

MMARAS

Metro Manila Accident Reporting and Analysis System

Annual Report
January to December 2007

Produced by the Road Safety Unit (RSU)
Traffic Operations Center (TOC)
Metropolitan Manila Development Authority (MMDA)

Introduction

The Metro Manila Accident Reporting and Analysis System (MMARAS) is operated by the Road Safety Unit (RSU) of the MMDA-Traffic Operations Center (TOC), with the cooperation and assistance of the Traffic Enforcement Group under National Capital Regional Police Office (TEG-NCRPO) Philippine National Police (PNP).

The objective is to compile and maintain an ongoing database of 'Fatal' and 'Non Fatal' including the 'Damage to Property' road accidents, which can indicate areas where safety improvements need to be made. The system will also allow the impact of improvement measures to be monitored.

This report is intended to be an annual analysis of 'Fatal', "Non Fatal' and 'Damage to Property' road accidents that have been recorded by the PNP Traffic Accident Investigators for the year 2007. The information is presented in graphical and tabular form, which provides a readily identifiable pattern of accident locations and causation patterns. Annual comparisons of traffic accident statistics are also included in this report.

The Road Safety Unit currently has 9 data researchers who gather traffic accident data from different traffic offices and stations of the Traffic Enforcement Group (TEG-NCRPO) within Metro Manila. Previously, only those incidences involving Fatal and Non Fatal are gathered and encoded at the MMARAS database. But for the year 2005 up to present, we included the Damage to Property incidence so that we can see the significance and the real picture of what really is happening in our roads and also it gives us additional information in analyzing the causes of accident.

Although influx of traffic accident data increases tremendously, the Road Safety Unit managed to store this damage to property incidences to our MMARAS database and now included in the analysis for the formulation of remedial measures that would be introduced on the identified black spots.

The assistance and cooperation of the traffic investigators will be necessary to maintain an accurate record of the facts surrounding every traffic accident within Metro Manila, since a truly significant picture will only develop over time. The work of the Road Safety Unit will be crucial in providing an appropriate directional thrust in the fight to make the roads of Metro Manila a safer place for everyone.

The Metropolitan Road Safety Unit can be contacted for further information or assistance on Tel: 882-4151-57 loc. 297.

Compilation of January to December Reports for the Year 2007

Data Sources

Two data sources are available to the RSU:

- Individual report forms for each accident, gathered by Data Researchers Group of the RSU from different stations and Districts Offices of the Traffic Enforcement Group; and
- Clippings of road traffic accident from different newspapers and tabloids that is available at the office of the Public Affairs Service (PAS) of the MMDA.

We cut-off clippings of road traffic accident from different newspapers and tabloids for compilation of the same and reference for under reported incidences. However, only the first are entered into MMARAS, and only these provide the basis for the statistics presented in this report.

Overall Statistics

Table 1. Shows the number of road accident reports gathered and compiled from January to December 2007, also classified by month.

Month	Fatal	Non Fatal Injury	Damage to Property	Grand Total
January	37	914	3820	4,771
February	34	871	4015	4,920
March	24	879	4164	5,067
April	22	860	3874	4,756
May	28	943	4309	5,280
June	30	982	4378	5,390
July	32	1000	4777	5,809
August	25	834	4292	5,151
September	25	978	4482	5,485
October	25	1061	4299	5,385
November	30	993	4232	5,255
December	26	1065	4712	5,803
Grand Total	338	11,380	51,354	63,072

Table 2. Shows the number of persons killed and injured in road accident for the months of January to December 2007.

	Central	Eastern	Northern	Southern	Western	Total Persons
Fatal	83	63	46	109	46	347
Non Fatal	4301	2860	1725	4234	903	14,023
Total	4,384	2,923	1,771	4,343	949	14,370

Note that a 'fatal' accident involves at least one person killed, while a 'non-fatal' accident at least one person injured but no fatalities.

Table 3. In terms of the number of accidents involved, by accident severity, this translates to:

	Central	Eastern	Northern	Southern	Western	Total
Fatal	82	59	45	109	43	338
Non Fatal	3374	2452	1244	3694	616	11,380
DTP	14387	11401	3381	18653	3532	51,354
Total	17,843	13,912	4,670	22,456	4,191	63,072

DTP – Damage to property

Table 4. Below indicates the distribution of accidents by cities and municipalities in Metro Manila from January – December 2007.

