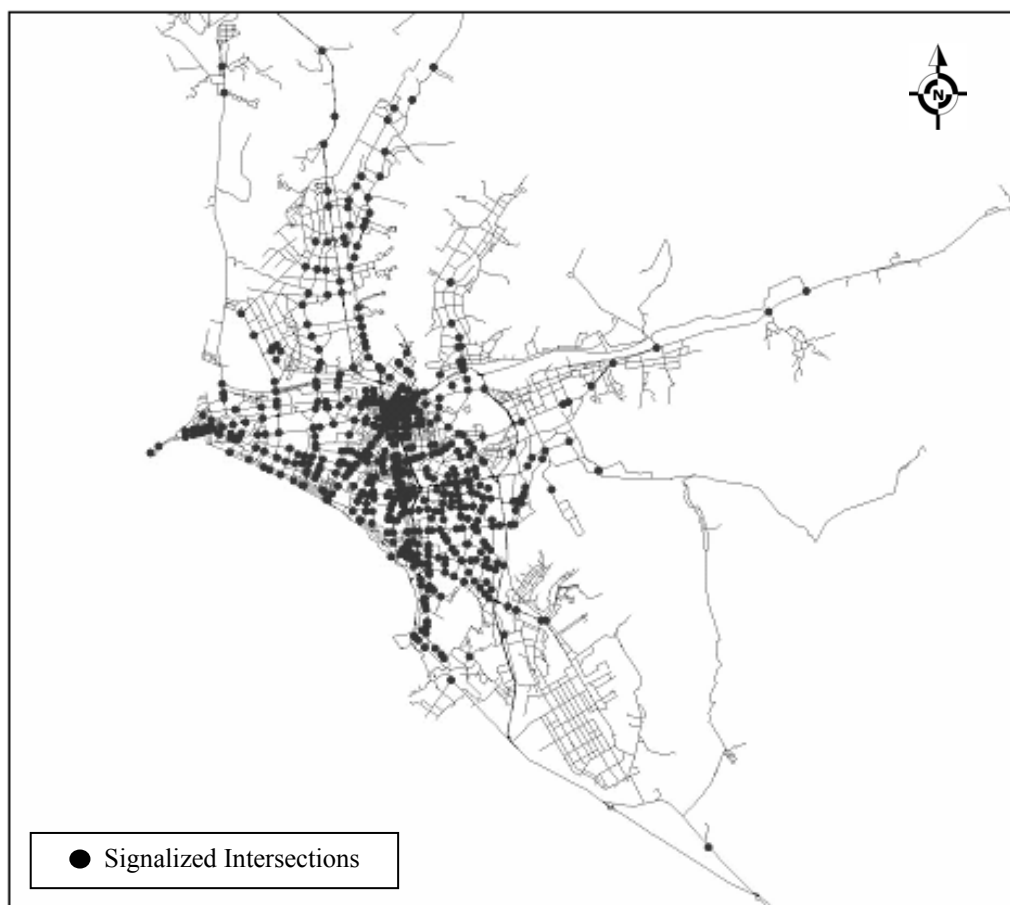


CHAPTER 6
Traffic Control and Management
Conditions

6. TRAFFIC CONTROL AND MANAGEMENT CONDITIONS

6.1. TRAFFIC SIGNAL CONTROL CONDITIONS

At the present time, October 2004, there are over 710 signalized intersections in the study area, as shown in Figure 6.1-1. The signalized intersections are mainly divided into two (2) zones for control management, the Municipality of Lima covering 621 intersections in the city of Lima and the Municipality of Callao Municipality covering 89 intersections in the city of Callao.



Source: Municipal Direction of Urban Transport (DMTU)

Figure 6.1-1 Location of Signalized Intersections in Study Area

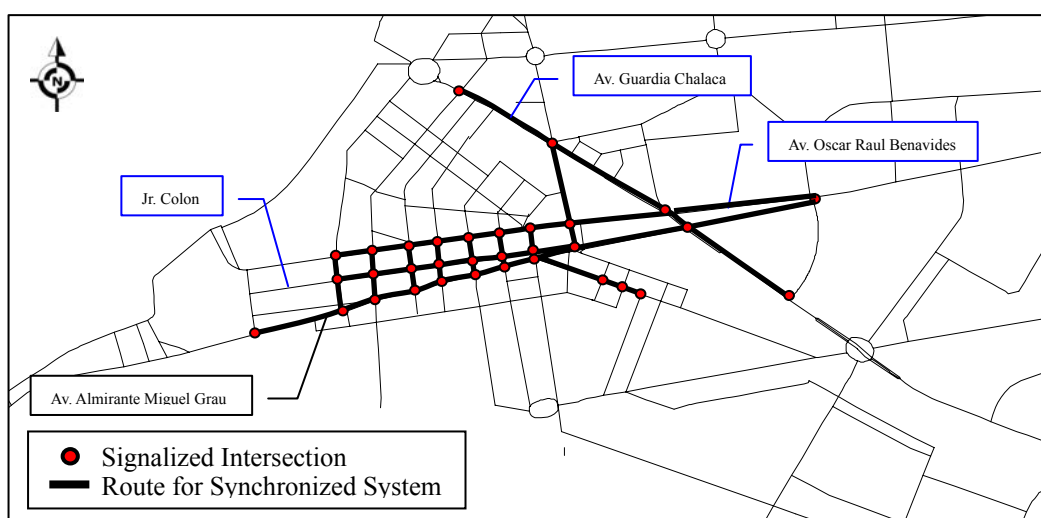
6.1.1. FACILITIES

The traffic signals that are maintained are mostly vertical-type signal heads and these are installed at major intersections. The traffic signals with pedestrian crossing type are almost always employed in the urban area. At some intersections, traffic lights are not visible because of low poles, which frequently make it difficult for drivers who are behind large buses to see them. Currently, new types of horizontal-type signal heads have been installed on Av. Canada in the central area. Some traffic lights are not working properly. In the city of Callao, a private company (TEC Corporation) operates the traffic signals through a traffic control center. On the other hand, in the city of Lima, the Municipal Direction of Urban Transport (DMTU) of the Municipality of Lima operates the traffic signals.

