

Road Safety on Arterial Roads

Ricardo G. Sigua

Professor, UP College of Engineering

Affiliate, UP National Center for Transportation Studies

National Cost of Traffic Accidents

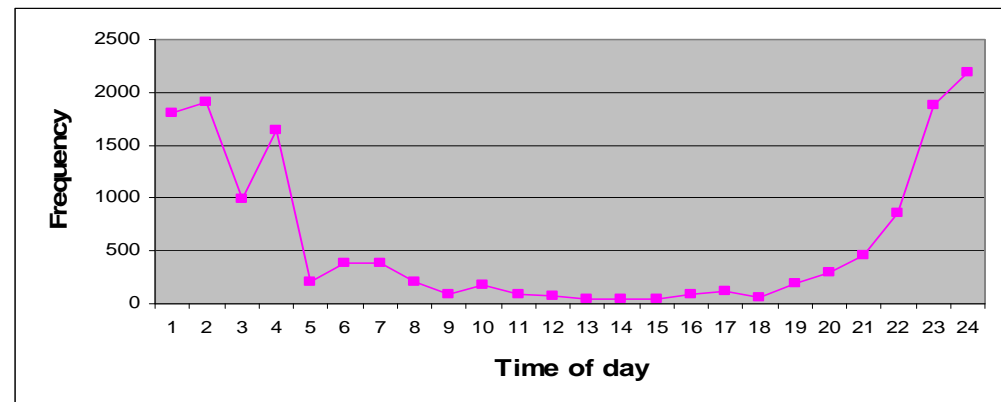
Accident Type	Average Cost (Pesos)	Number of Accidents		Total Cost (million pesos)	
		As reported (Police)	Adjusted for under-reporting	Based on reported accidents	Adjusted for under-reporting
Fatal	2,273,000	714	8,180	1,623	18,593
Serious Injury	353,000	797	93,820	281	33,119
Minor Injury	69,000	1,672	402,150	115	27,748
Damage-Only	55,000	9,623	469,090	529	25,800
TOTAL		12,806	973,240	2,548 (U\$45M)	105,260 (US\$1.9B)