City	Fatal	Non Fatal Injury	Damage to Property	Grand Total
Caloocan	30	778	2148	2,956
Las Piñas	9	555	2678	3,242
Makati	25	930	6208	7,163
Malabon	2	217	489	708
Mandaluyong	7	292	2810	3,109
Manila	43	616	3532	4,191
Marikina	27	1126	2276	3,429
Muntinlupa	9	502	3060	3,571
Navotas	3	41	182	226
Parañaque	27	603	2957	3,587
Pasay	13	407	2138	2,558
Pasig	21	739	4705	5,465
Pateros		34	125	159
Quezon	82	3374	14387	17,843
San Juan	4	295	1610	1,909
Taguig	26	663	1487	2,176
Valenzuela	10	208	562	780
Grand Total	338	11,380	51,354	63,072

On the table no. 5, the municipality of Pateros has the lowest number of incidences for year 2007 from January to December, followed by Navotas. We can now consider these LGU's to be the safest in Metro Manila in terms of road traffic accident is concerned, since they have no/lesser recorded fatal and non-fatal incidences in the MMARAS. This maybe attributed to the following:

- Small land area within NCR
- No major arterial road compared to other cities
- Not considered as a Central Business Districts (CBD's)
- Minimal road accidents, and/or
- Manageable traffic direction and control

On the other hand, the City of Quezon dominates all the cities and municipalities of Metro Manila in terms of fatal road traffic accident followed by City of Manila. This is because of the following several factors:

- Both are Central Business Districts (CBD's) with high social and economic activity.
- Quezon City has the biggest land area (166.2 sq. km.) among the cities in Metro Manila.
- It is noted that 4 on the 7 major thoroughfares such as EDSA, Commonwealth Ave., Quezon Ave. and Radial Road 10 are located within these cities.

However, problems on road traffic accident in Quezon City would be given preference by this unit in conducting road safety audit and providing remedial measures on the "blackspots" or accident-prone areas of this city. On this process, traffic accident might be reducing in the future.

Known deficiencies

The concept of collecting traffic accident data was revised by tasking the personnel of the Metropolitan Road Safety Unit - Data Researchers Group to gather and copy all those traffic accidents happened in Metro Manila through the available records of every traffic stations instead of letting the Traffic Accident Investigator make their own traffic accident report and be submitted in this office. This new concept increases the statistics of collected road traffic accident data.

Given the complex mechanism for collecting and gathering of road accident data in Metro Manila, and the relatively large number of Traffic Accident Investigators involved, it is inevitable that there will be some data that is missed from the database and these are those under reported incidences. At the present time, however, there is no firm evidence that large numbers of accidents are being omitted because copied data are based from the records on the log book of every traffic stations where traffic accidents (major or minor) have been logged.

Data Analysis

Types of person involved

The following tables give a breakdown of the number of persons involved in road accidents during the past year, categorized by:

- Drivers : person driving a mechanically propelled vehicle or riding a Pedal cycle
- Passengers : anyone carried-in or on a mechanically propelled vehicle
- Pedestrians : anyone traveling on foot.

Fatalities

District	Drivers Killed	Passengers Killed	Pedestrians Killed	Total Killed
Central	24	11	48	83
Eastern	17	14	32	63
Northern	22	5	19	46
Southern	37	11	61	109
Western	15	7	24	46
Total	115	48	184	347

Injuries

District	Drivers Injured	Passengers Injured	Pedestrians Injured	Total Injured
Central	1486	1531	1284	4,301
Eastern	1244	832	784	2,860
Northern	578	583	564	1,725
Southern	1538	1064	1632	4,234
Western	371	383	149	903
Total	5,217	4,393	4,413	14,023

A person involved in a road accident may indicate a driver, a passenger or a pedestrian. Of these types of persons involved, we have recorded 184 pedestrians, 115 drivers and 48 passengers that have been killed in road accidents since January up to December 2007. While looking into persons injured, 5,217 are drivers, 4,393 are passengers and 4,413 are pedestrians. The relatively high proportion of drivers, passengers and pedestrians killed and injured is a cause for concern.

