. The five Programme Officers must possess PG qualifications in their sub-areas of specialization and under the guidance of the five specialists they are expected to acquire the necessary experience and expertise during their association with the SRSB. It is visualized that they would inherit the mantles of their specialist colleagues eventually.

The functions of each of the office bearers of the SRSB are detailed hereunder:

(i) Executive Director

The ED, SRSB would be responsible for operationalizing and implementing all the decisions taken by the SRSC. He would also be coordinating the formulation, operationalization and execution of all specific road safety action plans by the specialists of the SRSB with the help and cooperation of different Departments/agencies handling different road safety sub-tasks in the state.

(ii) Road safety audit specialist (RSAS)

Functions

- To help identify and select agencies that can carry out competent and unbiased road safety audit of national, state highways and major district roads in a phased manner and to recommend the specific mitigating measures for each single road safety audit.
- To oversee the technical appropriateness of the exercise of road safety audit of national, state highways and major district roads by the farmed/contracted agencies.
- To liaise with the concerned road maintenance Department/ agencies to prepare action plans and implement the mitigating recommendations made in the specific road safety audit reports and in case these are not implemented to review their non-acceptance by the concerned agencies.
- To monitor the implementation of the recommended mitigating measures and to ensure their compliance if monitoring indicates any deviations from the set of steps recommended in road safety audit report.
- To help organize road safety audit training to the Engineering officials of all the Departments/agencies engaged in the formulation, planning, construction and maintenance of roads in the state and to act as source of advanced/newer information for them on road safety audit.
- To help develop the Uttar Pradesh Road Safety Code, obtain the approval of the state government through the SRSC and publish its short and simple versions for different users.

(iii) Traffic policing specialist (TPS)

Functions

- To act as a friend, philosopher and guide of the Traffic Police and Traffic Police Directorate and to advise and help in its capacity building.
- To help train the faculty of the Police Training Institutes to handle delicate tasks of traffic enforcement efficiently (changing the mindset, constant updation; changing the thrust of enforcement –emergency response, filling the IARF, first aid, rescue and transport of the injured to the appropriate medical facility).

- To identify the equipment (i.e., cranes, spanner patrols, photographers, technical men, mobile wireless units, etc) and accessory needs of the Traffic Police and to help them train in their use.
- To constitute Citizens Traffic Improvement Committees, obtain their support in enlisting and receiving the participation of the enlightened citizens in traffic regulation and to help train Honorary Traffic Magistrates/Traffic Wardens, Citizens Groups, Traffic Patrols, Traffic Counsellors, and school children in handling their assigned tasks and to oversee the implementation of these tasks by the honorary hands
- To advise and help the Traffic Police in changing the priorities of traffic enforcement [(i) more focus and deployment of staff on NHs/SHs/ accident-prone spots, (ii) rethink on assigning/ developing traffic staff on mere ceremonial traffic escort/protocol duties, (iii) stricter enforcement on drunken driving, rash/dangerous driving, over speeding, triple riding, not wearing helmets, using cell phones while driving, driving in wrong lane/wrong side, and jumping traffic signals.] .
- To plan, operationalize and help implementation of the campaigns of attitude and behaviour modification of the drivers of vehicles found guilty of repeated serious violations of MV Act and Rules.
- To help plan changing the gear on enforcement behaviour of the Traffic Police (sequence: publicity-warnings first for a defined period--intensive enforcement and compliance checking with visible transparency (use of video cameras, association of NGOs, checking in teams accompanied by Hony. Magistrates)--severe fines.

(iv) Accident data recording and analysis systems specialist (ADRASS)

Functions

- To assess current needs of road safety data management system by making a need analysis to define the system architecture of Road Accident Analysis System (RAAS) and specify the details of data collection, data entry, data management and quality control, data security, data analysis, frequency and types of standard reports (ranging from 24 hour reports to annual reports), report distribution, and access conditions.
- To help in devising an accident report format, identifying a location coding system and necessary supporting information for coding location and assist in designing a training course for accident investigation and data collection, help run the training course of training of the trainers and monitor progress to ensure quality control of data collection.
- To help operationalise the RAAS in key Departments (i.e., Traffic Police, Transport, PWD, etc)/agencies of the state of Uttar Pradesh by either obtaining it from the IPR holders or through customized development of a computerized road accident analysis system.
- To help filing of available data in to RAAS
- To arrange training to concerned staff in the use and maintenance of RAAS.
- To help and oversee RAAS pilot installation, testing and rollout

- To arrange on call operational/escort support after commissioning of RAAS.
- To help analyze compiled data and help its use in formulating new/recasting current road safety action plans

(v) Traffic engineering specialist (TES)

Functions

- To design a package for a paradigm shift in the focus of traffic planning in different districts/cities from the present haphazard to the ones based on specific data of specific geographical units and its traffic load, direction, mode mix, destinations, convergence of different modes of transport at different geographical locations, and capacities of the public and private sector service providers.
- To advise and assist in development, operationalization and implementation of specific traffic management plans for different districts/cities in consultation with the officers of the Transport, Traffic Police, and concerned Municipal/local authorities with the objective of reducing accident rates and facilitating smoother movement of vehicles, goods and other flows.
- To design, field test, finalize and help operate electronically and remotely controlled traffic planning systems for the major cities of the state in the first stance and to constantly update them in tune with the changing requirements of time; to arrange training of the personnel required to man such control units and to identify escort consultants who would help the specific units to run such facilities.
- To design a package for a paradigm shift in the focus of traffic signalling in different cities from the present manual to the ones electronically operated and remote controlled contributing to a more efficient traffic management.

(vi) Education and training specialist (ETS)

Functions

- To advise and help in designing a package for a paradigm shift in focus of road safety education from generalized to specific areas of concerns.
- To advise and help in designing a package for a cultural shift of the entire Uttar Pradesh society from a slow moving social system to the one adequately aware of the dangers of regular high speed motorized transport and prepared with coping skills to protect itself from the possible hazards.
- To advise and assist in developing and producing communication modules providing information, raising awareness levels, giving advice and directed at specific target groups with the objective of inculcating skills such as hazard perception, changing attitudes, reinforcing behaviour, management of adverse personal risks from environmental impact, and developing coping skills. This might well include making of a serial similar to the 26

episode Marathi TV serial dealing with various traffic hazards made by the KRPMF, Pune and shown on a channel in Maharashtra.

- To advise and help various district/city units in planning, operationalizing, and running a multi-media basket of communication campaigns (i.e., print, radio, magazines, tapes, films, video clips, leaflets, posters, stickers, internet, etc) using the services of the private sector, enlightened citizens, educational institutions, NGOs, transporters, and other stakeholders in the road safety sector.
- To advise and help educational institutions (such as the SCERT, Basic Siksha Parishad, Madhyamik Shiksha Parishad, etc) in developing appropriate curriculum and other road safety materials for) the students, teachers and parents of wards receiving education at pre-primary, primary, secondary and higher education levels.
- To advise and help in designing road safety education materials for drivers (especially for the truck, taxi, tempo, auto-rickshaw) notorious for rash, dangerous, drunk driving, overloading and overspeeding and publicizing a wide range of good practices in this regard.
- To monitor expenditure incurred on road safety education by the operational units.

1.2 SUGGESTED INSTITUTIONS AT THE LOCAL/CITY LEVEL

To take care of the road safety issues at the district local/city levels, establishment of the District Road Safety Council (DRSCs)/City Road Safety Councils (CRSCs) is recommended.

a. Composition of the DRSCs I CRSCs

These would be somewhat modified versions of the existing City Road Regulatory Authorities. The present structures do not have any representatives of the commuters, transporters and enlightened citizens on them. The recommended membership would be:

- (i) Office-bearers:** The District Magistrates/Divisional Commissioners would be their Chairpersons. The ARTO/RTO of the concerned city shall be its Member-Secretary.
- (ii) Members:** The following would be the its members: EE (Traffic: Municipal body), SP/Additional SP (Traffic), representative of the UPSRTC, and one representative each from reputed NGO, enlightened citizens, and Transporters' Association.

The Chairman of the DRSC/CRSC shall have the discretion of inviting any other person to the meetings of the DRSC/CRSC to take his/her inputs in its deliberations. The DRSC/CRSC would function from the office of the ARTO/RTO.

(iii) Functions of the DRSC I CRSC

The DRSC I CRSC will have the following functions:

- To maintain close collaboration with the SRSB with regard to crucial road safety measures such as black spot investigation, signage, markings, and road safety education and communication, etc

- Based on periodic review of the traffic flow patterns of the district/city, to plan and/or, recast type of transportation mix to be used in different local routes
- To advise and help in the preparation of the local road safety policy and action plans keeping the state road safety policies, rules and regulations in view
- To advise and help in the implementation of the local road safety action plan to improve the local road safety situation in the district/city
- To monitor road safety education for children and production of education material on road safety
- To constitute and activate Road Safety Councils in different Wards to ensure participation of the enlightened citizens in sharing road safety tasks and to facilitate implementation of local road safety action plans and
- To monitor the road safety activities of the operational organizations (Transport, PWD, Traffic Police, Hospitals and educational institutions) and to review the effectiveness of all sub-tasks being handled by them and to give them help and guidance in improving their delivery
- To coordinate and commission all measures regarding road safety at local levels.