Source: Sigua, UP NCTS

**2.6 % of the
Philippines' GDP**

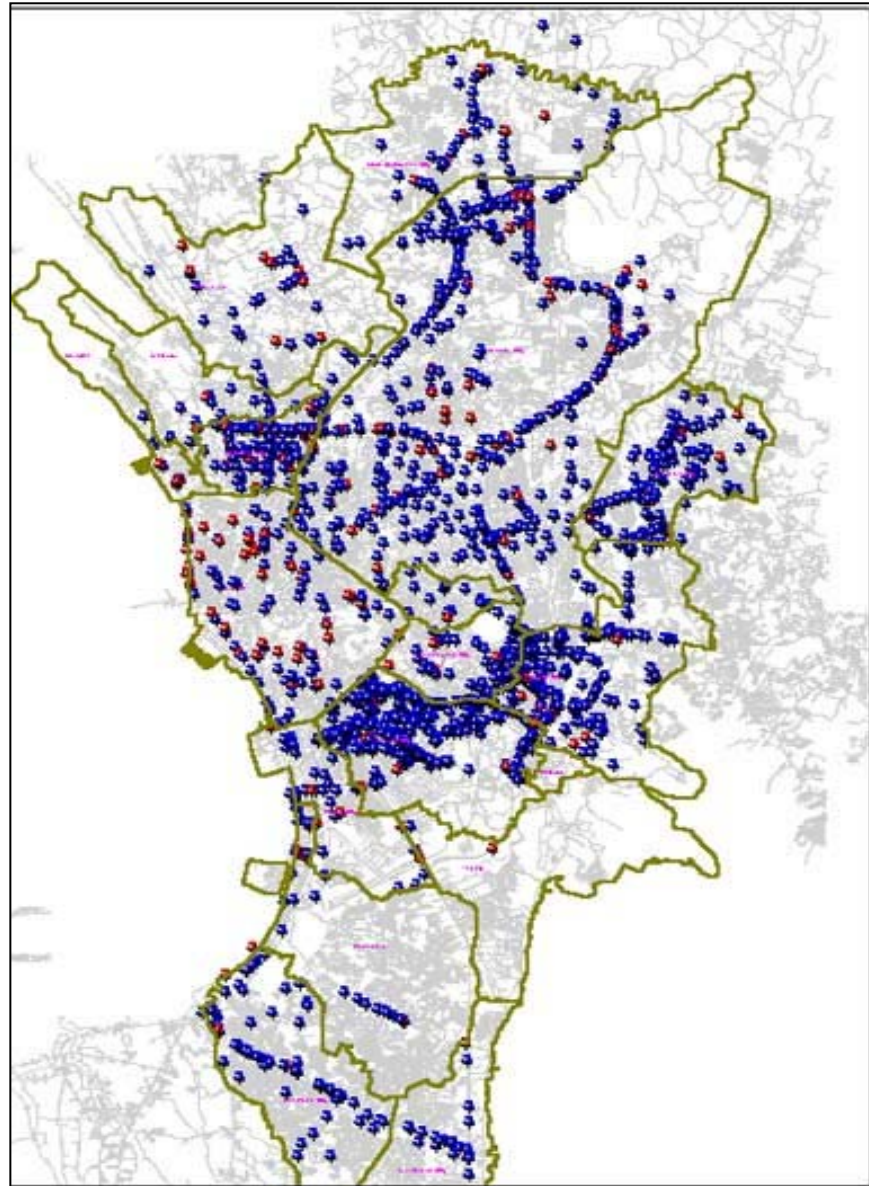
2002 Statistics

	Philippines	MetroManila	
		Number	%
Area, sq.km. (x1000)	294.55	0.636	0.22
Population (million)	79.48	10.76	13.5
Roads, km. (x1000)	161	4.8	3.0
Vehicle Registration(million)	3.98	1.33	33.4
Fatalities	714	240	33.6
% of nighttime accidents	30	60 (fatal) 40 (non-fatal)	---



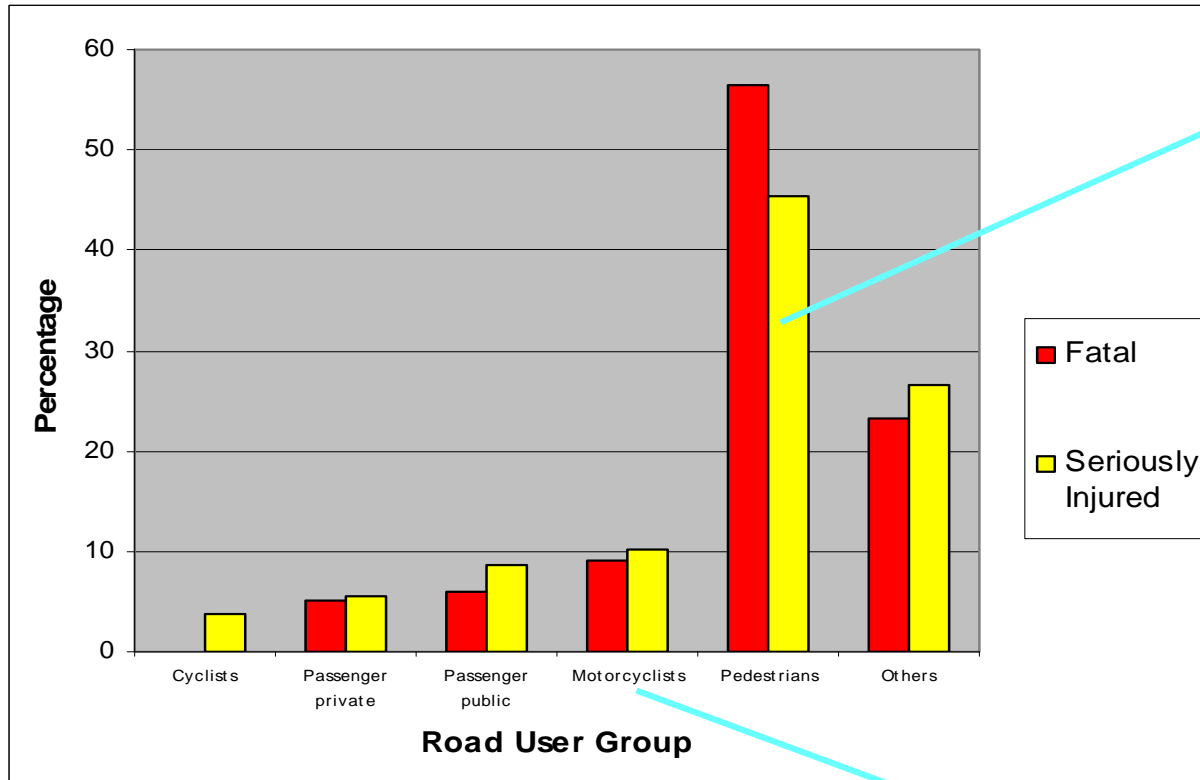
Source of Data: TMG

Location of Traffic Accidents (2003)



