

Road Safety and Enforcement Measures for Non-Urban Roads

By

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FOCUS OF PRESENTATION

- **Background**
- **Extent of Indian Road Network**
- **Global Trends: Road Safety Scenario**
- **Road Traffic & Safety Scenario on Indian Roads**
- **Recommended Measures to Reduce Accidents**
- **Enhancing Road Safety & Enforcement**

Background

- Indian economy growth rate - 6 to 9 per cent
- Road traffic growth - 7 to 10% per annum
- Vehicle population growth - 12% per annum.
- Accelerated Road Dev. - To sustain economic growth
- Expenditure outlay on road development Increased
- Public – Private partnerships increased through 100 % FDI.



Indian Road Network- Status (as of March, 2009)

(in kms)

Expressways	200
National Highway (NH)	70 548
State Highways (SH)	1 28 000
Major District Roads (MDR)	4 67 000
Rural and Other Roads	26 70 000
Total Road Length (approx)	33 35 748

- Second largest in the world.

- As per recent estimates, (MoRTH, 2008-09) N.H. network carry nearly 60% of freight and 87% of passenger traffic.

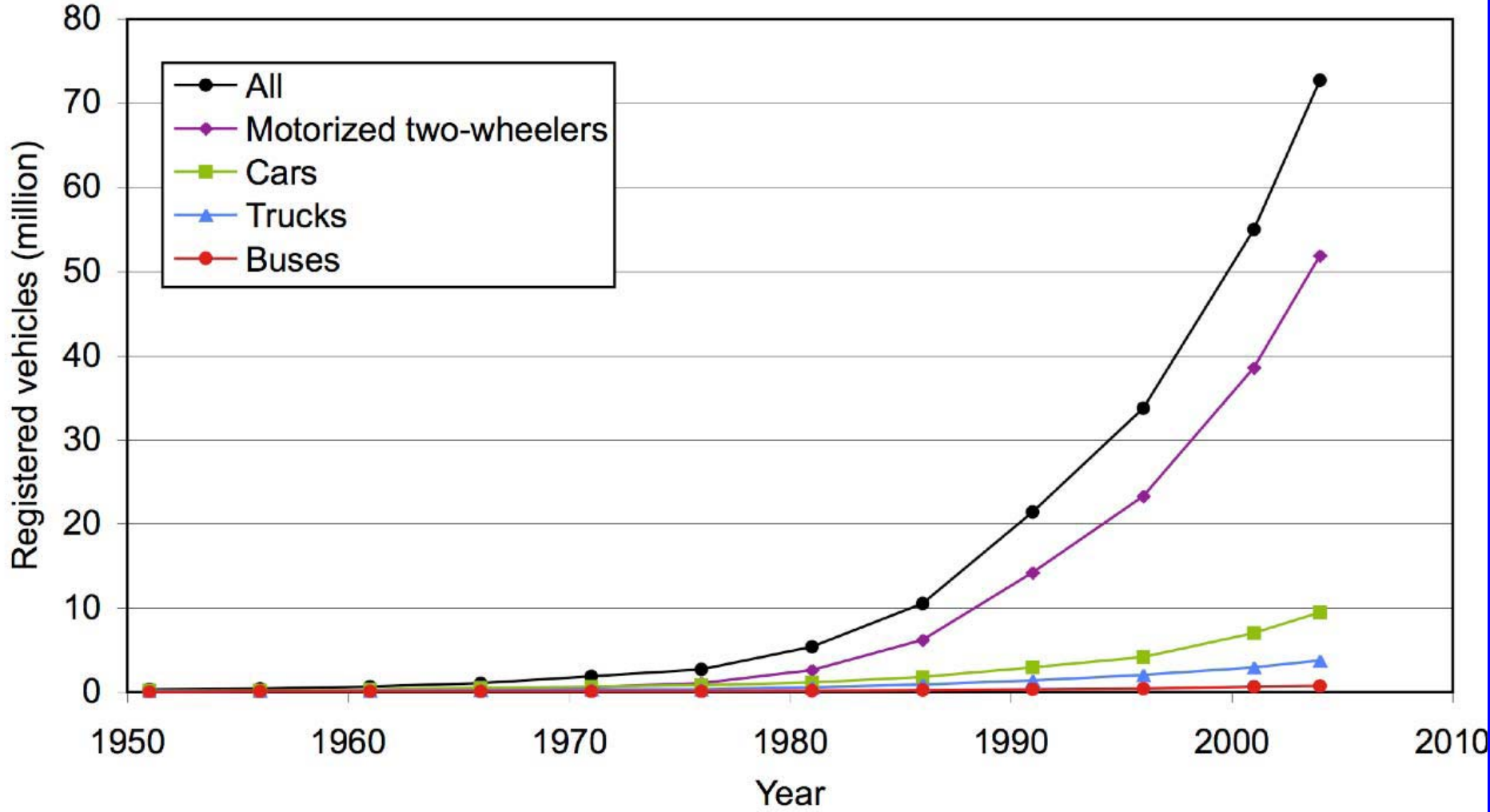
The percentage of National Highways in terms of width is:

Four Lane / Six Lane / Eight Lane	12 053 km (17%)
Two Lane (bi-directional)	37 646 km (53%)
Single Lane/ Intermediate Lane	20 849 km (30%)



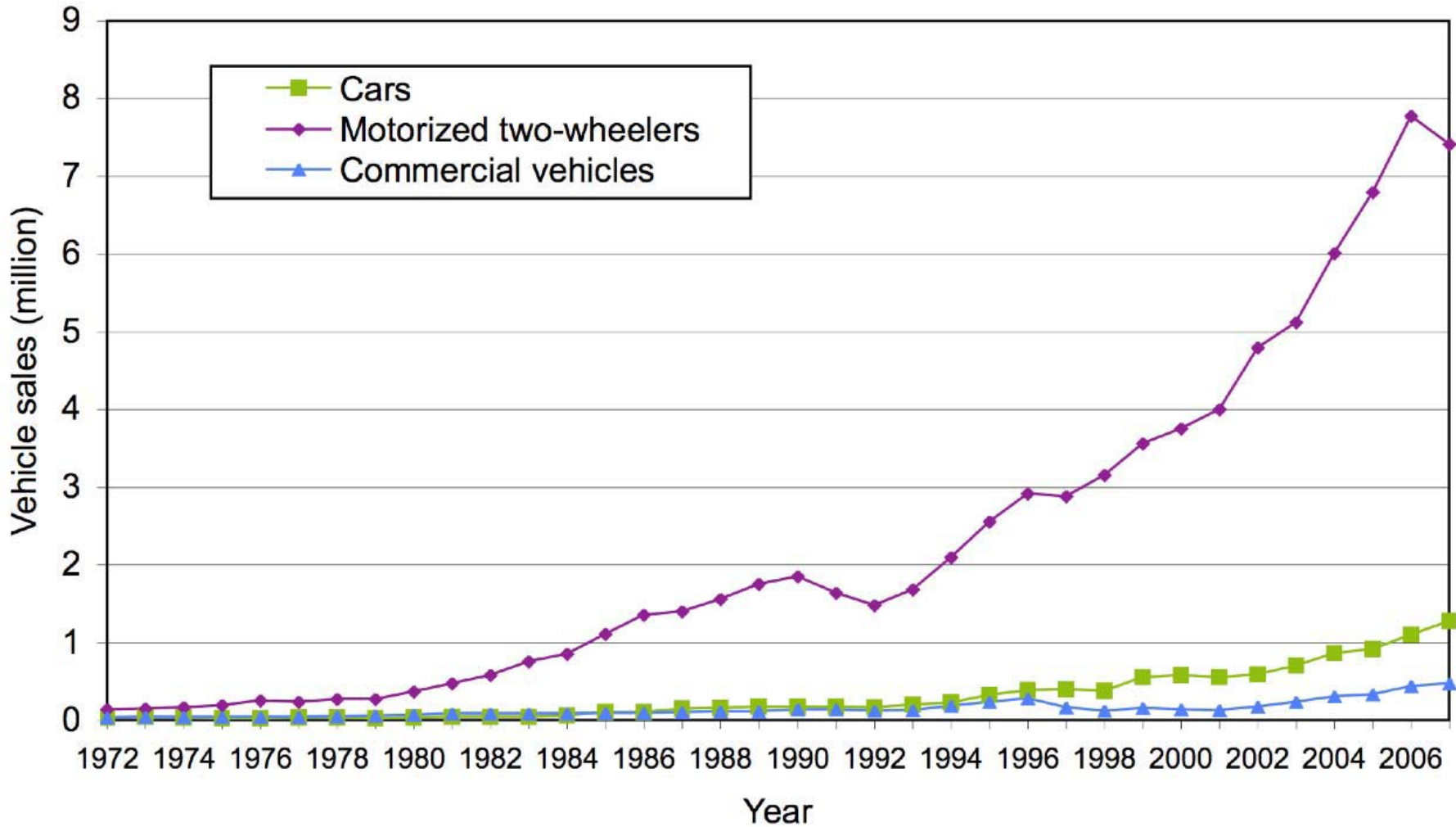
Source: Annual Report, MoRTH 2008-09





Total Number of Registered Vehicles in India

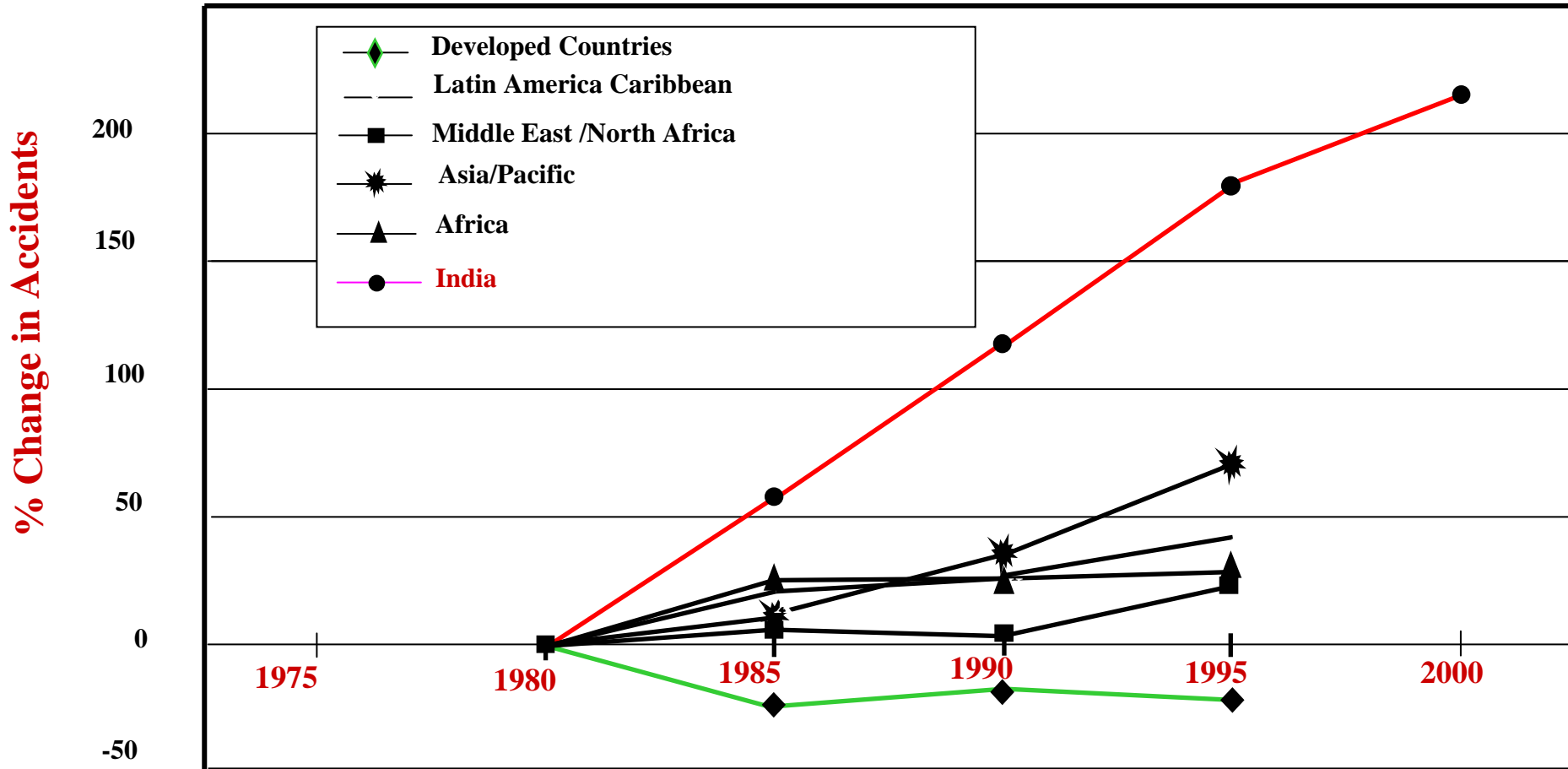




Year-wise Total Number of Vehicles Sold in I



Global Trends: Road Accidents



- Most significantly road deaths have fallen by about 10% over the last ten years in the **developed countries**,



- WHO 2004 estimates

Road Fatalities – 1.2 million,

Number of injured – 50 million

- In the European Union, more than 40,000 people are killed and more than 150,000 are disabled for life by road crashes.

- Almost 85% of the world's road traffic accident victims are found in developing countries .

- Road traffic death rates have decreased in high income countries since 1970s while in low income countries it has increased

Road Traffic and Safety aspects on Selected National Highway Section



Krishnagiri - Vaniyambadi (KR-1)





KARUR BYPASS ON NH-7
Aerial View of Four Lane ROB

Jaipur - Kishengarh



Consistency in Design Essential



मुंबई करिता
टोल-द्रुतगती मार्ग
MUMBAI VIA
TOLL EXPRESSWAY
मुंबई रा.मा. 4
MUMBAI N.H. 4