(iv) Constitution of the Core Committee of the DRSC/CRSC

In order to carry out the functions of the DRSC/CRSC efficiently, a Core Committee consisting of the ARTO/TRO, representative of UPSRTC and Officer in charge of Traffic Police of the city shall be constituted in the DRSC/CRSC. The Committee shall function as the executive agency of the DRSC/CRSC. The CRSC shall pass on road safety funds allotted by the SRSB to implement its road safety action plans. The Committee would mobilize funds from the community and the private sector and would also select credible NGOs of the district that can be entrusted with the implementation of various road safety action plans but in particular organizing road safety publicity campaigns and in disseminating road accident risk reduction/coping strategies.

The Ward Road Safety Councils shall consist of the Traffic Wardens from the area, Principal of a well-known School of the area (commanding respect and having interest in such activities) and two enlightened citizens (one of whom must be a female). The task of the Ward Road Safety Councils is to disseminate information on road safety to the citizens of the area and make them less susceptible to road accidents.

Annexure -2 : Road Safety – Review of Past Efforts

Annexure-2: Road Safety – Review of Past Efforts

1. ROAD SAFETY

Uttar Pradesh is paying a tribute of 9,463 fatal road accidents per year. It should be a primary objective to make roads safer to travel in Uttar Pradesh.

2. OVERVIEW OF FINAL REPORT & ACTION PLAN BY SPAN CONSULTANTS

The Road Safety Action Plan was conducted by Span Consultants for the Government of Uttar Pradesh. The main objective of the study was to critically examine the existing road safety scenario in U.P. and to suggest suitable action plan to improve road safety by minimizing the road accidents in U.P. roads. This project was part of the World Bank assisted U.P. State Roads Project in 2005. During the year 2004, about 17,879 road accidents were reported which included 9,463 fatalities and 12,546 people injured. It has been estimated that the economic loss from road accidents in 2004 was nearly Rs.900 crores. A stakeholders' workshop was held during the course of the project.

3. UTTAR PRADESH ROAD SAFETY POLICY

The U.P. Road Safety Policy was developed from the Draft National Road Safety Policy. The policy was presented in the first Stakeholders' workshop after which the policy was amended. The U.P. Policy addresses the 11 issues which are based on the Draft National Road Safety Policy are as follows:

1. Raising awareness about Road Safety Issues
2. Providing enabling legal, institutional and financial environment for road safety
3. Road safety information database
4. Safer road infrastructure
5. Safer vehicles
6. Safer drivers
7. Safety for vulnerable road users
8. Road traffic safety education and training
9. Traffic enforcement
10. Emergency medical services for road accidents
11. HRD and research for road safety

This proposed Road Safety Policy for Uttar Pradesh was adopted by the U. P. State Road Safety Council at their meeting on 20th September, 2005.

Framework

The framework for Road Safety was considered under the three categories namely Institutional and Organisational, Legal and Financial issues.

Institutional and Organisational

This task constitutes of four parts. The first part analyzed the six departments (PWD, Transport Department, Home Department, Urban Development Department, Medical and Public Health Department, and Education Department) which are most involved with the delivery of road safety sub-tasks. On the basis of in-depth analyses of each department a matrix of their strengths and weaknesses was compiled.

The second part of the task looked at the emergent scenario of road safety in U.P. and the third part developed proposals for institutional co-ordination and institutional capacity building. The fourth part presents specific proposals for building the institutional capacities of the six departments.

Legal

The Constitutional issues impact on road safety are examined in detail. The Motor Vehicle Act, Central Motor Vehicle Rules, Delhi Motor Vehicle Rules and U.P. Motor Vehicle Rules are reviewed. The changes to improve road safety upon review of these documents.

Financial

The existing funding arrangements for road safety activities are critically examined. This is followed by a description of the proposed funding arrangements including a State Road Safety Fund. Projections are made of the future requirements for funding by the main departments as mentioned in previous section.

Training

Training has been a very important part of this project. The project included some intensive one-day training of police officers, in the Span Consultant office. The training covered road safety awareness and filling up of the Indian Accident Reporting Form (IARF) including drawing of site sketches and collision diagrams. A bi-lingual (Hindi and English) IARF was developed and circulated to some of the police stations for adoption.

Another area, where extensive training was undertaken is related to road safety audits reviews of twelve completed Rehabilitated Maintenance Contracts (RMC). The training included desk training in the Span Consultant office, site visits and on-the-job work.

4. ROAD SAFETY ACTION PLAN

The Road Safety Action Plan includes the actions recommended in the previous chapters. The main objective of this study is to improve the road safety by minimizing the road accidents on Uttar Pradesh roads.

The duties and responsibilities of the Road Safety Unit would be as follows:

1. To consider and approve/deny approval for road cuttings for utilities and to fix condition such as time of work, period of work, setting up of safety installations and related safety aspects.
2. To take immediate action to rectify any damage to the carriageway, which may affect road safety, such as improperly restored road cutting for utilities,
3. To carryout by specifying time-limit action for eviction of encroachments removal of materials from the road/road side.

5. ROAD SAFETY ENGINEERING

The initiation of various programmes by PWD to address the alarming issue of increasing road accidents by coordinating all stakeholders of Road safety viz., Engineering, Education and Enforcement agencies.

Public Works Department is primarily responsible for engineering aspects and a safety engineering component need to be introduced as a part of World Bank aided Uttar Pradesh State Transport project.

Initiatives in PWD Constitution of Road Safety Unit

A road safety unit needs to be constituted as follows:

- Executive Director
- Road Safety audit specialist
- Traffic Policing specialist
- Accident data recording and analysis systems specialist
- Traffic engineering specialist
- Education and training specialist

6. ROAD SAFETY ENGINEERING TOOL KIT

A comprehensive road safety tool kit needs to be developed for accident prevention and accident reduction as follows:

- Road safety engineering manual
- Accident site improvement manual
- Road safety audit manual
- Road safety notes
- Roundabout design

- Crash barrier
- Speed survey
- Road signs
- Supplementary Technical advice for IRC 67
- Sign fonts
- Technical specification
- Technical specification for safety related items
- Checklist for procurement of traffic signs

Activities

- Blackspot Improvement programme
- Road Safety Audit
- Demonstration signs and markings
- Junction Improvement Schemes
- Mass Action Schemes
- Safety improvement of hazardous locations in
- Safety assessment of roads
- Road Accident Database

Accident Data Collection

The data collection of road accidents is an important essential element of accident reduction and prevention strategy. Police in all states of India including Uttar Pradesh perform the duty of accident data collection. Road safety activities rely heavily on being able to study and analyze accident in order to take suitable remedial action whether in use of police activity, highway engineering or educational and campaign work. Reliable accident statistics are an indispensable tool in traffic research, and important for policy decision and contribute towards a better understanding and awareness of the road safety problem. The primary source for road traffic accident information is the police department. The most common sources that exist are:

- Police departments accident records
- Insurance company records
- Hospitals records
- Tow-vehicle operators records
- Special research studies such as in depth road crash studies

7. ROAD SAFETY AUDIT

A Road Safety Audit (RSA) is a formal process where an independent and qualified audit team examines and reports on the traffic accident potential and safety performance of the following:

- Future road projects
- Traffic management scheme
- Existing road

Road Safety Audit is a proactive approach to Road Safety as distinct from accident black spot analysis, which is reactive. It is an engineering contribution in parallel with education and enforcement targeted at the prevention of road crashes. Typical cross-sections were prepared for the Major Maintenance Schemes. The consequence of this was that most of the work was carried out on site. The tasks carried out were the identification of projects on which Road Safety Review was carried out, the identification and training of PWD staff in Road Safety Audit processes, and Road Safety Reviews of Major Maintenance projects for a total length of 546 km.

Training Programme

The construction of the 12 road projects selected for audit was completed by December 2004. A team of Road Safety Experts of Span Consultants, Pvt. Ltd. Conducted training programme on Road Safety Audit for PWD Engineers in Lucknow and Meerut. During training, PWD engineers were taken out on site visit on Lucknow-Mohan Road (SH-40) for on the job training regarding Road Safety Audit.

Formation of Road Safety Review Teams

Road Safety Audit team consisting of two auditors was formed. Each team consisting of two engineers in each was assigned one project.

Road Safety Review – Experience of other road authorities – Learnings

The use of Road Safety Review on existing roads has become a very limited and targeted use. The reason for this is that the blanket application of the process to all roads under the control of a road authority, leads to the identification of a range and quantity of safety issues that far exceeds the authorities' ability to address in the current forward planning period.

Actions

The various actions taken include treatment at intersections, line marking, guide posts, Raised Reflective Pavement Markers, warning signs, trees within the clear zone, narrow culverts and narrow bridges.

Risk Assessment Approach

Each safety issue identified can be ranked with regard to safety risk – high, medium, low. A simple chart requiring an assessment of likelihood and the consequence of a crash occurring provides a guide to fix the level of risk.

Generic Road Safety Issues

Many of the safety items identified by the Road Safety Reviews of Major Maintenance Projects are common to all projects. The main issues involve improvement and delineation at bridges, culverts and curves. Narrow or single lane bridges are major potential concerns that can only be successfully addressed by provision of wider bridges.

Delineation

The provision of strong, reliable, well maintained delineation is effective way of improving safety on the Major Maintenance Project roads. If an obstructive object like tree, parapet of narrow bridge culvert etc exists within clear zone and causes hazardous situation, it should be removed outside the clear zone. In case, the hazardous object cannot be removed, it should be properly guarded and delineated.

Line Marking

The provision of strong line marking is of great assistance to road users particularly at night-time. A centerline is of high priority and is recommended throughout project except where carriageway width is less than 6m.

Raised Reflective Pavement Markers

Pavement Markers when used in conjunction with line marking create strong guidance to road users and would normally be used at locations with a history of night-time crashes such as curves, narrow bridges, narrow culverts and intersections.