Source: MMDA

Most Vulnerable User Group (Vibal; 2001)

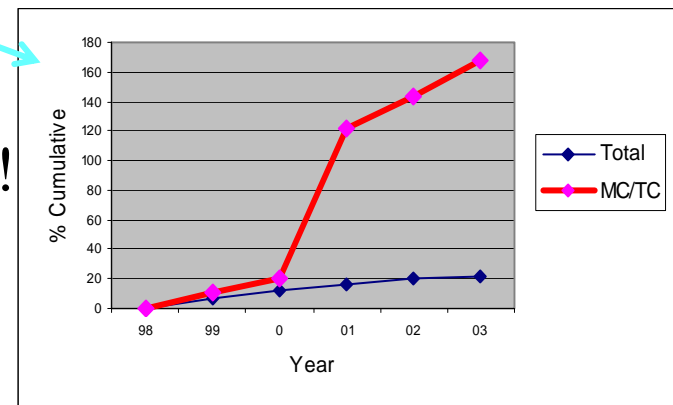


Pedestrian casualties below 15 years old:
Fatal : 24%
Seriously Injured: 37%

Source of Data: LTO

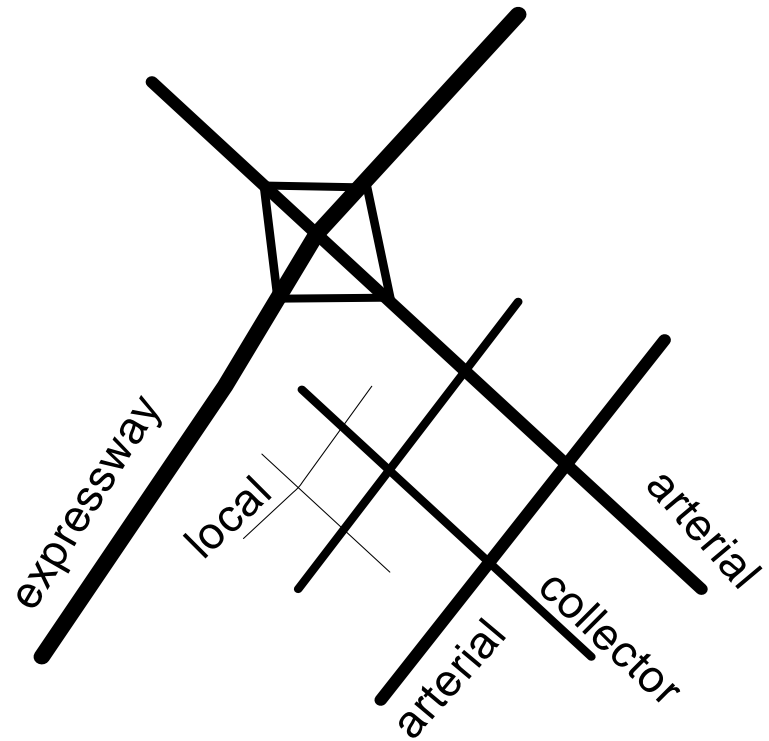
Another growing concern!

Rate of Increase of Motorcycles will add to the safety problems



Hierarchy of Roads in Urban Area

- Expressways
- Arterial streets
- Collector streets
- Local streets



Metro Manila Urban Roads

Circumferential (C1 to C5)
and Radial(R1 to R10)