मुंबई करिता
टोल द्रुतगती मार्ग
MUMBAI VIA
TOLL EXPRESSWAY



2 6 2004





Frequent and Inadequately Designed Median Openings





III Maintained/Absence of Pedestrian Facilities





Absence of Clear Zone





Wrong Side Movement of Traffic



Intersection of village road not designed for geometry





**Badly Designed and
Maintained**

Shoulders are Potential



Poorly maintained vehicle - not crash worthy

Road Accidents in India - A Perennial Disaster

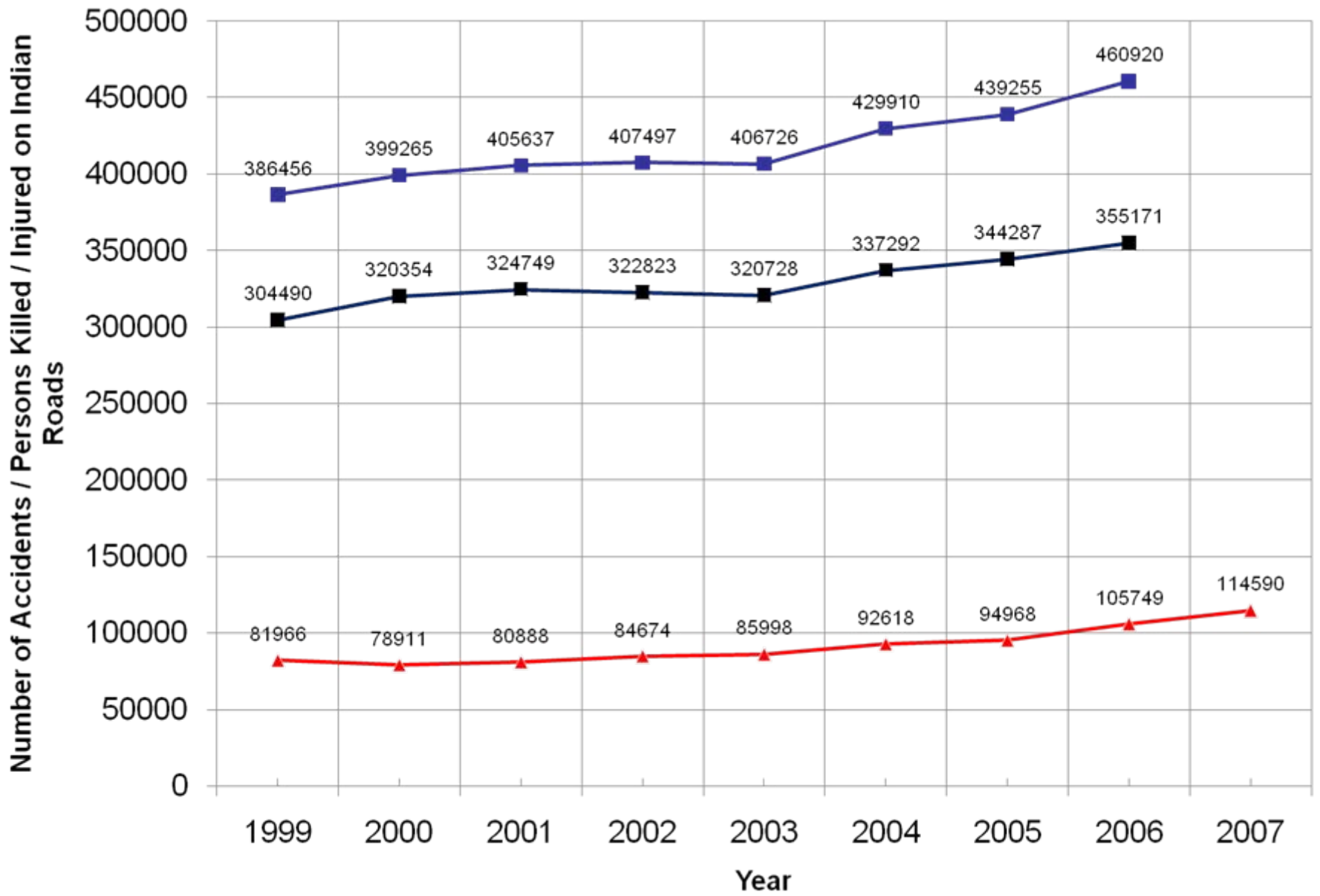
- 1 percent of the world's vehicles but accounts for six percent of the world's accidents.
- Compared to developed countries, road crashes is at least six times worse.
- The annual rate of mortality – 8%.

Road Safety - Perennial Disaster

(Contd.)