6.1.2. SIGNAL PHASING SYSTEM

(1) Callao

The signal phasing inside of the Central area follows the synchronized system based on the VIVD System (Video Vehicle Detection System), and other areas follow the independent system. For the synchronized system, the cycle pattern responds to the change in traffic information sent by detectors. The key intersection serves as the base point for determining the control cycle, split and offset. The control area for the synchronized system is shown in Figure 6.1-2. Thus, currently, the technical improvement of the signal control system for mitigating traffic congestion has been proceeding.



Source: Municipality of Callao, TEC Corporation.

Figure 6.1-2 Control Area in Callao Central Area

1) Signal Phase and Cycle Time Length

The number of signal phase patterns for most intersections ranges between 2 to 3. The cycle time length in the synchronized intersections sets at approximately 105 ± 12 seconds, on the other hand, the cycle time length for other areas ranges between 60 seconds and 30 seconds.

2) System Configuration of VIVD System

The VIVD system introduces the management and administration of traffic control, through a television enclosed circuit, with special cameras for its use in the public way, and with the absolute control of all necessary movements to visualize its surroundings, including the zoom. It can be analogical or digital, the user can be aware of the traffic situation at the same time. The system is composed of the following functions:

- a) Computerized Signal Light System
The control cycle, split and offset adapt automatically to the traffic depending on the vehicles demand, in order to maintain a smooth traffic flow and safe conditions at the same time.
- b) Traffic Administration System
The number of vehicles will be counted by a television enclosed circuit and detectors, in real time.
- c) Traffic Offence Control and Detection System

The system is a whole set of equipments that guarantee the reduction of traffic accidents, through the observation of vehicles by using the vehicle photographs. The system can be programmed to impose a fine on traffic offenders who break the traffic regulations.

3) Traffic Control Facilities

Remote traffic microwave sensors are installed for traffic control at key-signalized intersections. Traffic data at the intersections is directly transmitted to the control centre via exclusive cables. The traffic control center is located in the building of the Municipality of Callao. Major items of equipment have been installed in this control center, which is directly managed by local controllers within central Callao. The control center comprises a control room and a machine room. The control room has equipment units for operators, such as consoles, CRT display units, and CCTV monitors with co-ordinate signal points. The machine room has central processing units (CPUs) and their peripherals, communication control equipment, and other major items of equipment for the traffic control system. The major equipments are shown as follows:

- a) Remote Detector Microwave Sensor (RTMS)
This instrument has an advanced and autonomous sensor that detects and monitors road traffic (Figure 6.1-3). The RTMS is a detector in real time, which can provide information such as presence, volume, lane occupation, speed, headway and type of vehicle.
- b) Auto Video Camera
It is an electronic equipment specially designed to detect and automatically take photographs, which drivers cross an intersection and bring the traffic signal light on (see Figure 6.1-3). This equipment records the traffic offence, taking a clear photograph of the vehicle, in the precise moment in which the driver commits the fault, recording the vehicle, plate, date, hour and place of the traffic offence, car color and model for identification.
- c) Auto Data Processor
It is an electronic instrument to measure the speed of automobiles by taking photographs of the drivers that exceed the established speed limits. The obtained photograph includes the offender's vehicle, date, hour and place of the offence, as well as the speed. The photo machine has digital devices that allow a clear record of the vehicles in movement as well as plate number. Besides, the equipment allows vehicle statistics, classification of obtained information, type of vehicle and speed, and recording of information.

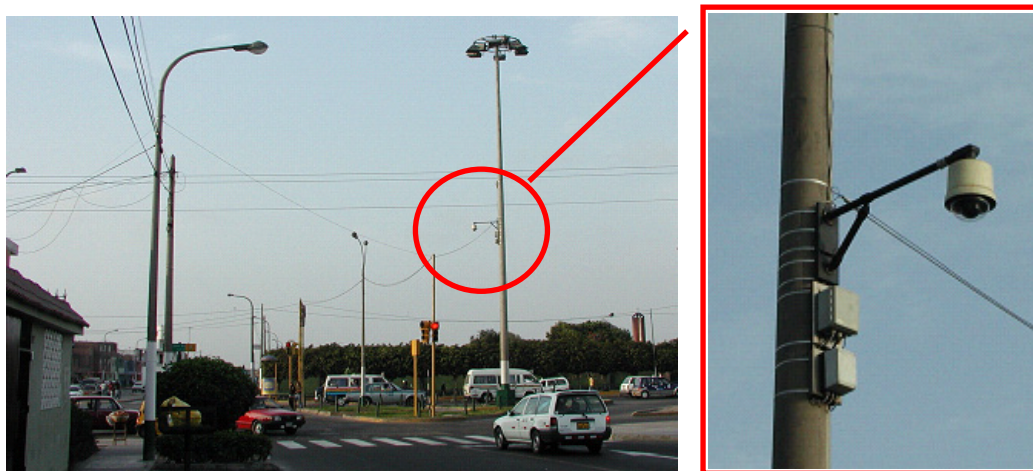
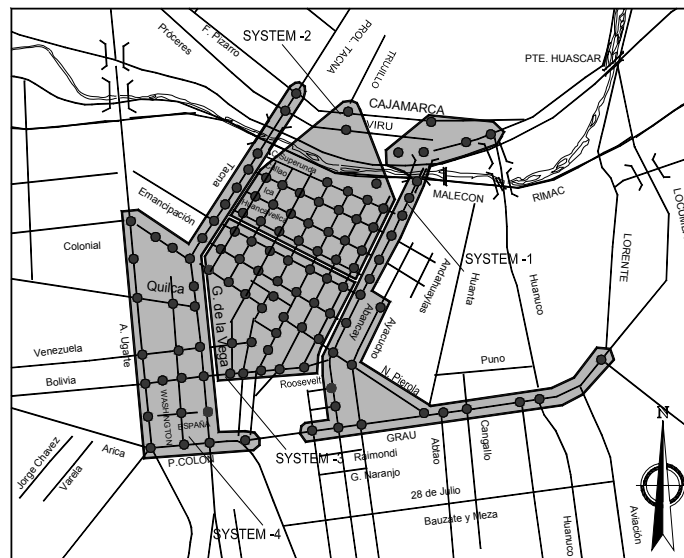