Guide Posts

The guide post can be used in many locations to improve delineation for road users and are simple, white, light weight with reflectors attached at the top. The most common use is around curves where the whiteness is an aid in daytime and the reflectors at night-time as shown in picture below. Guideposts are also used as an aid to the delineation of intersections, approaches to carriageway width restrictions and at hazardous locations.

Safer Provision for all types of Road Users

Motorized vehicles using the road are able to travel faster and the speed differential between fastest and slowest road user has increased. Improvised safety can be achieved by increasing the separation between fast and slow road users. Provision of improved road shoulder surface conditions will contribute to this objective.

Speed Management

There are different speed limits applicable to taxis, tractors, cars, buses and trucks. It is presently not possible to establish speed zones and speed signing that will support police in enforcing the law relating to speed. As a result of this, a speed limit applying to all road users would allow appropriate signing. The maximum legal speed for a particular vehicle is the lower of the vehicle-specific speed limit and the general speed limit. In the village regions, traffic

calming measures in the village, including additional speed humps, should be used to ensure vehicles proceed at the reduced speed.

Roadside Obstacles

The objective of roadside hazard management is to keep this risk to an acceptable level for the road concerned. A concept frequently adopted by road authorities known as a 'forgiving roadside' aims at providing wide, flat run-off areas with sufficient clearance to roadside obstacles to allow for all errant drivers to regain control of their vehicle before a collision occurs. Implementation of this concept is expensive and there will always be some roadside obstacles that present some measure of risk to errant drivers.

Recovery Area

The recovery area is the part of the roadside in which an errant vehicle could be expected to come to rest safely or pass through before rejoining the traffic lane. The recovery area is primarily dependent on traffic speed.

Clear Zone

The clear zone width varies with speed, traffic volume and other minor variables; however the concept has been applied to culvert parapets, trees, lamp posts, poles and any fixed objects that pose a risk to an errant vehicle. The clear zone width that applies to a traffic speed 65 km/hr and one-direction traffic volumes of 3000 motorized vehicles is 3.5 meters.

Safety Guidelines

The safety guidelines were referred based on IRC-Codes and Special Reports as well as manuals from PWD and the Ministry of Surface Transport Manual – Safety in Road Design. There is a need to provide additional guidance to staff of PWD to assist them in knowing when and where to apply the information. This additional guidance would be in the form of policy statements and guidelines enabling staff to consistently and correctly apply codes and standards.

The Road safety cell needs to undertake a Safety Audit for the road and bids are now under tendering stage.

Salient Features

- Complete Signs and Markings to demonstrate and enforce under Road safety Action Plan
- No overtaking center line based on visibility check
- Roundabouts, junction with Traffic Signal and priority junction for demonstration
- School Zone treatment
- Pedestrian crossing treatment
- Highly visible studs and markings

- Crash barrier for deep drops
- Delineators to guide drivers at night
- Curve treatment with Chevrons
- Mass Action Scheme

Demonstration signs and markings

In order to demonstrate ideal signs and markings according the IRC and International practices two Demonstrations schemes need to be implemented on major highways with a view to achieve consistency and uniformity.

Junction Improvement Schemes

The road safety cell will be engaged in design of junctions giving attention on safety engineering measures.

Mass Action Schemes

The median ends of various reach of national highways are being hit by vehicles especially night. In order to counteract such accident, similar treatment by way of diagonal markings reinforced with Rumble strip and studs and signs should be installed for all median ends on National Highways.

Safety Improvement of Hazardous locations of NH

As considerable number accidents are occurring on State Highways, at the request of State level monitoring committee, Road safety cell needs to carried out site visit and proposed countermeasures to hazardous locations on state highways hazardous locations.

Safety Assessment of roads

The road safety cell needs to carry out safety assessment of PWD's maintenance roads and implemented required safety engineering measures in order to counteract the accident due to better riding quality.

Road Accident Database

The PWD in association with Police Department needs to develop GIS-enabled accident database called Road Accident Analysis System (RAAS). It has following features:

- Automatic generation of collision diagram with vehicular movements
- Advanced querying and reporting
- Many new advanced features like:
- High accident location identification
- Scenario Analysis

- Spot / Intersection Analysis
- Cluster Analysis
- Strip / Corridor Analysis
- Ability to add Accident photograph or diagram along with the accident data.

At present there is no defined system or procedure to assess road safety issues on the state road network though efforts are made to assess road safety issues, broadly as part of the feasibility study. Accident data collection by Traffic Police has also recently been taken up and improved.

Road safety is an issue to be dealt through carefully drafted strategy involving various stakeholders. Further this issue needs concerted effort, direction, coordination and resources. Accident rescue has been discussed under incident management in the earlier section.

Options to address Road Safety Issue

Road safety actions in infrastructure

Reactive Road Safety Action – involves identification of blackspots using the accident data analysis, preparation of countermeasures based on the accident characteristics and local conditions, implementation of countermeasures and monitoring

Pro-active Road Safety Action – involves considering and implementing precautionary measures to ensure safety. These are achieved through road safety audits at various stages of road development and operation

- Enforcement of traffic rules and regulations
- Road safety education
- Driver training and testing
- Effective policing and traffic law enforcement
- Public campaigns, community involvement and encouragement
- Review and introduce graduated driver licensing mechanism
- Mandating use of protective equipment (helmets, seat belts, reflective stickers at the front and rear etc.)
- Regular vehicle testing and inspection to assess road worthiness
- Encourage NGOs in providing safety education

The Uttar Pradesh State Road Project includes funding of the following actions:

- Providing hand held GPS to the Highway Patrols for better data collection
- Technical Assistance in developing training modules for the police staff in accident data collection management.
- Computerization of the traffic fines collection system.
- Accident Black Spot improvements in subsequent phase
- Community awareness campaigns.

Actions Plan for Road Safety in the State:

Action: Establish a Road Safety Unit (RSU)

For implementing decisions of RSU and for coordinating between various agencies identify road safety engineer and road safety analyst to carry out the road safety functions

Action: Conduct regular blackspot programs for the entire state road network and monitor the implemented measures

Action: Conduct road safety audits at various stages of road project

- All new roads or roads for capacity augmentation
- Roads taken up for rehabilitation works
- Roads taken up for periodic maintenance

Action: Develop manuals and training for use by implementing agency

- Road safety audit procedures for new projects at development stage and for existing roads
- Road safety assessment procedures for identifying blackspots and implementation strategies
- Standard infrastructure actions for typical blackspots which can be tailored for local conditions
- Road safety monitoring of implemented actions
- Incorporation of road safety in work zones

Action: Develop and manage an Accident Information System

In order to ensure smooth implementation of blackspot program and for monitoring of implemented actions.

Routine maintenance

Routine maintenance is of highest importance to the preservation of the road asset.

Currently, routine maintenance is not performed satisfactorily (potholes, crack sealing, cleaning of drains). Probably this is due to the condition of the network, which is not stable, so that

requirements for routine maintenance increase beyond available funding. Routine maintenance activities should be programmed and monitored in order to ensure that the target level of service is maintained, and in accordance with the condition. The network needs to be surveyed and asset.

Annexure – 3 : Abstract – Institutional Strengthening Action Plan (ISAP) – Formation of Road Safety wing in PWD – Orders Issued (Government of Kerala)

ANNEXURE-3



GOVERNMENT OF KERALA

Abstract

Institutional Strengthening Action Plan (ISAP) – Formation of Road Safety wing in PWD-Orders issued.

Public Works (H) Department

G.O.(MS) No.77/2004/PWD.

Dated, Thiruvananthapuram, 6.7.2004.

ORDER

Various activities of institutional strengthening for PWD as part of ISAP have been taken up and are in progress. The Road Safety Action Plan is also a component of ISAP. As part of implementation, a suitable Road Safety wing has to be formed in PWD to bring effective and visible improvement of road safety.

2. Chief Engineer (R&B and IT) has suggested launching a Road Safety Enforcement Unit in Thiruvananthapuram Roads Division for the roads in Thiruvananthapuram District. (i.e. roads under both Roads & National Highway wing) on a pilot basis. He has recommended the following organizational structure for the Road Safety Enforcement Unit.

- i) An Assistant Executive Engineer as Road Safety Officer in the Division office under direct control of Executive Engineer (Roads) who is the Highway Authority of that District.
- ii) An Assistant Engineer to be the Road Safety Engineer of the district. The Road Safety Officer and the Road Safety Engineer will together constitute the Road Safety Enforcement Unit which will have jurisdiction over the district.

3) Government have examined the matter in detail and are pleased to order that one post of Assistant Executive Engineer and one post of Assistant Engineer is shifted from LSGD and posted under Executive Engineer, Roads Division, Thiruvananthapuram as Road Safety Officer and Road Safety Engineer and that these two officers together will constitute the Road Safety Unit for Thiruvananthapuram District.

4) The duties and responsibilities of the Road Safety Unit would be as follows:

- i) to consider and approve/deny approval for road cuttings for utilities and to fix condition such as time of work, period of work, setting up of safety installations and related safety aspects.
- ii) to take immediate action to rectify any damage to the carriageway, which may affect road safety, such as improperly restored road cutting for utilities,
- iii) to carryout by specifying time-limit action for eviction of encroachments removal of materials from the road/road side.

5) The Road Safety Unit will be under the control of Executive Engineer (Roads), Thiruvananthapuram.

By order of the Governor,

V.T.Samuel

Under Secretary to Govt.