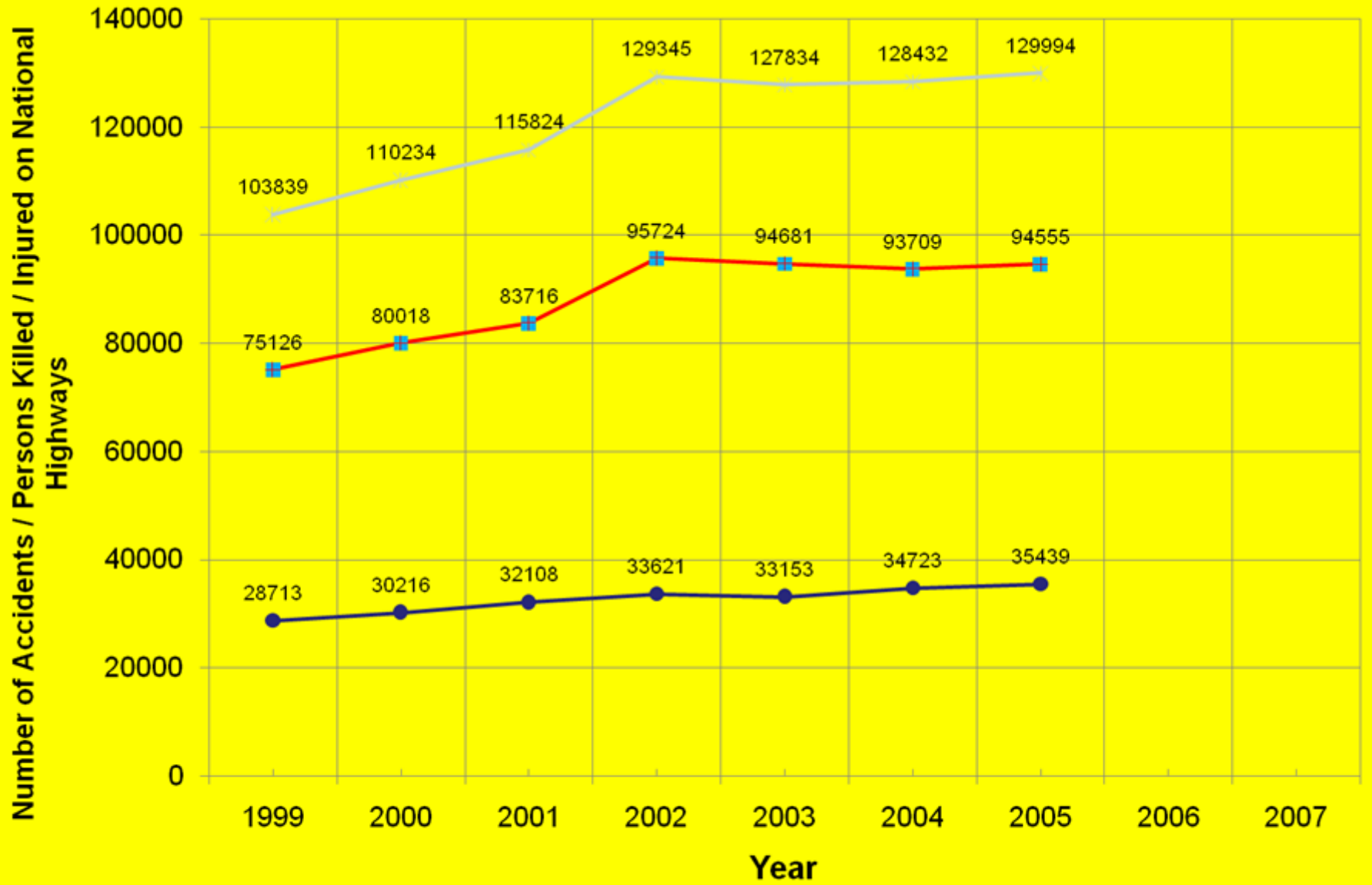
- 70% of total road traffic plying on NH/SHs contributing to about two third of deaths and injuries.
- 114 590 persons killed in 2007 - Implies 300 people getting killed daily i.e. One accident every 90 seconds.
- About 30 – 50% of fatalities occurring on inter-city highways consists of pedestrians, bicyclists & occupants of other types of slow vehicles.
- About 15% of fatalities occur in urban India.

 2% of Gross Domestic Product (GDP) cost to the nation.



■ Total Accidents on all Roads
 ▲ Persons Killed on all Roads
 ■ Persons Injured on all roads





◆ Total Accidents on National Highways
 ■ Persons Injured on national Highways
 ● Persons Killed on National Highways



Recommended Measures to Reduce Accidents

- Provide continuous service roads and drainage
- Regulate the number of median openings
- Redesign intersections & median openings (provide pocket lanes and appropriate turning radius)
- Provide acceleration and deceleration lanes at access road junctions
- Control led access to highway

Contd..