Breakdown by time of day

The following table represents the frequency of incidents by time of day. However, there were a number of accidents this year that did not have the time of the incident recorded. These involved nine (9) fatal, three hundred and six (306) non-fatal injury and eight hundred and sixty-three (863) damage to property accidents.

Time Hour	Fatal	Non Fatal Injury	Damage to Property	Grand Total
0	10	190	719	919
1	21	284	828	1,133
2	19	276	756	1,051
3	9	217	630	856
4	14	291	902	1,207
5	15	296	984	1,295
6	7	390	1530	1,927
7	6	482	2242	2,730
8	9	542	2661	3,212
9	22	584	2933	3,539
10	18	596	3482	4,096
11	10	603	3600	4,213
12	13	633	3006	3,652
13	5	469	2670	3,144
14	14	548	3162	3,724
15	16	576	3334	3,926
16	15	598	2897	3,510
17	10	611	2512	3,133
18	17	491	2021	2,529
19	15	490	2338	2,843
20	16	528	2132	2,676
21	13	500	2068	2,581
22	14	461	1693	2,168
23	21	418	1391	1,830
No Time Indicated	9	306	863	1,178
Grand Total	338	11,380	51,354	63,072 (100%)
Day-time (6:00-17:55)	145 (00.23%)	6,632 (10.52%)	34,389 (54.52%)	41,166 (65.27%)
Night-time (18:00 – 5:55)	193 (00.30%)	4,748 (07.53%)	16,965 (26.90%)	21,906 (34.73%)

Overall, 21,906 or 34.73% of accidents occurred during the hours of darkness and without time indicated, while the 41,166 or 65.27% occurred during the daytime. But, it can be observed that most of the accidents occurred at daytime but Fatal accidents are considered high during night-time and wee hours in the morning. Drivers, Passengers and Pedestrians are advised to be cautious and attentive during these particular hours.

Breakdown of vehicle types involved in accidents

The classification of vehicle types within MMARAS is as follows:

- Cycle/Pedicab : human-powered vehicle
- Motorcycle : two-wheeled mechanically propelled Vehicle
- Motor Tricycle : three-wheeled passenger-carrying mechanically propelled vehicle
- Car : privately-owned mechanically propelled vehicle, which included all forms of 'Private use' small passenger-carrying vehicle.
- Jeepney/Taxi/Fx/Bus : mechanically-propelled vehicle which carries passengers on payment of a fee.
- Van : small vehicle for carrying goods
- Truck : large vehicle for carrying goods

The following table indicated the distribution of vehicles involved in accidents from January to December 2007:

Vehicle Type	Fatal	% of Total	Non Fatal Injury	% of Total	Damage to Property	% of Total	Total No. of Vehicles
Cycle-Pedicab	20	4.21%	585	3.23%	307	0.30%	912
Motorcycle	113	23.79%	5873	32.46%	5883	5.81%	11,869
Motor Tricycle	17	3.58%	1235	6.83%	1782	1.76%	3,034
Car	91	19.16%	5210	28.80%	56148	55.48%	61,449
Jeepney	61	12.84%	1869	10.33%	9183	9.07%	11,113
Taxi / Fx	18	3.79%	1031	5.70%	5715	5.65%	6,764
Bus	27	5.68%	467	2.58%	4382	4.33%	4,876
Van	41	8.63%	992	5.48%	9620	9.51%	10,653
Truck	73	15.37%	607	3.35%	6413	6.34%	7,093
Train	5	1.05%	2	0.01%	8	0.01%	15
Unknown Vehicle	9	1.89%	219	1.21%	1755	1.73%	1,983
TOTAL	475	100%	18,090	100%	101,196	100%	119,761

On the table shown before this page, motorcycles have the highest fatality accident rate with 113 involved or 23.79% of the total fatal accidents, then followed by cars with 91 total or 19.16% respectively. For non fatal incidents, motorcycles still have the highest rate with 5,873 or 32.46% share and followed by cars with 5,210 or 28.80%.