To

Chief Engineer (R&B), PWD, Thiruvanthapuram.

Chief Engineer (NH& Admn), PWD, Thiruvanthapuram.

Executive Engineer (Roads), PWD, Thiruvanthapuram.

Executive Engineer (NH), PWD, Thiruvanthapuram.

Public Works (A) Department, Secretariat.

Annexure - 4 : Reviews of Road Safety in Various Agencies

1. Andhra Pradesh

2. Fiji Islands

3. Kenya

4. Cyprus

Annexure – 4: Review of Road Safety in Various Agencies

1. ROAD SAFETY ACTION PLAN IN ANDHRA PRADESH

It is proposed to prepare a comprehensive policy delineating the medium and long term measures and the financial support that is required to improve road safety with the following goals:

- To bring down the number of accidents
- To earmark separate funds for road safety programmes
- To draw up specific programmes to improve major roads for safe travel, to protect vulnerable road users and to improve driver training, licensing and monitoring procedures
- To obtain better co-ordination between various departments and NGOs.
- To create information system on accidents and to suggest post-accident relief and other remedial measures

As an immediate measure, it is also proposed to run an awareness campaign which not only involves the education and sensitization of the stake holders like drivers, vehicle owners and the pedestrians but also involving the Government Departments and public representatives to undertake immediate ameliorative steps.

The Motor Vehicle Act, 1988 mandates constitution of Road Safety Council at State level and district levels to ensure road safety. As per Section 215 of Motor Vehicle Act these councils shall discharge such functions relating to the road safety programmes.

ROAD RELATED MEASURES

A. Steps to increase road space to catch up with growth of vehicles

In the long term, efforts to increase road space can be undertaken by Six lane or Four lane and by constructing road dividers along all the National High ways and State High Ways.

Short term measures include lane markings, hazardous location indicators, reflective traffic signs, road dividers and medians, intersection islands, bus bays, sight distance maintenance, road side development, sign boards, signs and other facilities, parking bays.

B. Identification of accident-prone spots

Identification of accident-prone spots and erection of cautionary signs at a sufficiently early distance will surely resulting reduction of accidents with out much expenditure. Special attention shall be paid at culverts and blind curves and for berm improvements, junction improvements and barricading wherever necessary.

C. Service Roads/Access Roads

There is every need to restrict or control the free and easy entry of vehicles from approach roads to highways. Service roads/Access roads should be developed. Speed breakers or entry barriers shall be arranged on the approach roads.

TRAFFIC RELATED MEASURES

A. Emphasis on traffic flow in towns and cities

Emphasis shall be on smooth flow of traffic in high density areas like cities and towns. In every city or town the Traffic Advisory Committees shall be given more teeth to adopt policies of one-ways or staggered timings to allow plying of different types of vehicles like goods vehicles, school buses, two- wheelers and autos as found appropriate by these committees. The timings of schools, markets and offices shall be allowed to be staggered accordingly.

Measures on Road Traffic injury prevention

A. Usage of Helmets

Head injuries are main cause of death among the riders of two wheelers. Helmets protect the rider very effectively against such injuries. Among moped and motor cycle riders, head injuries account for about 75% of deaths in Europe and 55-88% in Malaysia. One study found that riders without helmets were 3 times more likely to sustained head injuries than those with helmets. A study in India found that motor cyclists benefited from any time of helmet with padding. The usage of helmets shall be implemented.

B. Usage of Seat belts

Seat belt use has been one of the success stories of road injury prevention and has saved many lives in several countries. Seat belts were introduced as optional features in vehicles till recently. At present, all new vehicles have seat belts. The use of seat belts reduces the risk of all injuries by 40-50%.

C. Enforcing Alcohol limits in driving

Alcohol consumption by vehicle drivers is one of the major reasons for accidents and deaths or serious injuries. The wide spread random breath testing achieves highest compliance with loss. Breath testing devices that provide objective evidence of blood alcohol concentration are the most effective tools.

D. Over speed and speed limits

The higher the speed, the shorter the time a driver has to stop and avoid a crash. The higher the speed, the more severe the impact is when a crash occurs. Vulnerable road users, other motor vehicles are at especially high risk of injury from speeding motor vehicles. Speed limits that road users perceive as realistic and those that are self-enforcing have the greatest chance for achieving compliance.

Speed cameras or radar can catch the drivers who are exceeding speed limits. Recent analysis of experience in several countries found that instruments that automatically catch drivers reduced traffic deaths and serious significantly. Publicizing the presence of speed cameras or radars has been found to increase the compliance with speed laws and to reduce the incidence of crash and injury substantially.

E. Improving care before reaching a hospital

A study comparing road traffic deaths across a range of countries found that the vast majority of deaths in low income and middle-income countries occur before reaching the hospital. National, State highways and other roads have few emergency services nearby to the scene of road crashes. By-standers, relatives or other road users evacuate injured people from the scene and transport them to a hospital. Ambulances need to be placed on all important highways and roads with suitable personal on a 24 hour basis for immediate rescue of persons involved in road accidents. Corporate hospitals and NGOs could be involved in this programme.

IMMEDIATE ACTION PLAN

District Administration

- Meeting of Road Safety councils at the State and district levels at regular intervals.
- Identification of accident-prone spots to be done immediately on priority basis.
- Involve non-officials in road safety campaigns.
- Supervision and co-ordination of Action plans of all stake holding departments.

Transport Department

- Regular inspection and revamping of Driving Schools.
- Identification and use of existing training facilities in ITIs, Polytechnics, APSRTC and local NGOs for effective in service training for drivers of Goods vehicles, School Buses and Contract carriages including Auto Rickshaws.
- Identifying and contacting associations of Owners and Drivers and other target groups like School Managements.
- Planning awareness camps drawing resource persons from Doctors, Consumer activities and Traffic experts.
- Identification of accident-prone spots and list of immediate temporary remedial measures to be completed.
- Initiate offences recording system in Drivers License database.
- Networking of Drivers License database.
- Laying of scientific driving testing tracks in all important places including Unit Offices.
- Preparing campaign material.

R&B Department/Panchayatraj Department/NHAI

- Completion of immediate temporary remedial measures like erection of signs, barricades and sight distance maintenance.
- Compliance of measures undertaken to district road safety council.
- Display of phone numbers of Ambulances and Hospitals available nearby at each location on the road at regular distance intervals.

Police Department

- Convening of Traffic Advisory Councils in all Cities and Towns on a monthly basis involving public representatives and local NGOs and Citizens.
- Implement laws relating to helmets, seat belts and enforcement of alcohol limits.
- Consolidation of requirement traffic regulatory devices and submission of budget proposals.
- To obtain a list of Hospitals near to each important location on the road and of Ambulances available in Government and Private sector and circulate to NHAI, R&B and Panchayatiraj Department.

Medical & Health Department

- To prepare a list of phone numbers of Hospitals and Ambulances available near each location on the road and co-ordinate with Police Department in this regard.
- Provide emergency care on all important highways and roads in association with corporate hospitals and NGOs.

2. ROAD SAFETY ACTION PLAN STRATEGIES IN DEVELOPING COUNTRIES – FIJI ISLANDS

The Asian Development Bank (ADB) appointed a road safety advisor to assist the Bank and the Fiji Government to develop a strategy and to oversee implementation of a Road Safety Action Plan. The purpose of the Action Plan was to develop institutional capability to address road safety problems effectively and to oversee implementation of the most urgent improvements over a three- to three-and-a-half year period. Periodic inputs were provided by other specialists working under the direction of the road safety advisor.

The focus and strategy of the Action Plan was as follows: initiate the most urgent improvements; tackle problems where there were known and effective solutions available; and to develop and train local professionals in the key institutions so that they could more effectively implement the wider road safety improvement program needed in Fiji. The project was broken down into two phases with the four most urgent projects (1-4 below) undertaken from the start and the second set of projects brought into play during the second phase of the Action Plan. The sectors addressed and the improvements implemented are detailed below:

1. Accident data system

The existing data system was poor and allowed only limited manual analysis to be undertaken, which gave little or no understanding of the characteristics and nature of the road safety problem in Fiji. A new accident data form was developed and introduced nationally after pilot testing. A new microcomputer based accident data storage, retrieval, and analysis system (Microcomputer Accident Analysis Package [MAAP] 5 from Transport Research Laboratory [TRL], United Kingdom [UK]) was established at police headquarters and a police accident unit trained to operate all aspects of the system. The Police Accident Unit (PAU) is now operating independently and providing the annual statistics reports to all key agencies so that appropriate countermeasures can be drawn up in each sector.

2. National Road Safety Council (NRSC)

Legislation was developed and passed to establish an NRSC with statutory powers to oversee road safety improvement. A building was provided to create an NRSC headquarters and four vehicles were provided to operate as mobile publicity exhibitions. Videos, overhead projectors,

and other training equipment was provided to assist in carrying out education and publicity, and road safety materials were produced to raise public awareness. Funding mechanisms were included in the legislation so that a levy of 10 percent was to be applied to all third party insurance policies to be handed over to the Safety Council. Some staff was seconded from other member agencies of the NRSC and other staff, such as the executive director and several technical staff, were hired directly by the NRSC to carry out the secretariat function of the Council. The Council is now fully active and carrying out publicity and education activities all over Fiji through a network of local divisional councils, and even (in some cases) municipal councils.