Figure 6.1-3 Remote Detector Microwave Sensor (RTMS) with Auto Video Camera

(2) Lima

In the city of Lima, the centralized traffic control by synchronized system covers 107 signalized intersections in the central area (downtown Lima), and the independent system of traffic control covers 514 signalized intersections outside the central area. The area of the centralized control system in the central area is divided into four (4) sub areas for the control as shown in Figure 6.1-4. In addition, the total length 3.5 km on Av. Canada outside the 4 sub areas is controlled by a synchronized system without traffic sensors.

During peak periods, traffic policemen manually control the signalized intersections on the major streets, because the current level of traffic congestion in the city of Lima may be difficult to manage by the existing system because of near-saturation. Manual operations are based on an assessment of spot conditions by visual observation by traffic policemen and/or information received via transceivers. However, it is rather difficult for this manual controlling technique to maintain an effective synchronization situation between intersections because it tends to result in a longer cycle length. Thus, a technical improvement of the existing system for near-saturated conditions will be necessary instead of manual operation by traffic police. The major equipments are shown as follows:



Source: Municipal Direction of Urban Transport (DMTU)

Figure 6.1-4 Control Area in the Lima Central Area

1) Signal Phase and Cycle Time Length

The number of signal phase patterns is generally two (2) for the study area. In the central area, the cycle time length for the synchronized intersections sets at 100 seconds and 110 seconds during peak periods, and for the off peak periods, at 90 seconds. On the other hand, the cycle time length for other area sets at 90 seconds, regardless of time periods.

2) System Configuration of Centralized System

The centralized traffic control system for the area of Monumental Lima, conformed by Av. Tacna, Av. Nicolás de Piérola and Av. Abancay and Av. Junín – Jirón Conde de Superunda, totaling 65 intersections, operates by a computerized system. The flexibility to expand or modify the system to readjust it to future conditions can be prepared. At present,

the system can not operate a traffic response control due to the malfunction of traffic sensors at the intersections. This was caused by the lack of maintenance in the technical aspect. It is, therefore, highly recommended that the Municipality entrust the maintenance and operation to a signal control company. The existing system is a synchronized traffic control system, providing pre-fixed “green waves” to users in the directions with more traffic. The traffic control center is located in the building of Monumental Lima (see Figure 6.1-5). The major equipments are shown as follows:

- a) Communication control equipment;
- b) Master control equipment for central processing units (CPUs) and their peripherals;
- c) Operators for consoles, CRT display units, and
- d) Vehicle sensors of ultra-sonic type to measure the traffic volume (malfunction) (see Figure 6.1-6).



Figure 6.1-5 Traffic Control Center

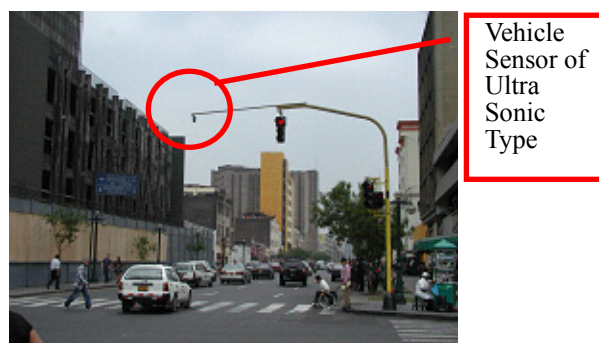


Figure 6.1-6 Traffic Lights and Vehicle Sensor

6.1.3. BOTTLENECKS AT SIGNALIZED INTERSECTIONS

The traffic congestion in the Lima CBD (Central Business District) area becomes very severe during peak periods when major signalized intersections reach near-saturated levels. Almost all stoppages resulted from intersection waiting time, the spill-back effect. Consequently, travel speeds during the peak periods are less than 10km/h. In the morning peak period, the area surrounded by the Av. Javier Prado, Av. Brasil, Av. Arica, Vía de Evitamiento, and Av. Nicolás Ayllón roads was identified as a heavily congested area in terms of travel speed with 10km/h or less. In addition, the same low travel speed is seen on the major gateways toward the central city such as Av. Rep. de Panama and Av. Aviación, while in the midday period, the congested area increases because most of the multi-purpose traffic is made within the city’s business and commercial center. These figures show that the congested area is that area bordered by Av. Angamos Oeste-Este-Av. Primavera, Av. Brasil, Av. Arica, and Vía de Evitamiento. In the evening peak hour, the congested area increases more than the area in the midday peak period. The congested area is that area surrounded by the Av. Paseo de la República, Av. Brasil, Av. Arica, and Vía de Evitamiento roads, including Av. Grau in the Callao central area.