According to the statistics released by the LTO, the distributions of registered vehicles in Metro Manila are:

Jan. to Oct. 2004

Motor cycle	Motor Tricycle	Car	Jeepney/ Taxi/FX	Bus	Truck/ Trailers	Total
284,176	Included at MC	989,281	101,577	13,573	70,145	1,458,752
19.5%		67.8%	7.0%	0.9%	4.8%	100%

Annual 2005

Motor cycle	Motor Tricycle	Car	Jeepney/ Taxi/FX	Bus	Truck/ Trailers	Total
366,394	Included at MC	569,915	558,639	10,404	75,501	1,580,853
23.18%		36.05%	35.34%	0.65%	4.78%	100%

Jan. to Aug. 2006

Motor cycle	Motor Tricycle	Car	Jeepney/ Taxi/FX	Bus	Truck/ Trailers	Total
293,113	Included at MC	430,042	409,066	6,087	60,552	1,198,860
24.45%		35.87%	34.12%	0.51%	5.05%	100%

Accident maps

Maps indicating the location of all accidents during this year are not available because our software (Mapinfo) is already obsolete and it is very difficult to plot the accidents due to un-updated street name and landmarks. The maps will be updated and reproduced once the new GIS software (ArcGIS) will be provided and distributed by the Office of the General Manager for Planning of the MMDA to this Unit.

Collision Type

Table 1. Shows the accident statistics by collision type.

Collision Type	Fatal	Non Fatal	Damage	Total
Angle Impact	10	488	2162	2,660
Head-on	-	14	9	23
<i>Hit and Run (regardless of what collision type)</i>	5	236	1,870	2,111
<i>Hit object (regardless of what object was being hit)</i>	10	153	764	927
Hit parked vehicle	-	3	589	592
Hit Pedestrian	176	4095	-	4,271
<i>Other</i>	12	99	134	245
Rear-end	1	181	1275	1,457
Self-Accident	17	343	644	1,004
Side Swipe	27	1598	7922	9,547
No Collision Stated (based on Blotter Book)	80	4170	35985	40,235
Grand Total	338	11,380	51,354	63,072

Table 2. Shows the breakdown of Hit and Run.

Collision Type	Fatal	Non Fatal	Damage	Total
Hit and Run (Hit Pedestrian)	-	20	-	20
Hit and Run (No Collision Stated)	5	216	1870	2091
Grand Total	5	236	1,870	2,111

Table 2. Shows the breakdown of Hit object collisions.

Collision Type	Fatal	Non Fatal	Damage	Total
Hit object	2	71	459	532
Hit object (Barriers, e.g. concrete, plastic, steel)		18	65	83
Hit object (Beams, e.g. concrete)				0
Hit object (Billboards/Signboards/Signages)		1	13	14
Hit object (Blocks, e.g. concrete)			1	1
Hit object (Bollards, e.g. concrete, steel)		1	3	4
Hit object (Cable Wires of PLDT, Meralco, etc.)		1	12	13
Hit object (Establishments, e.g. shops, stores, stalls, etc.)			8	8
Hit object (Fences/Walls, e.g. see-thru, concrete, etc.)		6	47	53
Hit object (Footbridges)				0
Hit object (Gates)		1	5	6
Hit object (House, Shanty, Barracks, and the like)		4	6	10
Hit object (Islands, e.g. center island, pots and the like)	1	3	12	16
Hit object (Light/Lamp Posts and the like)	2	4	15	21
Hit object (Pavements, e.g. gutter, sidewalk, road)	2	10	9	21
Hit object (Plants/Trees and the like)		8	11	19
Hit object (Posts of PLDT, Meralco, MRT, e.g. concrete, steel, wood, other)	1	14	62	77
Hit object (Pumps, e.g. gas pump, nozzle, etc.)		1	2	3
Hit object (Railings, e.g. steel)	1	1	7	9
Hit object (Vertical Clearance / Ark)			1	1
Hit object (Waiting Shed)			1	1
Hit object (Two or More objects/structures being hit at a time, e.g. Cable Wire & Post, Barrier & Fence, etc.)		4	13	17
Hit object (Various Objects, e.g. Door, Glass Panel, Meterbase, Galvanized Iron, Pipes, Stair, etc.)	1	5	12	18
Grand Total	10	153	764	927

Continuation of Collision Type

Table 3. Shows the breakdown of Other collision or combined collisions.