3. Infrastructure Improvements

A small Traffic and Road Safety Unit was established in the public works department and the staff trained in carrying out accident prevention and accident reduction. Accident prevention activities included the introduction of safety audits, improved access and development controls, and training of the unit in road safety issues. The accident reduction activities included identification and elimination of the worst accident black spots, the implementation of route action plans and mass action plans, and the development of traffic management schemes for the main towns and urban areas in Fiji. Guidelines and procedure manuals have been prepared for the Unit, which is, with its three Fijian engineers, operating independently and able to carry out an effective accident prevention and accident reduction program, and provide advice on these activities to other engineers in divisions and municipalities.

4. Traffic Law Enforcement

In this area, considerable assistance was given to establish a Highway Patrol along the major road network and to establish a traffic police course at the Police Training College. Police personnel were also instructed in the use of radar, speed detectors, and alcohol testing devices,

and a number of practical exercises were undertaken to train them in carrying out operations on drunk-driving, road worthiness checking, and speed detection.

Traffic police were also provided with specialist rescue equipment for cutting vehicles and rescuing victims, and trained in the use of this equipment. The net result is that there is now a reasonably effective traffic police enforcement capability along the major national roads in Fiji. The police are capable of traffic law enforcement and are able to provide a rescue capability also.

5. Traffic Legislation

As part of the Action Plan, the existing traffic act was revised and a draft act prepared. It is now awaiting formal approval by Parliament. This, among other issues, addresses gross overloading and how to deter this activity and enforce compliance using mobile weighbridges.

6. Child Traffic Education

A number of important educational projects were initiated by the child education specialist. The projects included a road safety theater production to visit schools, university research into road skills training programs for children, the printing and distribution of guidelines for teachers so that every teacher would have some knowledge about teaching safety to

young children, development and printing of a road code and leaflets on lessons for life for parents so that they could be involved in teaching children, and development and printing of special school materials based on a character (the "Road Ranger"). The advisor also trained a counterpart in road safety education officer and working with him and the local curriculum development units developed appropriate teaching materials for children for use in schools. These

are being tested in eight elementary schools. The net result of all these activities is that there is now active and effective road safety materials development and road safety teaching in Fijian schools, and this will have long-term benefits for the safety of young children in the country.

7. Driver Training and Testing

In this sector the main improvements implemented were as follows:

- introduction of new oral questionnaires with a preset pass mark;
- introduction of standardized licensing test scores and test routes; and
- development of comprehensive manuals for all aspects of driver licensing, including licensing of driving schools and instructors.

It also included monitoring, periodic reporting, and analysis of all driver examination results, development of a revised road code consistent with revised traffic legislation, and preliminary

work with the driving schools industry on improving professional standards and the development of a standard curriculum. During the Project, all existing driver examiners were given training on

the new manual and procedures, and, in addition, the specialist advisor worked closely with the local specialists in developing a defensive driving course suitable for Fiji. A Defensive Driving Instructor Course was also developed and a large number of Fijian instructors were trained. The course has been institutionalized and is now available from the Fiji National Training Council, which has a pool of about 20 fully trained defensive driver instructors from which the Council will be able to draw to conduct courses in the future.

8. Vehicle Inspection and Roadworthiness

In comparison with the other sectors, not as much progress has been made in this sector, largely because of the question over the mechanical competence of the existing staff engaged in vehicle inspections. Nevertheless, new inspection procedures have been developed that provide a structured approach to the inspection of any vehicle and the establishment and documentation of pass/fail criteria. All examiners have been trained in these procedures and comprehensive reference and policy manuals have also been developed. Acknowledging the general poor condition of infrastructure, the Fijian Government has embarked on a capital investment program to upgrade these facilities. Advice has also been given on the possibility of introducing testing by private operators regulated by the Department of Road Transport. Guidance has been provided on the policy, technical standards, and administrative procedures that may be necessary. In order to reduce the likelihood of unroadworthy vehicles using the road network, vehicles and equipment were purchased for the Department of Road Transport to use for on-road enforcement of vehicle roadworthiness. The vehicle inspectors, working in harmony with the police, were also trained in carrying out roadside spot checks and inspections of vehicles so enforcement exercises would become part of the routine in Fiji. These are now taking place regularly.

9. Emergency Medical Services

The absence of emergency medical services to help road accident victims was a cause for concern. The Project included some specialist advice in reviewing the existing provision of emergency medical services by voluntary agencies, the fire service, and the hospitals, and the development of pilot programs to try to improve the situation. A pilot scheme has been devised, partially drawing upon voluntary funding of St. John Ambulance and partly with some assistance from the Government to try to develop a pilot emergency medical system for the Suva area. If this is successful it can be extended to other major towns and eventually along the national road network.

EVALUATION OF ACTION PLAN STRATEGIES

There are often serious problems in monitoring the effectiveness of the aid funded projects, especially on the non-quantifiable areas, such as to whether institutional impact has occurred or whether the developmental objectives have been attained. This Project was monitored using the disaggregated effectiveness evaluation (DEE) technique, which is particularly appropriate for monitoring the effectiveness of aid funded projects and for assessing achievement of objectives. The Project was monitored quarterly by the Government and the results were fed back to the aid agencies and to the safety advisor for action as necessary. The whole action plan was originally

expected to be implemented by December 1995, but because of some temporary budgeting problems within the Public Works Department, some of the work had to be rescheduled.

This was particularly so with respect to the infrastructure improvements, the black spot improvements, and some of the route action plans, which had to be postponed until the following budget year. As a consequence, the progress achieved with respect to the originally stated developmental objectives in each sector by March 1996 were as follows:

1. accident data system: 100 percent;
2. infrastructure (implementation still ongoing): 80 percent;
3. Road Safety Council: 100 percent;
4. Traffic police enforcement: 90 percent;
5. Traffic legislation: 83 percent;
6. Traffic education: 84 percent;
7. Vehicle roadworthiness testing: 100 percent;
8. Driver testing and training: 76 percent; and
9. Emergency medical services (implementation still ongoing): 60 percent.

It must be noted that the above percentages are a measurement of achievement of the developmental objectives and institutional impact of the project. In most aid-funded projects, achievement of even 50 percent of the stated objectives would be considered quite successful.

Achievement of 80-90 percent of the stated objectives after three to four years is a significant achievement. This Project, therefore, has been extremely successful in building up the capability of local institutions to tackle road safety problems and has resulted in much enhanced road safety activity being undertaken in Fiji. Although the primary focus of this Action Plan was institution building, the Plan has already improved road safety and created safer roads. Road accident deaths have fallen by about 20 percent in comparison to the 1991 figure (the year before the Action Plan commenced). Further decreases in the number of deaths are expected as the benefits of the Action Plan begin to be realized by the Fiji Government.

3. ROAD SAFETY ACTION PLAN IMPLEMENTATION IN KENYA

The main objective of Road Safety Action Plan is to enhance road safety co-ordination and management to reduce death, suffering and economic losses due to road crashes through effective involvement of public, private and civil society organizations.

Background:

Following the collapse of the National Road Safety Council in the mid eighties, there has been very little formal co-ordination between various ministries, agencies and the private sector involved in road safety.

There is no dedicated source of road safety funding and the exchequer funds voted to various government departments involved in road safety are inadequate. Also there has been little development partner support in road safety since the late eighties. The participation of private sector and civil society organizations has been limited as there lacks a legal framework for their effective involvement and partnership with the government. There is need to urgently re-establish the National Road Safety Council (NRSC) with a full time secretariat to be the lead agency to co-ordinate and implement the National Road Safety Action Plan. However the NRSC is an advisory body and not a 'body corporate' and is therefore an interim measure. There is need to pursue the effort to establish a Road Safety Board as a corporate body within the next two to three years for the long term overall coordination & management of road safety with secured sources of Government of Kenya and partnership funding. The following are the key implementation strategies identified for various categories of Road Safety.

Key Implementation Points of Road Safety Management

- Political support needed;
- Launch the national Road Safety Action Plan;
- Set up National Road Safety Council as interim measure and equip secretariat to co-ordinate implementation of Road Safety Action Plan;
- Establish Road Safety Board in medium term in line with ongoing transport policy initiatives;
- Identify sources of funding and establish a dedicated road safety fund;
- Enhance communications between road safety regulatory and enforcement bodies to create an efficient transport management system and improve transport compliance;
- Improve road safety data collection, analysis and utilization of such information to enhance overall implementation of the Road Safety Action Plan and the monitoring & evaluation of the same;
- Promote self regulation within the sector;
- Harmonize national road safety measures in Eastern Africa region and other relevant trading blocks in the longer term

Key Implementation Points for Crash Data System

- There is need to improve the functioning of the existing road crash data system in the immediate future that is based on the accident form through support to the Police & Road Safety Unit & to better capture all crash statistics reported to the Police to gain a more accurate picture of the road safety situation.
- There is need to analyze the data and to ensure that it is both fed back to those collecting it and responsible for improving road safety and hazardous locations as well as be made more widely available.

- Installing an efficient ICT system for road crash data requires effective capacity building with personnel training and adequate equipment.
- The insurance industry, Ministry of Health & the Judiciary should play a key role in providing data on the economic costs of road crashes, disaggregating it so as to inform intervention strategies.
- In the medium/longer term, a more sophisticated road crash data system should be introduced so as to assist MoRPW & LAs to accurately identify & remedy hazardous locations.
- The overall management & coordination of the road crash data system including the effective dissemination and utilization of the data needs substantial enhancing and might be done in the longer term by an agency such as the Highway Authority currently being set up.