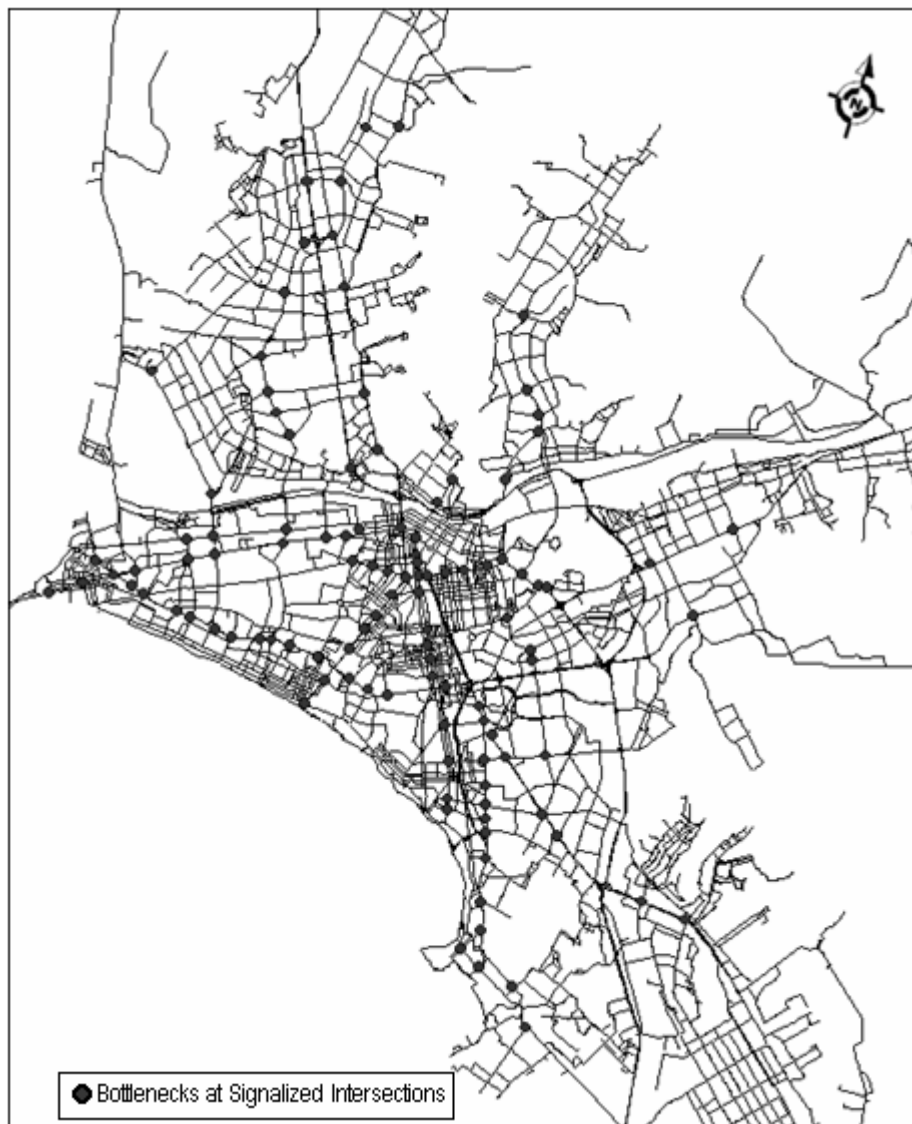
(1) Locations of Bottleneck at Signalized Intersections

The existing traffic congestion is caused by the inadequate road capacity, including the lack of well-developed traffic management. The causes of traffic congestion, characterized by a travel speed of 10km/h or less during peak periods, are categorized into 5 types in the context of traffic engineering as described below.

- a) Unsuitable traffic signal control system at intersections;
- b) Traffic congestion caused by traffic spill-back from upstream;
- c) Conflict from buses, minibuses and combis near bus stops;
- d) Blocking of signalized intersections due to heavy left-turn vehicles, and

- e) Conflict of merging and diverging, from/to side roads without signal lights.

Out of the above-mentioned causes, the major cause of traffic congestion is an unsuitable traffic control system at the intersections. Main bottlenecks at signalized intersections are observed in Figure 6.1-7, indicating a travel speed of 10km/h or less during peak periods.



Source: JICA Study Team, 2004

Figure 6.1-7 Locations of Bottlenecks at Signalized Intersections

This figure shows the locations of signalized intersections, indicating sections with travel speed of 10km/h or less. In this analysis, the bottleneck point caused by the signalized intersection, in the context of traffic engineering, is defined as below:

- a) Sections on major streets, indicating travel speed under 10km/h by sections on the major roads during the morning peak period and the evening peak period (refer to Chapter 4 Road Facility Conditions and Traffic Characteristics, 4.2.2 Travel Speed), and
- b) Locations of signalized intersections with traffic congestion based on the site observation.

The signalized intersections indicating bottlenecks are concentrated on Av. Arica - Av. Grau - Av. Nicolás Ayllón, Av. Brasil, and Av. Arequipa in central Lima. In addition, the

bottlenecks at signalized intersections are seen on the major gateways towards the central Lima area and the central Callao area, such as Av. La Marina, Av. Colonial, Av. Tomas Marsano, and Av. República de Panamá. Similar conditions with bottlenecks are observed in the vicinity of the central area on Av. Aviación, Av. Santiago de Surco, and Av. Universitaria. Figure 6.1-7 shows the locations of bottleneck predicted at signalized intersections.