Collision Type	Fatal	Non Fatal	Damage	Grand Total
Other	1	15	19	35
Other (Backing Collision)			14	14
Other (Bike Fell on a Vehicle)			1	1
Other (Hit Animal)			2	2
Other (Hit by a Collapsed Object)		1	2	3
Other (Hit by a Fallen Object)		1	10	11
Other (Hit by an Object)			3	3
Other (Hit by an Unknown Object or Person)			1	1
Other (Hit Vehicle Door as Passenger Opened it)			1	1
Other (Hit / Runover Foot of Victim)		1		1
Other (Hit Object + Hit Pedestrian)	1	3		4
Other (Hit Veh. + Hit Obj.)		6	13	19
Other (Hit Veh. + Hit Obj. + Hit Ped.)		1		1
Other (Hit Veh. + Hit Parked Veh.)			1	1
Other (Hit Veh. + Hit Ped.)	7	50		57
Other (Hit Veh., Head-on + Side Swipe)		1		1
Other (Hit Veh., Rear-end + Hit Ped.)		1		1
Other (Hit Veh., Side Swipe + Hit Ped.)		1		1
Other (Hit Veh. + Passenger Fell into Pavement)		1		1
Other (Overturned Vehicle)			1	1
Other (Passenger Fell Down)	1	11		12
Other (Passenger Jump and Tumble then Hit by the Upcoming Truck)	1			1
Other (Passenger Pinned as to Board a PUV)		1		1
Other (Side Swipe + Rear-end)			10	10
Other (Vehicle Fell from the Skyway)	1			1
Other (Vehicle Fell on an Open Manhole)		2	1	3
Other (Vehicle Fell on its Side)		1		1
Other (Stoning Incident)		2	55	57
Grand Total	12	99	134	245

Accident Causations

Accident factors	Fatal	Non Fatal	Damage	Grand Total
Human Error		4	34	38
Human Error (Alcohol suspected)	4	6	11	21
Human Error (Avoid Hitting Other Vehicle)	1	1	2	4
Human Error (Backing Inattentively)		1	3	4
Human Error (Bad overtaking / Too fast)		3		3
Human Error (Bad overtaking)	3	253	5240	5496
Human Error (Bad turning)	1	158	900	1059
Human Error (Disobey enforcer's signal)		5		5
Human Error (Disobey sign or traffic lights)	3	186	1218	1407
Human Error (Evaded Animal Crossing)		1	2	3
Human Error (Evaded Pedestrian Crossing)		2	2	4
Human Error (Illegal U-turning)		2	1	3
Human Error (Inattentive / Disobey sign or traffic lights)		1		1
Human Error (Inattentive / No Signal)			1	1
Human Error (Inattentive / Too close)		2	10	12
Human Error (Inattentive / Too fast)	21	493	4964	5478
Human Error (Inattentive)	49	2189	528	2766
Human Error (Lost Control / Too fast)	1	2		3
Human Error (Lost Control)	2	26	5	33
Human Error (Moving Counterflow)		4	3	7
Human Error (Tired / Asleep)		7	43	49
Human Error (Too close)	4	212	521	737
Human Error (Too fast / Too close)	4	223	782	1009
Human Error (Too fast)	33	1562	4419	6014
Other	3	46	203	252
Vehicle Defect		14	2	16
Vehicle Defect (Lost Brake)	3	4	3	10
Vehicle Defect (Flat Tire / Tire Exploded)	1		1	2
No Accident Factor Stated (based on Blotter Book)	205	5973	32456	38634
Grand Total	338	11,380	51,354	63,072

Top Five (5) Accident Causations

- (1) Too Fast
- (2) Bad Overtaking
- (3) Inattentive
- (4) Bad turning
- (5) Inattentive / Too Fast

MMDA has been coming up with solutions to solve the problem in Road Safety, almost all of the Authority's projects are geared towards Public Safety. Pedestrians facilities and signage's are designed to promote safety and convenience, Footbridges has been put up at major choke points where pedestrian volume is high, Sidewalk clearing operations intensified, geometric improvements at accident prone areas undertaken among others. Road Safety is a global concern, and the task to lessen the number of traffic accidents is a high objective but possible with the cooperation and support of the public.