Key Implementation Points of Road Safety Research

- Improve the linkages between the institutions collecting data on road safety and those able to analyze and feed back the results to strengthen road safety interventions.
- Make information on road safety statistics & research more readily available to policy makers and road safety stakeholders to inform road safety and related programmes;
- Identify what has been done on road safety research in Kenya and what Institutions are undertaking research.
- Identify road safety research priorities and needs as well as research capacity;
- Establish a coordinating body with the responsibility of identifying and coordinating road safety research as well as its dissemination and storage.
- Improve linkages to international organizations providing and sharing research on road safety
- Enhance the capacity of Kenyan researchers and institutes to carry out high quality road safety research to contribute to the regional and international body of road safety research and better inform road safety policy and strategies.
- IDS is the process of applying for funding to establish a regional Center of Excellence for research on sustainable transport including road safety.
- Strengthen research to support public education programmes

4. ROAD SAFETY ACTION PLAN IN REPUBLIC OF CYPRUS

Road safety is ranked among the highest priorities of the Government of the Republic of Cyprus, as the road accident records of the country are not among the most enviable in Europe. In 2001, the Ministry of Communications and Works approved a 5-year Strategic Action Plan for Road Safety (2002-2006) with a quantitative target for a reduction of 20 % in road accident fatalities and serious injuries by the end of year 2006 (compared to the average figures of the period 1996-2000).

A second Strategic Plan for Road Safety (2005-2010), based on the revision of the first plan was approved in December 2004 in order to improve the procedures and road safety resources of the original plan, and to adopt the European target for halving the number of road accident victims by 2010. There was a general decrease in the number of accidents and injuries throughout the period from 1994 to 2003. The number of accidents decreased however, the number of fatalities increased in 2004.

Road Safety Unit

The Road Safety Unit of the Ministry of Communications and Works was established in 2004 and comprises today of the head of the unit, who is a civil engineer with long experience and training in the field of road safety, a traffic engineer and an administrative officer. The Road Safety Unit is responsible for handling all matters in the field of road safety which are under the jurisdiction of the Ministry of Communications and Works. The Ministry of Communications and Works is the competent authority for road safety and the Minister of Communications and Works chairs the Road Safety Council which is the national statutory body for the coordination of all government authorities involved in road safety.

The Road Safety Unit functions, in addition to its other responsibilities, as the supporting unit of the Road Safety Council for the implementation of the Strategic Plan for Road Safety 2005-2010. The unit is the executive, administrative and coordinating instrument of the Road Safety Council.

Within the framework of the implementation of the Strategic Plan for Road Safety 2005-2010, six interdepartmental thematic committees have been established. The committees are the fora in which the consultations for the design, implementation and evaluation of road safety actions between the Ministry of Communications and Works and the authorities involved, take place. The six committees are the following:

- Committee for Road Infrastructure Safety.
- Committee for Vehicle Safety.
- Committee for Training and Testing Candidate Drivers.
- Committee for Legislation, the Road Traffic Code and Police Enforcement.
- Committee for Public Road Safety Information and Road Safety Education.
- Committee for Emergency Medical Care.

These committees are chaired by the Head of the Road Safety Unit. The unit performs a coordinating and guiding role by analyzing road accident data and collecting and analyzing other relevant data from Cyprus and abroad.

The Road Safety Unit represents Cyprus in various committees and working groups for road safety of the European Union. Specifically the head of the unit is a member of the Road Safety High Level Group of the General Directorate for Transport and Energy (DG TREN) and the two officers of the unit participate in two working groups for the establishment of the European Road

Safety Observatory. The unit is also connected to the European road accident database (CARE) and performs relevant analyses.

The unit cooperates closely with the Police and the Ministry of Education and Culture for the drafting of road safety books for teachers and students and for the introduction of road safety education in public schools.

The Road Safety Unit also drafts proposals for new legislation which relate specifically to road safety and cooperates with the Police and the Department of Road Transport of the Ministry of Communications and Works for the drafting and publication of a new Road Traffic Code and for its regular updating.

The unit organizes various road safety awareness activities, road safety seminars and road safety education activities.

Road safety action plans

The Ministry of Communications and Works has launched a 5-year Strategic Plan for Road Safety 2002-2006. The plan sets a quantitative target for the annual number of fatalities in Cyprus not to exceed 90 by the end of 2006. This corresponds to a reduction of 20 % in road accident fatalities, compared to the average number of deaths in the period 1996-2000. This first plan was followed by the Second Strategic Plan for Road Safety 2005-2010. The second plan has adopted the target from the European Road Safety Action Programme of halving the number of road fatalities by 2010.

The measures of the Second Strategic Plan for Road Safety were:

- Institutional approval and staffing of the Road Safety Unit
- Establishment of interdepartmental committees and working groups coordinated by the Road Safety Unit
- Submission of an annual action plan by each responsible authority, including required funding, personnel and equipment
- Collection and summary of the proposed action plans by the Road Safety Unit and the submission to and approval by the National Road Safety Council
- Submission of the approval by the National Road Safety Council action plans to the Government for final approval

Previously, all road safety measures were proposed directly to the Ministry of Communications and Works by each responsible authority. With the approval of the Second Strategic Plan in December 2004, an action plan for the year 2005 was formulated according to the procedures described above. The plan includes a number of actions in eight different sectors. The focus is on traffic law enforcement, road network improvement, and vehicle safety and driver behavior. The sectors refer to legislation, enforcement, awareness, traffic training, road safety, safe vehicles, driver training and testing, and emergency care.

The main road safety actions proposed for 2005 are the following:



- intensive traffic checks for speeding, drink-driving, seatbelt use and helmet use
- improvement of road network safety by upgrading of the horizontal and vertical signage system, installation of safety barriers, construction of pedestrian crossings, installation of crush-absorption equipment and relief line marking of motorways
- increased technical inspection of used vehicles and heavy vehicles
- improved procedures for driver examinations and seminars for professional drivers

Cyprus has no Transport or Road Safety Observatory. The Road Safety Unit is the responsible technical body for road accident monitoring and evaluation. The Road Accident Statistical Office of the Cyprus Traffic Police Department carries out a general evaluation on road safety, while black spot analyses are made by the Department of Public Works. All evaluations are reviewed and utilized by the Road Safety Unit. A wide range of measures is being implemented to support a positive development within road safety. These measures are elaborated in the following sections.

Road users

The standard of drivers is being elevated through a variety of measures. The theoretical examination for a driving license now includes questions on road safety and knowledge of vehicle construction, and will soon be computer-based. Existing drivers are being targeted through publicity campaigns on crucial road safety topics, which include TV and radio spots, articles in the press, distribution of printed material, etc. A road safety game is currently being run on the internet with government and private sponsoring and valuable prizes for the winners.

Road safety education (RSE) was introduced in 1997 in secondary schools and in primary schools in 2004. RSE is supported by a road safety competition on television among teams of high school students. A number of road safety parks are currently being constructed which will enhance the road safety education efforts. The Ministry of Communications and Works will this year be sponsoring visits to primary schools by a mobile road safety park.

Regarding legislation and enforcement, the Police have been given two powerful legislative tools:

The penalty point system and high on-the-spot fines which are proving to be quite effective deterrents. The following measures have been introduced:

- traffic violations of speeding and seatbelt use have been included in the point system
- seatbelt use has been made compulsory for the back seats of automobiles
- helmet use for motorcycles has been made compulsory also in residential areas
- The maximum alcohol level in blood tests is proposed to be set at 50 milligrams/100 millilitres (90 at present) and in breath tests to 22 micrograms/100 millilitres (39 at present).

In 2003, 20 of the 97 fatal accidents in Cyprus were attributed to speeding resulting in 23 deaths and 125 injuries. Drink-driving does not seem to be a serious problem in Cyprus, since it caused a total of 125 accidents in 2003 with 3 deaths and 45 injuries.

Vehicles

Cyprus is not a car producing country, thus the possibilities for significant influence on development of vehicle safety are naturally limited. The vehicle fleet is continuously being upgraded through harmonisation with EU legislation. This includes regular roadworthiness testing of vehicles, roadside inspections, compulsory use of seatbelts including child restraints, speed limitation devices on heavy vehicles etc. Tachographs will be introduced on heavy commercial vehicles and side and rear protective bars have been installed on heavy commercial vehicles. Since May 2004, all registered vehicles have to conform to European standards.

Road infrastructure improvement

The arterial road network in Cyprus is under the jurisdiction of the Ministry of Communications and Works (Department of Public Works). This is approx. one-third of the total length of roads and includes motorways, the main roads along rural corridors and the primary urban road network. Municipalities are responsible for another third of the road network; the secondary urban roads. The remaining third of the road network are the rural roads between villages which are under the jurisdiction of the District Administrations (Ministry of the Interior).

Roads are designed in accordance with the official geometric standards of the Department of Public Works, Ministry of Communications and Works for urban and for interurban/rural roads. These were drafted by European experts and are based on international standards. Introduction of road safety audits is included in the 2005 road safety action plan. The existing road network is continuously improved with the application of a variety of measures. The interurban and rural roads are upgraded with the paving of shoulders, installation of guardrails, improvement of road signs and markings and reconstruction of black spots and other high risk locations. Installation of crash cushions at motorway exits is planned for 2005. A feasibility study for installation of variable message signs on motorways is also planned for 2005. A large number of traffic calming schemes has been implemented on trunk roads through villages, where excessive speeds were recorded. The urban road network is upgraded through the construction of pedestrian facilities (zebra and pelican crossings as well as pedestrian subways and footbridges on urban dual carriageways), installation of traffic signals with controlled pedestrian crossings at junctions, construction of pedestrian footways, implementation of traffic calming measures around schools and other sensitive areas, installation of street lighting etc. The introduction of speed and red light cameras at black spots on urban and interurban/rural roads is also planned for 2005.