Table 6.1-1 Locations of Bottlenecks at Signalized Intersections

No	Name of Street	Number of Locations Predicted	Major Intersection
1	Av. Panamericana Norte	2	Av. Habich, Av. 25 de Enero.
2	Av. Javier Prado (Oeste, Este,)	4	Av. Brasil, Av. Prescott, Av. Paseo Parodi, etc.
3	Av. de La Marina	9	Av. Elmer Faucett, Av. Universitaria, etc.
4	Av. Guardia Chalaca	4	Av. Grau, Av. Sáenz Pena, Av. Topacios, etc.
5	Av. Sanchez Carrión	2	Av. Salaverry, Av. G Escobedo.
6	Av. Elmer Faucett	3	Av. Callao Canta, Av. Quilca, Av. Argentina, etc.
7	Av. República de Panama	8	Av. Canaval y Moreyra, Av. Angamos Este, etc.
8	Av. Bolognesi	1	Av. Grau.
9	Av. Escuela Militar	1	Av. Iglesias
10	Av. Paseo de República	1	Av. Matellini.
11	Av. Aviación	5	Av. Angamos Este, Av. Canadá, Av. Mexico, etc.
12	Av. Tupac Amaru	4	Av. E Habich, Av. Tomas Valle, Av. Naranjal, etc.
13	Av. A Ugarte	1	Plaza 2 de Mayo.
14	Av. F Wiese	1	Av. El Sol.
15	Av. Próceres de la Independencia	4	Av. 9 de Octubre, Av. Lurigancho, etc.
16	Av. Grau-Av. N Ayllón	9	Av. Palacios, Av. Guardia Chalaca, Arica, etc.
17	Av. Colonial	7	Av. Insurgentes, Av. Elmer Faucett, Av. Universitaria
18	Av. Universitaria	11	Av. Colonial, Av. Argentina, Av. Tomas Valle, etc.
19	Av. Pachacutec	2	Av. San Juan, Av. S Allende.
20	Av. Santiago de Surco	2	Av. Aviación, Av. Ayacucho.
21	Av. Tomas Marsano	2	Av. Javier Prado Este, Av. Arriola.
22	Av. Huaylas	3	Av. Iglesias, Av. Escuela Militar, etc.
23	Av. Panamericana Sur (Antigua)	1	Alameda Sur
24	Av. Arica	4	Av. Venezuela, Plaza Bolognesi, Aguarico, etc.
25	Av. Grau	6	Plaza Grau, Av. Garcilaso de la Vega, etc.
26	Av. Brasil	6	Av. 28 de Julio, Av. Bolívar, Av. Vivanco, etc.
27	Av. Tacna	3	Av. Alcázar, Av. Pizarro, Av. N de Pierola, etc.
28	Av. Garcilaso de la Vega	4	Av. Uruguay, Av. Bolivia, Av. Grau, Av. 28 de Julio.
29	Av. Arequipa	6	Av. Mariátegui, Av. Aramburú, Av. Angamos Este, etc.
30	Av. Argentina	3	Av. J. Velasco, Av. Elmer Faucett, Av. Universitaria.
Total		119	

As previously pointed out in the analysis of the current signal control system, the existing signal control system in the city of Lima can only be effectively operated when the traffic shows a stable fluctuation pattern. In addition, during peak periods, traffic policemen manually control the signalized intersections on the major streets, in order to adjust the fixed traffic signal control. In this context, with a view to achieving a smooth traffic flow along major roads, the technical improvement of the signal control system at the bottlenecks will be necessary with the introduction of a real time control system by using a synchronized system with traffic sensors, in order to respond to unstable traffic fluctuation by time periods.

6.2. TRAFFIC REGULATIONS

The major traffic control regulations in the Study area are as follows:

- a) One-way traffic regulation
- b) Curb parking regulation
- c) Speed limit regulation
- d) Median bus-exclusive lane regulation
- e) Truck ban regulation

6.2.1. ONE-WAY TRAFFIC REGULATION

There are numerous one-way roads, consisting mainly of major roads in the central part of the old city. The major one-way roads are Av. 28 de Julio, Av. Bauzate y Meza, Av. Petit Thouars, Av. Arenales, Av. Venezuela, Av. Bolivar, and Av. Camino Real, which is located in the central area of Lima. In the central area of Callao, the major one-way roads are Av. Saenz Pena, Av. Colon and Av. Grau. On the other hand, the one-way system in narrow streets has basically been maintained.

6.2.2. CURB PARKING REGULATION

Curb parking is prohibited on most of the major roads in the study area. In the central part of the old city, curb parking is prohibited on all of the streets during the entire day. Many curb parking lots on the roadsides of the residential areas are mainly prepared. Generally, strict and thorough control by traffic police has reduced the number of vehicles violating this regulation. Currently, the parking conditions are not a serious problem due to the preparation of off-parking facilities.

6.2.3. SPEED LIMIT REGULATION

The standard speed limit on arterial roads within the urban area is generally regulated to 60km/h, except for the Expressway (Vía Expresa) with a higher design speed, as follows:

- a) National Expressway: Speed limit is classified into 2 periods as midday periods, 100km/h, and night periods, 60km/h.
- b) Metropolitan Expressway: Speed limit ranges between 60 km/h and 80 km/h.

6.2.4. MEDIAN BUS-EXCLUSIVE LANE REGULATION

The median bus-exclusive lane is located on three arterial roads such as Av. Tomas Marsano, Paseo de la República, and Av. Brasil in the Study area. The total length is approximately 30km. Two bus-exclusive lanes in the central part of the carriageway are prepared. In the peak periods, the median bus-exclusive lane can cope with the rapid traffic and prove to be sufficiently effective.

6.2.5. TRUCK BAN REGULATION

According to the traffic law regulation, heavy trucks (except emergency trucks and permitted trucks) are not allowed to come into the city center (Historical Center of Lima) during the specified periods (see Figure 6.2-1). The main points of the regulation are as follows:

- a) “Heavy trucks” means any vehicle with over 10 years of age and over 6,500kg.
- b) The prohibition excludes the area of the city of Callao.
- c) The hours specified for prohibition are from 6:00 a.m. to 21:00 p.m. inside the historical center area of Lima, in addition, the hours for the other areas of Lima are from 6:00 a.m. to 23:00 p.m.

- d) The following roads, for which no prohibition applies during the above hours specified, are: Av. Panamericana Sur (all sections), Vía de Evitamiento (all sections), Av. Zarumilla (all sections), Av. Panamericana Norte, Av. Caqueta (section between the interchange and Av. Tupac Amaru), Av. Tupac Amaru (all sections), Av. Prolongación Alfonso Ugarte (section between the interchange and La Plaza Castilla), Av. Argentina (section Lima-Cercado), Av. Tomás Valle (all sections), Av. Trapiche - Chillón (section between Av. Panamericana Norte and Av. Tupac Amaru), Carretera Central (section between Chosica and the intersection of Av. Circunvalación), and Av. Circunvalación (all sections).