Accident Prone Stretches

Based on the MMARAS database, by means of cross table querying, there are also numbers of accidents prone stretches in every district. And these stretches are:

District	Location
Northern	
Caloocan	Quirino Highway; Rizal Avenue Extension
Malabon	C-4 Road; Gov. Pascual Ave.; M. H. Del Pilar St.; McArthur Highway
Navotas	Honorio Lopez Blvd., Radial Road 10; Gov. Pascual Ave.; M. Naval St.
Valenzuela	Maysan Road; McArthur Highway
Southern	
Makati	EDSA; Pres. Sergio Osmeña Highway; Buendia Ave.
Las Piñas	Alabang-Zapote Road; Real St.; Marcos Alvarez Ave.
Muntinlupa	West Service Road; National Highway: Alabang-Zapote Road
Parañaque	West Service Road; Roxas Blvd.; Ninoy Aquino Ave.; Dr. A. Santos Ave.
Pasay	EDSA; Buendia Ext.; Roxas Blvd.
Taguig	Carlos P. Garcia Ave. (C-5); M. L. Quezon St.; East Service Road
Pateros	M. Almeda St.; P. Herrera St.
Eastern	
Marikina	Marcos Highway; Sumulong Highway
Mandaluyong	EDSA; Shaw Blvd.
Pasig	Ortigas Ave.; E. Rodriguez Jr. Ave.; Marcos Highway; Julia Vargas
San Juan	Ortigas Ave.; EDSA; Santolan Road; P. Guevarra St.; N. Domingo St.
Western	
Manila	Pres. Sergio Osmeña Highway; Radial Road 10
Central	
Quezon	Commonwealth Ave.; EDSA; Quirino Highway; Quezon Ave.; Katipunan Ave.

Note:

There are still other accident-prone stretches aside from the above stated stretches.

On-going Activities / Plans of the MRSU

- **Intensified Data Collection**
Good accident record is vital in analyzing and devising appropriate solutions / remedial measures to accident-prone locations. The MRSU Data Researchers Group has been working to further improve the collection of accident data on 'fatal' and 'non-fatal' accidents including the damage to property accidents.
- **Inspection of Accident Sites**
The MRSU has prepared a schedule for the ocular inspection of accident-prone locations to gather more information that would be useful in evaluating accident sites. Three to four accident locations will be visited on a weekly basis.
- **Road Safety Audit**
Road safety features, or lack of it, at selected locations will be identified and appropriate remedial actions will be developed. Engineering measures will be developed for five accident locations every quarter of the year.
- **On- Going Training of Technical Staff**
A lot of on the job training will be undertaken for the new technical staff to developed their knowledge and skills in this new kind of work and endeavor.
- **Revision of MMARAS Form and the Database**
It is a must to revise the MMARAS Form and the Database to incorporate the other data needed in the analysis of traffic accident.
- **Acquire Additional Equipment / Technical Personnel**
It is important to acquire additional equipment such as service vehicle, computers, digital cameras, printer, and other office supplies that enables the unit to perform their assigned tasks well. MRSU also needs to have an Engineer that will head the Road Safety Audit group.

SAFETY MEASURES

1. Installation of “Pedestrian Footbridges” along Metro Manila’s major thoroughfares or major choke points wherein pedestrian volume is high.
2. Improvement of Sidewalks, to encourage pedestrian to pass thru.
3. Installation of various Traffic Facilities (gantry, signages, barriers, see-thru fence, etc.) to promote safety and convenience.
4. Application of “Lane Markings”, for both vehicles and pedestrians.
5. Installation of “Reflectorized Sash Stickers” on concrete barriers to be easily recognized by motorists especially during night time.
6. Installation of Steel Barriers along the sidewalks to separate vehicles from pedestrians.
7. Strict enforcement of road violations by the various Traffic Enforcement Units.

Updated (April 29, 2011)

**Source : Metro Manila Accident Reporting and Analysis System (MMARAS) Database
RICHARD DOMINGO**