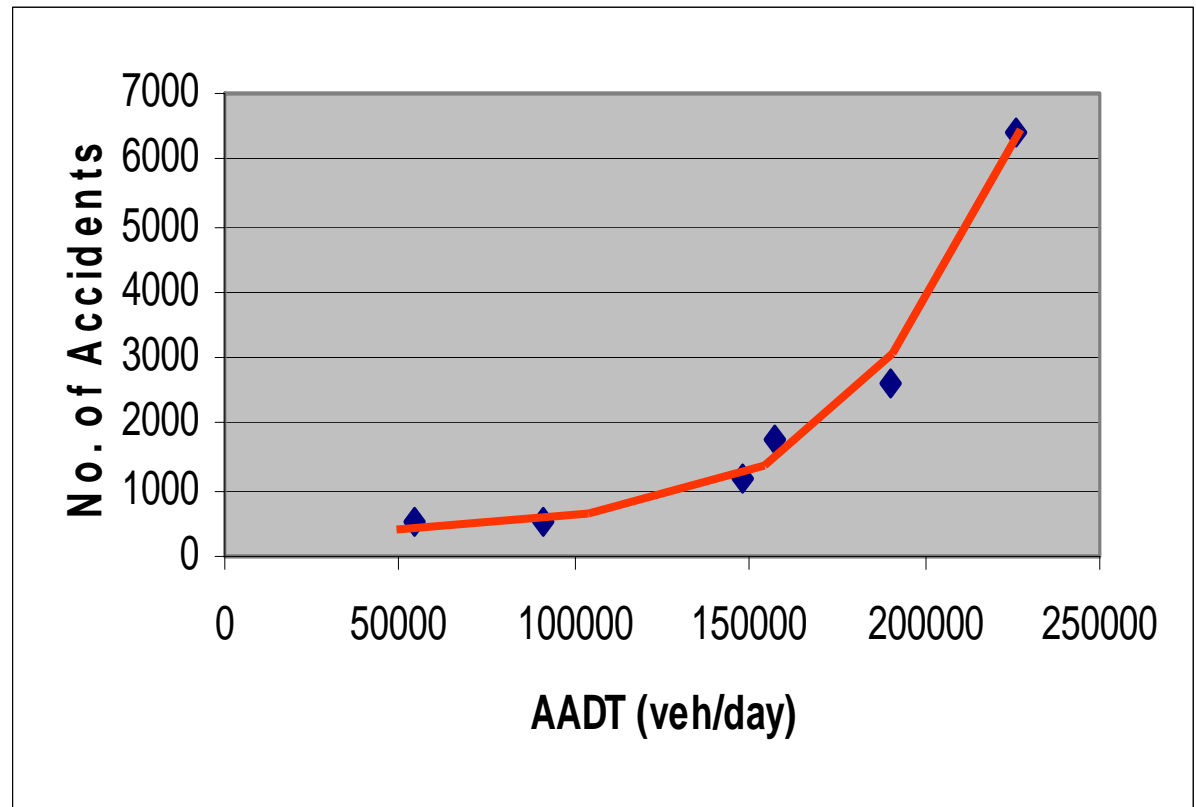


Traffic Accidents at 7 Arterial Roads, 2005 Source of Data: MMDA

Arterial	Fatal	Non-fatal	Damage	Total
R10	5	51	271	327
Quezon Ave	5	140	1033	1178
C-3	2	79	453	534
Commonwealth	34	529	2065	2628
C-5	22	262	1461	1745
EDSA	17	582	5834	6433
Marcos Highway	2	85	407	494
Total	87	1,728	11524	13,339

Traffic Volume and Accidents along Arterials in Metro Manila

Arterial	AADT Veh/day	No. of Accidents
R10	---	327
Quezon Ave.	147,936	1,178
C-3	53,835	534
Commonwealth Ave.	190,491	2,628
C-5	156,938	1,745
EDSA	225,695	6,433
Marcos Highway	90,693	494



Source of Data: MMDA and TEC

Motorcycle Involvement in Accidents

Metro Manila

Vehicle Type	Fatal	Injury	Total	%
Cycle/Pedic	21	695	716	4.20
Motorcycle	79	4024	4103	24.08
Tricycle	11	1330	1341	7.87
Car	97	5075	5172	30.35
Jeepney	36	1751	1787	10.49
Taxi/Fx	12	1006	1018	5.97
Bus	21	579	600	3.52
Van	46	1394	1440	8.45
Truck	89	759	848	4.98
Train	8	7	15	0.09
TOTAL	420	16620	17040	100.00

Rank

→ 2
→ 1
→ 3

Source of Data: MMDA

Fatal and Injury Accidents along Arterials

Road	Cycle	Motorcycle	Tricycle	Car	Jeepney	Taxi/Fx	Bus	Van	Truck
R10	7	11	4	18	8	2	1	6	30
Quezon Ave	9	50	6	83	26	15	6	17	14
C-3	13	16	10	39	12	4	0	20	30
Commonwe	26	183	38	243	138	58	73	95	33
C-5	18	117	16	158	31	29	3	45	33
EDSA	21	159	9	275	62	74	195	94	37
Marcos High	6	43	4	46	17	9	0	10	8
Total	100	579	87	862	294	191	278	287	185