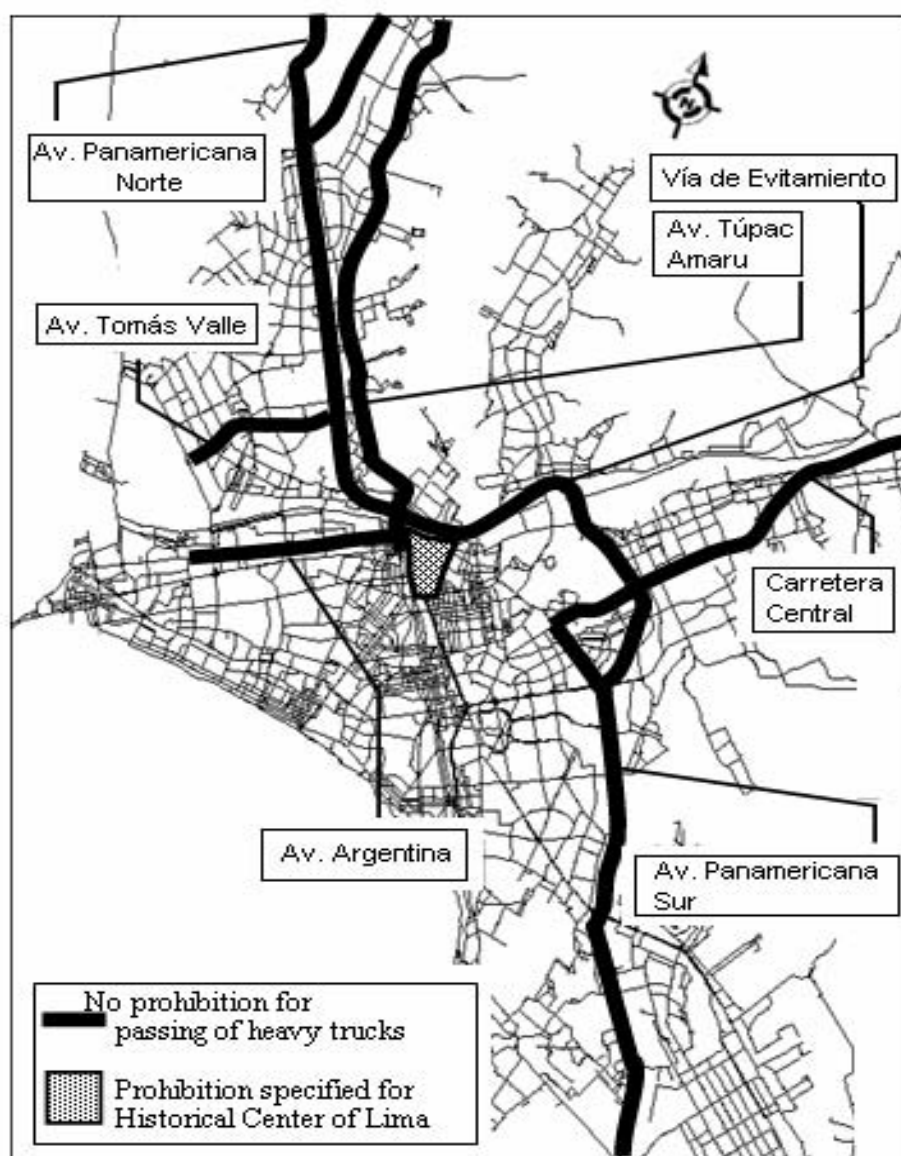


Figure 6.2-1 Truck Ban Regulation in Study Area

6.3. TRAFFIC SAFETY CONDITIONS

6.3.1. TRAFFIC ACCIDENTS

(1) Number of Traffic Accidents in the Study Area

Table 6.3-1 and Figure 6.3-1 show the number of road accidents occurred in Peru and the Study Area during the past eight (8) years (1996-2003). The number of annual traffic accidents was not available in the statistics. With regard to the traffic accidents in Peru, the number of accidents has sharply increased in 1997; however, the accidents have decreased gradually in the following years after 1997. The number of accidents has increased at about 1.5 times during the past eight years. On the other hand, the number of fatalities has decreased gradually in Peru and the study area. Especially, in the metropolitan area of Lima, the number of fatalities has dropped by 44% during the past eight years. In 2003, there were 671 fatalities in the metropolitan area of Lima. Figure 6.3-2 shows the number of accidents and fatalities per 1,000 registered vehicles during the past eight years. In the metropolitan area of Lima, the number of fatalities per 1,000 registered vehicles has declined by approximately 57 % in the same period, apparently indicating the effectiveness of traffic safety measures. However, as compared to other ASEAN countries*, the value of 0.8 is comparatively high when comparing to Vietnam, 1.08, Singapore, 0.28, and Thailand, 0.27. Note: * Source by Seminar on Traffic Safety, Tokyo, 2001,

Table 6.3-1 Annual Traffic Accidents in the Study Area

Year	Number of Traffic Accidents	Number of Fatalities		Number of Fatalities per 1,000 Registered Vehicles	
	National	National	Metropolitan Lima	National	Metropolitan Lima
1996	49,081	2,848	1,188	52.41	1.87
1997	80,961	3,216	1,100	82.13	1.63
1998	81,115	3,323	1,170	76.83	1.62
1999	79,695	3,214	1,070	71.53	1.43
2000	76,665	3,118	971	65.93	1.25
2001	76,545	3,208	843	63.31	1.05
2002	74,221	2,929	841	58.42	1.01
2003	74,612	2,856	671	58.72	0.80

Source: Ministerio del Interior-PNP, DIVPIAT-PNP Statistics Section, ST-CNSV 2003.