Annexure – 5 : Road Safety Country Profile - Cyprus

Road Safety Country Profile



COUNTRY FACTS

Area:	9 250 km²
Inhabitants:	759 100 (2003)
Road Network:	11 408 km (2000)
Passenger Car Ratio:	408 per 1 000 inhabitants (2002)

Road safety is ranked among the highest priorities of the Government of the Republic of Cyprus, as the road accident records of the country are not among the most enviable in Europe. In 2001, the Ministry of Communications and Works approved a 5-year Strategic Action Plan for Road Safety (2002-2006) with a quantitative target for a reduction of 20 % in road accident fatalities and serious injuries by the end of year 2006 (compared to the average figures of the period 1996-2000). A second Strategic Plan for Road Safety (2005-2010), based on the revision of the first plan was approved in December 2004 in order to improve the procedures and road safety resources of the original plan, and to adopt the European target for halving the number of road accident victims by 2010.

Table 1 shows a general decrease in the number of accidents, injuries and fatalities throughout the period from 1994 to 2003. Accidents decreased in 2004 where as the number of fatalities increased.

Table 1. Annual development in injury accidents, injuries and fatalities in Cyprus, 1991-2004. (Data for accidents and injuries for 1992-1994 and 1996 were not available at the time of writing.) Please note that only the number of fatalities is comparable to similar statistics for the other Member States due to differences in data collection procedures for the number of accidents and injuries.

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Accidents *	3 172**				3 052		3 021	2 641	2 500	2 397	2 393	2 367	2 358	2 080
Injuries	4 232**				4 517		4 490	3 916	3 712	3 586	3 531	3 523	3 411	3 176
Fatalities ***	103	132	115	133	118	128	115	111	113	111	98	94	97	117
per million inhabitants	150	189	161	184	162	174	155	149	150	147	129	124	128	154

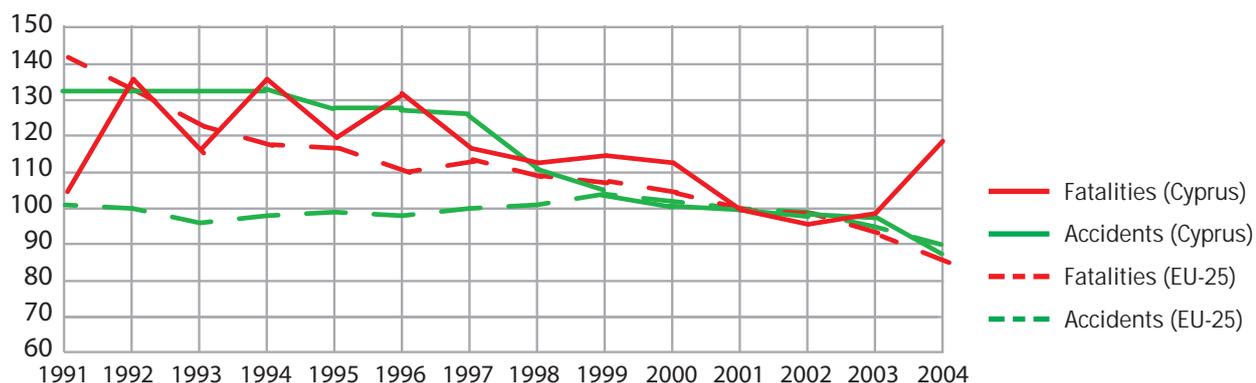
* Accidents with injuries

** 1990 data

*** Death within 30 days of accident

Source: CARE project data (see also: http://europa.eu.int/comm/transport/care/index_en.htm)

Figure 1. Annual developments (year 2001 = 100) in fatalities and accidents on national and EU-25 level.



Source: CARE project data (see also: http://europa.eu.int/comm/transport/care/index_en.htm)

The Cyprus Road Safety Unit has identified the main road safety problems in Cyprus to be: a) fatal and injury accidents occurring at disproportionately higher rates for motorcyclists and elderly pedestrians, b) traffic violations by young drivers are frequent and related to red light violation, speeding and drunk-driving and c) generally low compliance with traffic rules, especially regarding seatbelt use and speed limits.

Increased public awareness campaigns and the implementation of systematic traffic police enforcement measures began in autumn 2004. During the first quarter of 2005 a stabilisation of fatal accidents and a decrease in serious injury accidents was recorded.

Country organisation, responsibilities and resources

The authority responsible for road safety in Cyprus is the Ministry of Communications and Works. The Minister is advised on road safety matters by the National Road Safety Council, which is chaired by the Permanent Secretary of the Ministry of Communications and Works. The Council comprises representatives from all government authorities related to road safety and also a number of representatives from relevant non-governmental organisations.

The following five authorities are directly involved in road safety issues:

- The **Department of Public Works**, Ministry of Communications and Works (road infrastructure)
- The **Department of Road Transport**, Ministry of Communications and Works (drivers and vehicles)
- The **Cyprus Traffic Police**, Ministry of Justice and Public Order (Enforcement)
- The **Ministry of Education and Culture** (road safety education)
- The **Ministry of Health** (emergency medical care)

In addition to the above mentioned authorities, regional and local authorities are also involved in road safety issues, as they are responsible for two-thirds of the road network.

The four ministries above provide the necessary staff for road safety management and traffic law enforcement. Six Interdepartmental Committees have been established for the preparation, monitoring and evaluation of the Annual Road Safety Action Plan; the Road Safety Committee, the Safe Vehicles Committee, the Driver Training and Licensing Committee, the Traffic Law and Enforcement Committee, the Emergency Care Committee and the Public Awareness Committee.

Funding of road safety actions is decided and approved by the government on a circumstantial basis, according to the proposals by the Ministry of Communications and Works. It is currently being considered to provide funding for road safety improvement projects to the ministry on an annual basis.

The following is a list of stakeholders and players within the field of road safety in Cyprus:

The **Cyprus Road Safety Council** is a national council advising the Ministry of Communications and Works on road safety issues. The Council is chaired by the Minister of Communications and Works and has as its members representatives of all involved authorities in road safety: the Chief of Police, the Attorney General, the Directors of the Departments of Public Works and Road Transport, the General Directors of the Ministry of Health, the Ministry of Education, the Ministry of Finance and the Cyprus Radio Foundation.

Alterations in the composition of the Council are currently under consideration, in order to improve the effectiveness and the flexibility of the Council.

A **Road Safety Unit** has been set up in the Ministry of Communications and Works, which acts as the executive, administrative and managerial tool of the Road Safety Council. The Unit analyses road safety conditions and risk factors and monitors actions and measures taken for the implementation of the Strategic Action Plan 2005-2010. The Unit presents a report of the progress of the Strategic Road Safety Plan to the National Road Safety Council every four months. The Council of Ministers is briefed annually on the progress of the Strategic Action Plan and is asked to approve the funding of actions and the provision of required staff and equipment. Understaffing is a current problem, but this is expected to be resolved through a scheduled recruiting of additional qualified personnel. Until the availability of the additional staff, the five authorities involved in the implementation of the Strategic Action Plan will provide personnel on a part-time basis. The actions to be taken will be financed mainly by the national budget, but financial assistance will also be sought from EU funds and from the private sector as sponsorships. The Unit intends to carry out a comprehensive national road safety study through an international tender in 2005.

The **Cyprus Scientific Technical Chamber** will participate in the upgraded composition of the Road Safety Council.

The main purpose of the **Cyprus Safety and Health Association** (CySHA) is to contribute to the efforts for protection and promotion of safety and health at work and to the prevention of risks concerning the public in general. The CySHA is represented in the Road Safety Council.

The **University of Cyprus** is preparing a road safety study focused on the social impact of road accidents.

Involved in road safety issues are also the **Cyprus Youth Organisation, The Automobile Association**, the **Association of Cyprus Insurance Companies**, as well as several private sponsors of road safety programmes.

Transport policies

The Traffic Code has been modified over the past five years to include traffic regulations specifically for motorways and roundabouts, to introduce a penalty point system for all dangerous traffic violations, and to make compulsory the installation of speed limitation devices on all heavy vehicles.

Other changes include:

- the compulsory use of seatbelts in cars for all passengers
- the compulsory use of crash helmets for motorcycles
- the infliction of on-the-spot fines

The compulsory use of crash helmets has been extended to include moped riders in built-up areas. The on-the-spot fines for offences relating to seatbelts, crash helmets, mobile phones and speeding have been significantly increased.

An update of existing traffic signage specifications has recently been completed and is expected to be legally adopted within the first half of 2005.

Following Cyprus' accession to the European Union, the driving licence issuing procedures and legislation were amended to adopt the European rules and the European vehicle categories.

The new Traffic Code is expected to come into force by 2006.

The European directive for the compulsory use of seatbelts in the front seats of mini buses (and small trucks up to 7.5 tonnes) has been adopted in the "Traffic Law for Engine Vehicles" act. Similarly, the directives for annual technical inspection of buses and revision of driving licence requirements for professional drivers have been adopted in national legislation.

The adjustments to the provisions of the third driving licence Directive proposed by the Department of Road Transport to the Road Safety Unit in December 2003 include the discontinuation of paper-form driving licences and the introduction of plastic cards, the investigation of the potential for using micro-chips in the plastic card, the renewal of driving licences every 10 years, the introduction of the motorcycle category, the progressive access of young drivers, as well as fitness to drive requirements for professional drivers.