Rank

2

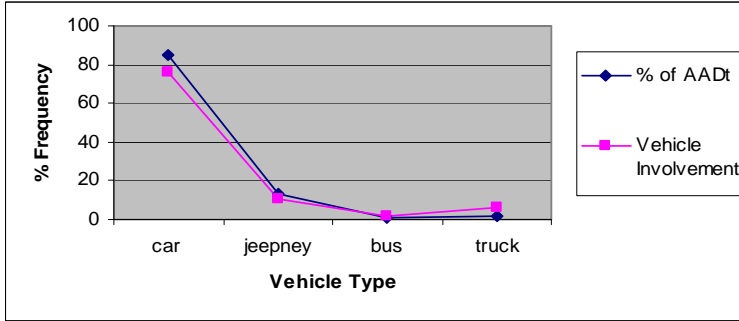
1

3

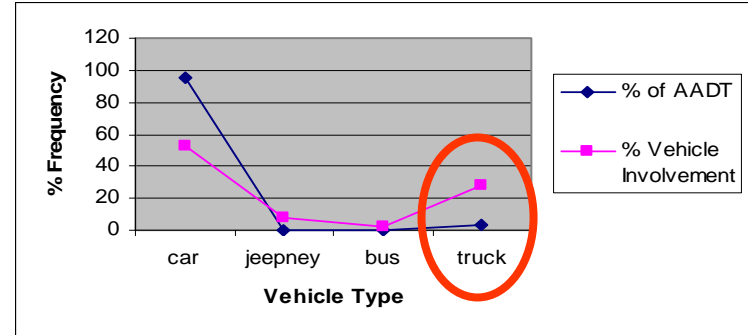
3

3

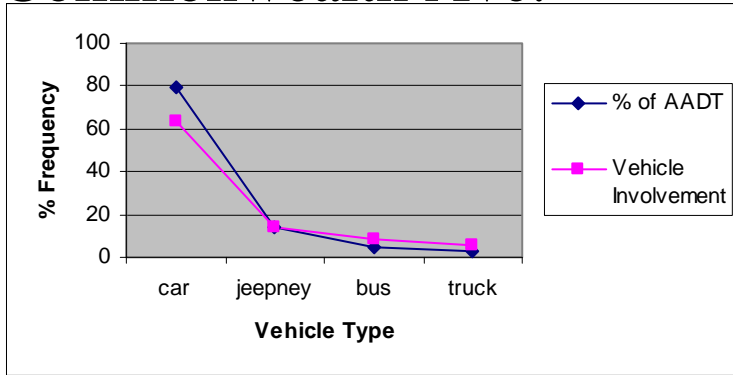
Quezon Ave.



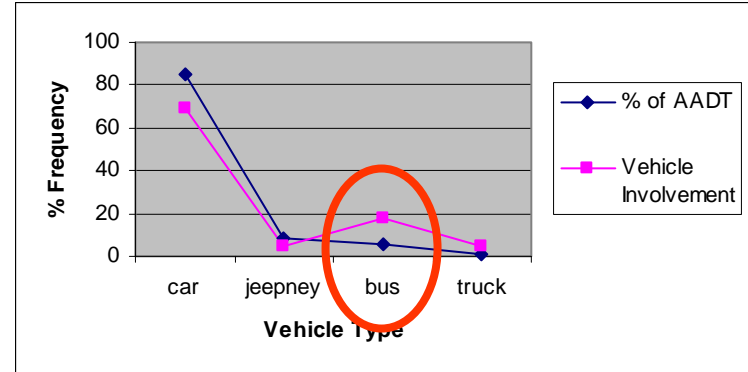
C-3



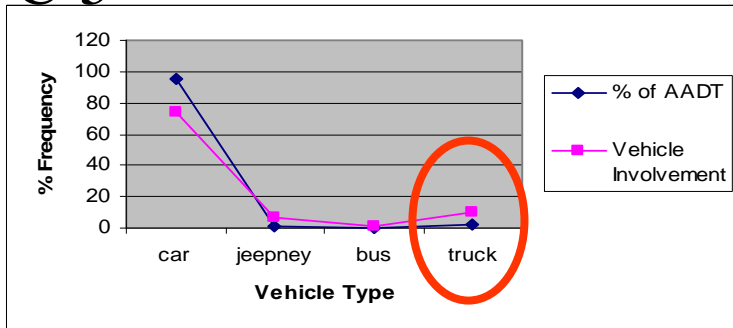
Commonwealth Ave.