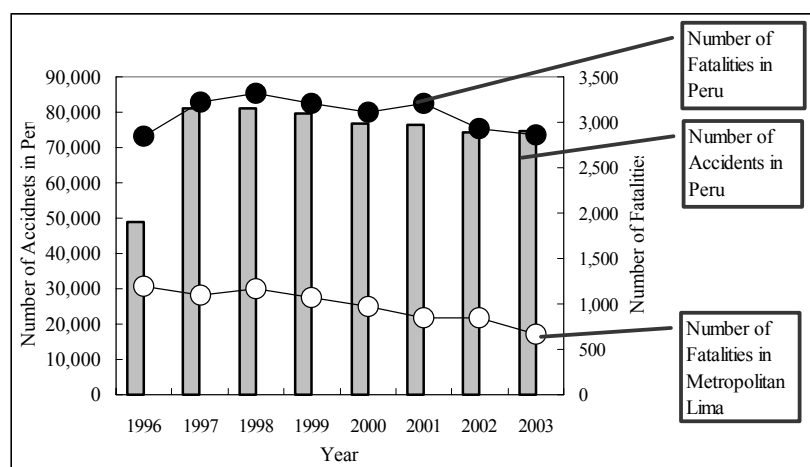


Figure 6.3-1 Annual Traffic Accidents in the Study Area

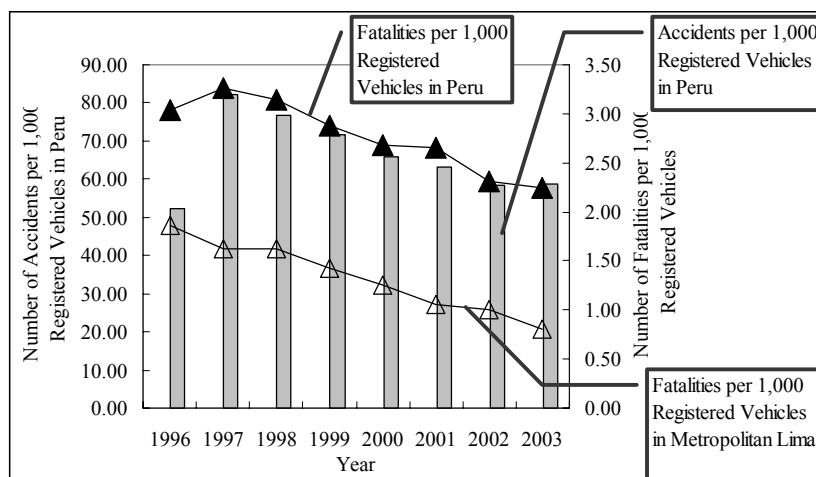


Figure 6.3-2 Number of Accidents and Fatalities per 1,000 Registered Vehicles

(2) Characteristics of Traffic Accidents in the Study Area

The characteristics of traffic accidents in the Study area in 2003 are shown as follows:

1) Number of Traffic Accidents by Type of Vehicles

The number of traffic accidents by type of vehicles in 2003 is shown in Table 6.3-2 and Figure 6.3-3. With regards to the traffic accidents by type of vehicles in the Study area, the cars involved in traffic accidents account for 50.0%, combis for 22.1%, microbuses for 6.6%, buses for 6.4%, and % for other types. The traffic accidents involving cars and combis are high. In the city of Callao, a high involvement of trucks and trailers in the traffic accidents is observed.

Table 6.3-2 Number of Traffic Accidents by Types of Vehicles

Type of Vehicles	Lima		Callao		Total	
	No.	%	No.	%	No.	%
1. Car	34,416	50.6	1,286	39.6	35,702	50.0
2. Combi	15,055	22.1	724	22.3	15,779	22.1
3. Micro-bus	4,526	6.6	202	6.2	4,728	6.6
4. Bus	4,339	6.4	248	7.6	4,587	6.4
5. Truck	1,875	2.8	160	4.9	2,035	2.9
6. Trailer	331	0.5	114	3.5	445	0.6
7. Dump Truck	160	0.2	17	0.5	177	0.2
8. Bicycle	632	0.9	65	2.0	697	1.0
9. Pick-up	57	0.1	6	0.2	63	0.1
10. Tricycle	339	0.5	18	0.6	357	0.5
11. Mototaxi	2,924	4.3	112	3.5	3,036	4.3
12. Motorbike	915	1.3	49	1.5	964	1.4
13. Others	2,517	3.7	248	7.6	2,765	3.9
Total	68,086	100.0	3,249	100.0	71,335	100.0

Source: Ministerio del Interior-PNP, DIVPIAT-PNP Statistics Section, ST-CNSV 2003.

Note: %=Shares of vehicle types involved in traffic accidents.

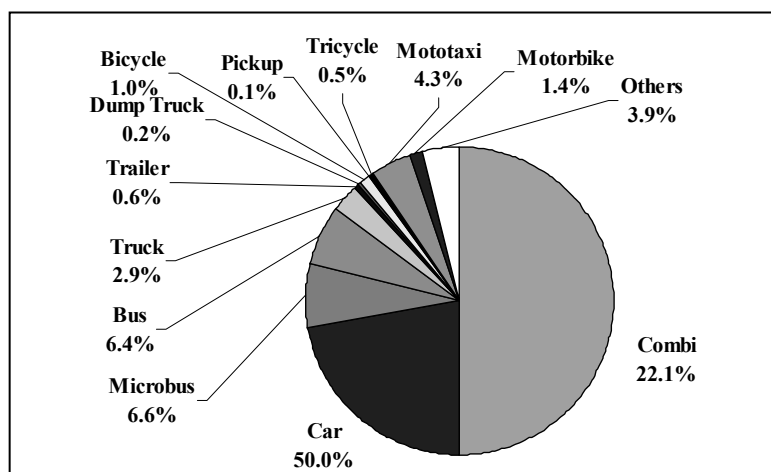


Figure 6.3-3 Number of Traffic Accidents by Types of Vehicles

2) Number of Traffic Accidents by Type of Accident

Table 6.3-3 and Figure 6.3-4 show the number of traffic accidents by type of accidents. Of the total number of fatal accidents caused by vehicles, approximately 44.0% were collision, 26.5% collision and run, 16.5% hitting pedestrian, 4.6% hitting pedestrian and run and 2.3% passenger fall. The accidents of vehicles to vehicles show a share of 70.5%. The pedestrian involved accidents generally show a high share in the study area (21.1%), especially, the share of the city of Callao is alarmingly high, indicating at 27.9%. The types of accidents are classified into 8 categories, however, these items are not suitable in order to extract the traffic accident pattern and presume the accident causes. It is highly recommended that the detailed collision type should be included in the accident-recording sheet as follows: 1) head on collision, 2) side swipe at passing by others, 3) side swipe at overtaking, 4) rear-end collision, 5) right angle collision, 6) side collision, 7) involving pedestrian, 8) over-turn, 9) others.