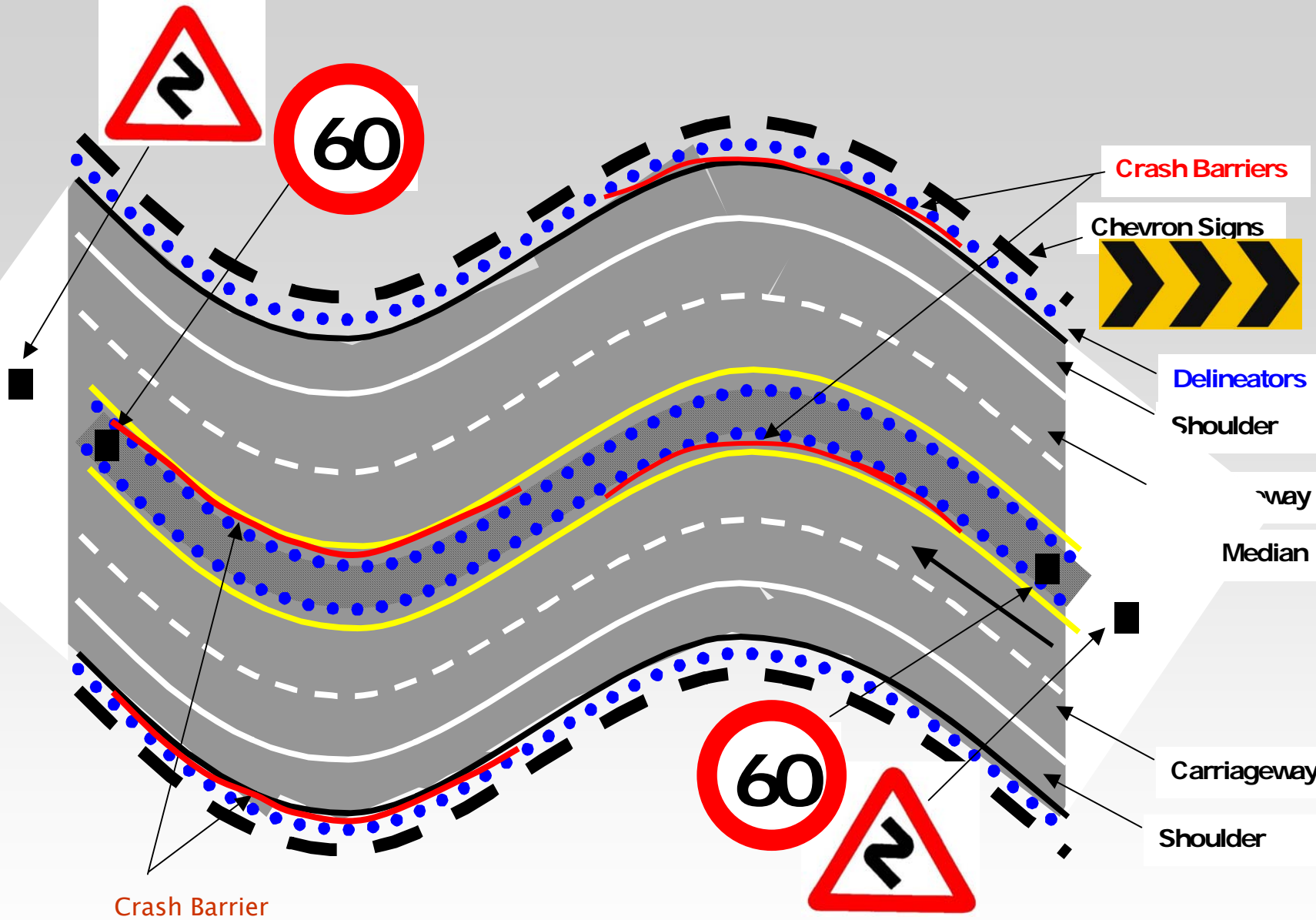


Recommended Measures

(Contd...)

- Provide pedestrian facilities such as footpaths, zebra crossings, flashing signals and railings at appropriate locations
- Redesign / Relocate bus bays
- Ban kerbside parking
- Maintain road markings and provide appropriate road signs
- In the long term, consider providing underpasses and subways at appropriate locations





An Example of Safety Features at Curves



New Jersey Safety Barrier



When a vehicle moves on these strips it creates noise and thus cautions the driver to get back to the main carriageway.

400mm X 175 mm X 25mm
@ 125mm spacing



Measures for Enhancing Road Safety on Inter-City Corridors

- Provision of service lanes on high speed corridors for slow and non-motorized traffic.
- To discourage the wrong way travel on divided highways, continuous service lanes and safe road crossings to be provided at convenient distances through surface tunnels.
- Driving under the influence of alcohol and other drugs should be severely punished.
- Graduated Licensing Scheme to be introduced and the Motor Vehicle Act to be amended incorporating the same.

Measures for Improving Road Safety (Contd..)

- Strict Vigilance on the overloaded vehicles.
- Checking the physical fitness of vehicles and their compliance with motor vehicle regulations
- The geometric design of the road should be audited from road safety angle. Sight distance, super-elevation should be thoroughly checked in such audit.
- Installation of Larger Road signs esp. the mandatory ones like the speed limit boards and some of the cautionary signs like zigzag road etc.
- Installation of Important road sign like speed limit boards, no overtaking etc. on gantry type overhead

Thank You