A sophisticated information and management system for driving and vehicle licences and records is used by the Department of Road Transport, containing all relevant information. A progressive permission for access to the information system's files is given to the administrative and managerial staff of the department (according to their rank), while all personnel has unrestricted access to the informative files of the system. The system's software is maintained and upgraded according to the operational needs of the department and the introduced changes to the licensing procedures.

Road safety action plans

The Ministry of Communications and Works has launched a 5-year Strategic Plan for Road Safety 2002-2006. The plan sets a quantitative target for the annual number of fatalities in Cyprus not to exceed 90 by the end of 2006. This corresponds to a reduction of 20 % in road accident fatalities, compared to the average number of deaths in the period 1996-2000. This first plan was followed by the Second Strategic Plan for Road Safety 2005-2010. The second plan has adopted the target from the European Road Safety Action Programme of halving the number of road fatalities by 2010.

The measures of the Second Strategic Plan for Road Safety are:

- the institutional approval and staffing of the Road Safety Unit
- the establishment of interdepartmental committees and working groups coordinated by the Road Safety Unit
- the submission of an annual action plan by each responsible authority, including required funding, personnel and equipment
- the collection and summary of the proposed action plans by the Road Safety Unit and the submission to and approval by the National Road Safety Council
- the submission of the approval by the National Road Safety Council action plans to the Government for final approval

Previously, all road safety measures were proposed directly to the Ministry of Communications and Works by each responsible authority. With the approval of the Second Strategic Plan in December 2004, an action plan for the year 2005 was formulated according to the procedures described above. The plan includes a number of actions in eight different sectors. The focus is on traffic law enforcement, road network improvement, vehicle safety and driver behaviour. The sectors refer to legislation, enforcement, awareness, traffic training, road safety, safe vehicles, driver training and testing, and emergency care.

The main road safety actions proposed for 2005 are the following:

- intensive traffic checks for speeding, drink-driving, seatbelt use and helmet use
- improvement of road network safety by upgrading of the horizontal and vertical signage system, installation of safety barriers, construction of pedestrian crossings, installation of crush-absorption equipment and relief line marking of motorways
- increased technical inspection of used vehicles and heavy vehicles
- improved procedures for driver examinations and seminars for professional drivers

Cyprus has no Transport or Road Safety Observatory. The Road Safety Unit is the responsible technical body for road accident monitoring and evaluation. The Road Accident Statistical Office of the Cyprus Traffic Police Department carries out a general evaluation on road safety, while black spot analyses are made by the Department of Public Works. All evaluations are reviewed and utilised by the Road Safety Unit.

Topics

A wide range of measures is being implemented to support a positive development within road safety. These measures are elaborated in the following sections.

Road users

The standard of drivers is being elevated through a variety of measures. Legislation concerning driving licences has been harmonised with Directives 91/439/EEC and 2000/56/EC. The theoretical examination for a driving licence now includes questions on road safety and knowledge of vehicle construction, and will soon be computer-based. Existing drivers are being targeted through publicity campaigns on crucial road safety topics, which include TV and radio spots, articles in the press, distribution of printed material, etc. A road safety game is currently being run on the internet with government and private sponsoring and valuable prizes for the winners.

Road safety education (RSE) was introduced in 1997 in secondary schools and in primary schools in 2004. RSE is supported by a road safety competition on television among teams of high school students. A number of road safety parks are currently being constructed which will enhance the road safety education efforts. The Ministry of Communications and Works will this year be sponsoring visits to primary schools by a mobile road safety park.

Regarding legislation and enforcement, the Police have been given two powerful legislative tools: The penalty point system and high on-the-spot fines which are proving to be quite effective deterrents. The following measures have been introduced:

- traffic violations of speeding and seatbelt use have been included in the point system
- seatbelt use has been made compulsory for the back seats of automobiles
- helmet use for motorcycles has been made compulsory also in residential areas
- The maximum alcohol level in blood tests is proposed to be set at 50 milligrams/100 millilitres (90 at present) and in breath tests to 22 micrograms/100 millilitres (39 at present).

In 2003, 20 of the 97 fatal accidents in Cyprus were attributed to speeding resulting in 23 deaths and 125 injuries. Drink-driving does not seem to be a serious problem in Cyprus, since it caused a total of 125 accidents in 2003 with 3 deaths and 45 injuries.

Vehicles

Cyprus is not a car producing country, thus the possibilities for significant influence on development of vehicle safety are naturally limited. The vehicle fleet is continuously being upgraded through harmonisation with EU legislation. This includes regular roadworthiness testing of vehicles, roadside inspections, compulsory use of seatbelts including child restraints, speed limitation devices on heavy vehicles etc. Tachographs will be introduced on heavy commercial vehicles and side and rear protective bars have been installed on heavy commercial vehicles. Since May 2004, all registered vehicles have to conform to European standards (European Type Approval Directives 70/156/ECC, 74/150/EEC and 92/61/EEC.).

Road infrastructure improvement

The arterial road network in Cyprus is under the jurisdiction of the Ministry of Communications and Works (Department of Public Works). This is approx. one-third of the total length of roads and includes motorways, the main roads along rural corridors and the primary urban road network. Municipalities are responsible for another third of the road network; the secondary urban roads. The remaining third of the road network are the rural roads between villages which are under the jurisdiction of the District Administrations (Ministry of the Interior).

Roads are designed in accordance with the official geometric standards of the Department of Public Works, Ministry of Communications and Works for urban and for interurban/rural roads. These were drafted by European experts and are based on international standards. Introduction of road safety audits is included in the 2005 road safety action plan.

The existing road network is continuously improved with the application of a variety of measures. The interurban and rural roads are upgraded with the paving of shoulders, installation of guardrails, improvement of road signs and markings and reconstruction of black spots and other high risk locations. Installation of crash cushions at motorway exits is planned for 2005. A feasibility study for installation of variable message signs on motorways is also planned for 2005. A large number of traffic calming schemes has been implemented on trunk roads through villages, where excessive speeds were recorded. The urban road network is upgraded through the construction of pedestrian facilities (zebra and pelican crossings as well as pedestrian subways and footbridges on urban dual carriageways), installation of traffic signals with controlled pedestrian crossings at junctions, construction of pedestrian footways, implementation of traffic calming measures around schools and other sensitive areas, installation of street lighting etc. The introduction of speed and red light cameras at black spots on urban and interurban/rural roads is also planned for 2005.

Other topics

Emergency services

The following measures have been taken or are planned for the improvement of the emergency response time and emergency services:

- the old ambulances of the public hospitals are gradually being replaced by new, fully equipped vehicles
- the creation of a new emergency call centre directly connected to the ambulance stations is being promoted
- the establishment of two ambulance stations operating on a 24-hour basis in the regions of Lemessos and Larnaka, covering the broader area and a large part of the Nicosia-Lemessos-Larnaka motorway network
- Arrangements have been made to secure volunteer drivers for all rural health centres
- New communication systems have been installed in ambulances and their control centres
- A new emergency call control centre will be established in the new Nicosia Hospital
- The ambulance service will be improved with introduction of paramedics, creation of new stations and expansion of the service
- A "paramedic's school" is also being planned and the composition of paramedic teams will be upgraded.

Victims of road accidents and their families receive free medical aid in the accident and emergency departments of the public sector if they are characterised as emergencies by the medical doctor (regulations related to the public hospitals and public services 2000 and 2002). Accident and emergency services are offered by the private sector as well, but at a nominal fee. Secondary care is provided in the public sector (including psychological support). The service is free for those who are entitled, and otherwise available at a cost based on financial criteria (according to the above mentioned regulations). Tertiary care for those with residual problems is provided free of charge.

The following measures have been taken to improve post-accident care:

- Continuous training of the medical/nursing staff of the accident and emergency care sections
- Operation of an emergency rescue unit
- Establishment of autonomous accident and emergency care sections
- Renewal of the ambulance fleet

The national legislation does not provide for the offer of legal aid to road accident victims or to their families.

Regarding legal issues, the relevant national legislation has been harmonised with the *acquis communautaire*. In relation to Directives 91/439/EEC and 2000/56/EC regarding driving licences, the theoretical examination has been revised and now includes questions on road safety and vehicle construction. The national legislation has also been harmonised with Directives 76/814/EEC, and 2003/59/EC and professional drivers of motor vehicles of over 7.5 tonnes GVW need to pass a written examination. They must also present evidence of driving experience and of having received driving training by an approved driving instructor for a minimum of 20 hours. The time allowed for the practical test of candidate drivers has been increased to 45 minutes for passenger cars (M1) and 60 minutes for buses and trucks.

Information

Contacts:

- Ministry of Communication and Works, Road Safety Unit, George Morfakis, Head of Road Safety Unit, e-mail: gморfakis@pwd.mcw.gov.cy
- Ministry of Communication and Works, Department of Road Transport, Soteris Kolettas, Senior Transport Officer, e-mail: skolettas@rtd.mcw.gov.cy

Websites:

- Ministry of Communications and Works (Υπουργείο Συγκοινωνιών και Έργων)– www.mcw.gov.cy
- Ministry of Communications and Works, Department of Road Transport – <http://rtd.mcw.gov.cy>
- Ministry of Health and Social Welfare (Υπουργείο Υγείας) – www.moh.gov.cy
- Cyprus Police (Αστυνομία Κυπρού)– www.police.gov.cy
- Ministry of Finance (Υπουργείο Οικονομικών)– www.mof.gov.cy
- Scientific Technical Chamber of Cyprus – www.etek.org.cy
- Cyprus Statistical Service (Στατιστική Υπηρεσία)– www.mof.gov.cy/cystat