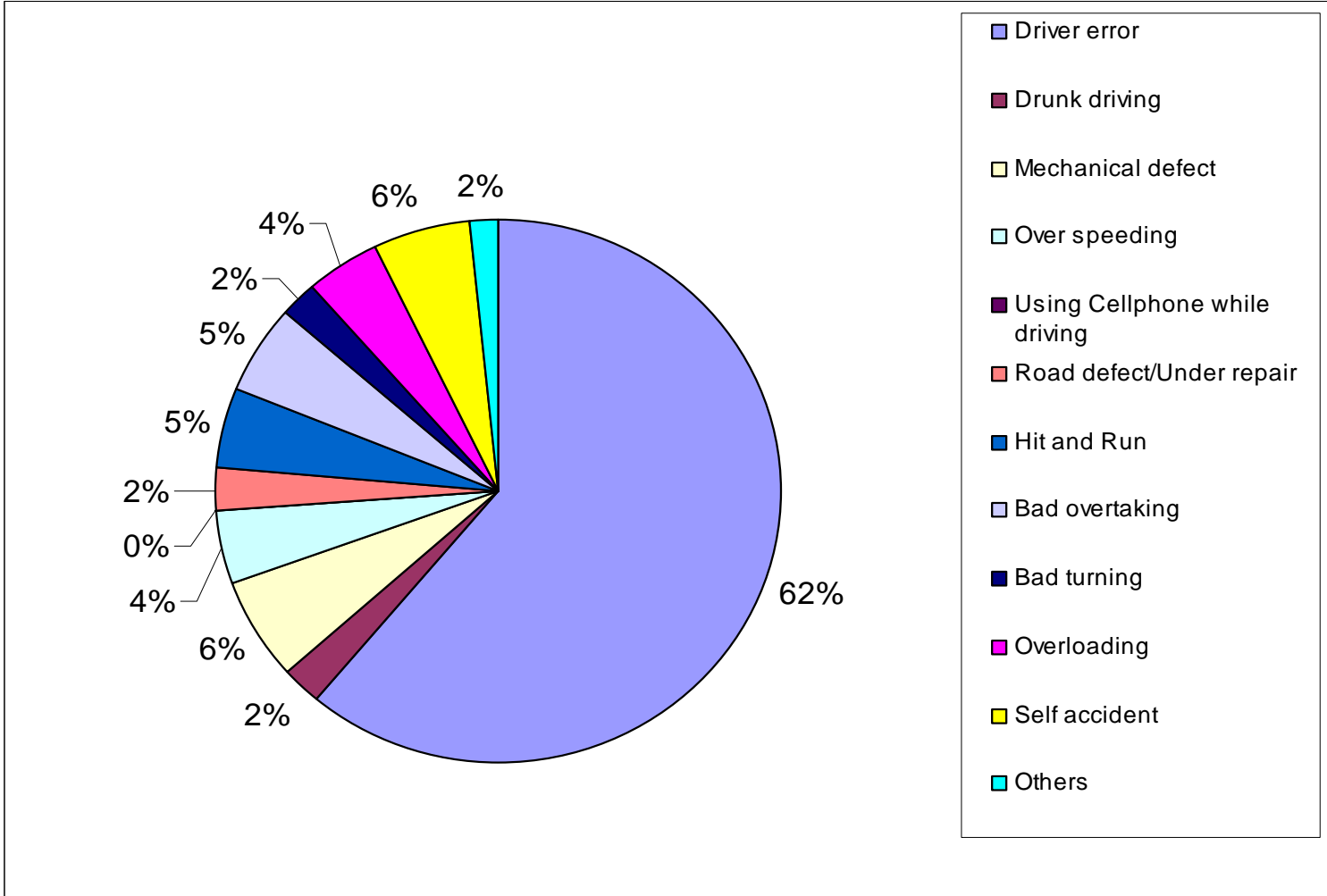
EDSA



C-5



Veh. Volume and Accident Involvement



Cause/Nature of Accidents (2001) Source of Data: TMG

Unanswered Questions

Who were the casualties/victims?

- The drivers? Passengers? Pedestrians?

What were the real causes?

- Deficiency in the road (pavement condition, geometry, lighting, traffic management)?
- Human error?
- The vehicle?