Table 6.3-3 Number of Traffic Accidents by Type of Accident

Type of Accident	Lima		Callao		Total	
	No.	%	No.	%	No.	%
1. Hitting Pedestrian	7,625	16.2	595	23.2	8,220	16.5
2. Hitting Pedestrian and Run	2,168	4.6	121	4.7	2,289	4.6
3. Collision	20,765	44.0	1,116	43.6	21,881	44.0
4. Collision and Run	12,697	26.9	501	19.6	13,198	26.5
5. Over-turn	531	1.1	36	1.4	567	1.2
6. Passenger Fall	1,071	2.3	84	3.3	1,155	2.3
7. Vehicle Fire	54	0.1	1	0.1	55	0.1
8. Others	2,289	4.8	104	4.1	2,398	4.8
Total	47,200	100.0	2,258	100.0	49,758	100.0

Source: Ministerio del Interior-PNP, DIVPIAT-PNP Statistics Section, ST-CNSV 2003.

Note: %=Shares of vehicle types involved in traffic accidents.

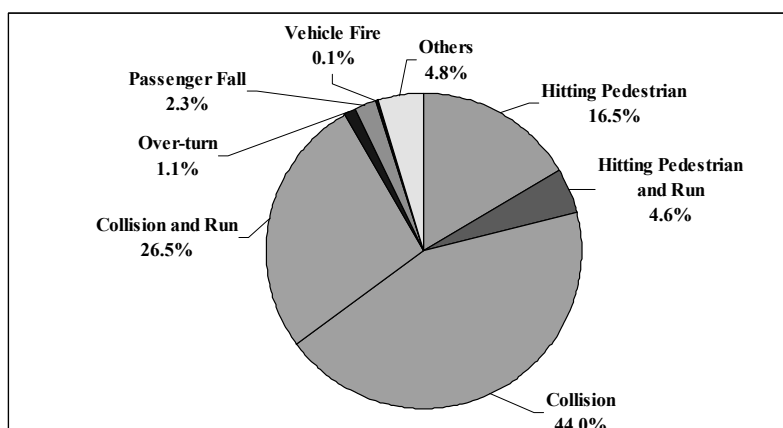


Figure 6.3-4 Number of Traffic Accidents by Type of Accident

3) Number of Traffic Accidents by Causes

The major causes of traffic accidents are classified into 12 categories as follows: 1) excess speed, 2) drunk driving, 3) poor observation of drivers, 4) pedestrian error, 5) passenger error, 6) excess weight, 7) no driving license of road users, 8) encoring traffic light, 9) mechanical fault, 10) absence of road lighting, 11) bad road condition, 12) faulty traffic signs, 13) others. Of the total accidents, in the study area, 34.8% was the cause of excess speed, and the poor observation of driver shows at 24.0%. The next highest shares indicate drunk driving at 7.7%, pedestrian error at 5.7%, and ignoring traffic lights at 3.2% respectively. The traffic accidents caused by passenger error, excess weight, and mechanical fault, absence of road lighting, bad road conditions and faulty traffic signs had a small share. Therefore, these accidents are mainly caused by wrong driving manners of road users, indicating a total share of 70.5%. In this context, it is important that drivers obey traffic regulations and understand the merit to traffic safety. It is, therefore, necessary to improve the traffic safety program by education and enforcement.

Table 6.3-4 Number of Traffic Accidents by Causes

Causes	Lima		Callao		Total	
	No.	%	No.	%	No.	%
1. Excess Speed	16,256	34.4	1,045	40.9	17,301	34.8
2. Drunk Driving	3,688	7.8	144	5.6	3,832	7.7
3. Poor Observation of Driver	11,477	24.3	444	17.4	11,921	24.0
4. Pedestrian Error	2,681	5.7	150	5.9	2,831	5.7
5. Passenger Error	1,034	2.2	32	1.3	1,066	2.1
6. Excess Weight	416	0.9	3	0.1	419	0.8
7. Ignoring Traffic Light	1,579	3.4	30	1.2	1,609	3.2
8. Mechanical Fault	1,012	2.1	32	1.2	1,044	2.1
9. Absence of Road Lighting	326	0.7	3	0.1	329	0.7
10. Bad Road Conditions	726	1.6	3	0.1	729	1.5
11. Faulty Traffic Signs	398	0.8	6	0.2	404	0.8
12. Others	7,607	16.1	666	26.0	8,273	16.6
Total	47,200	100.0	2,558	100.0	49,758	100.0

Source: Ministerio del Interior-PNP, DIVPIAT-PNP Statistics Section, ST-CNSV 2003.

Note: %=Shares of vehicle types involved in traffic accidents.

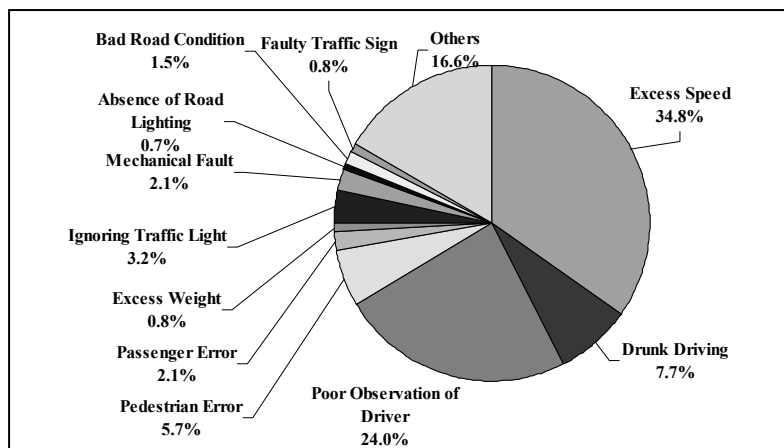
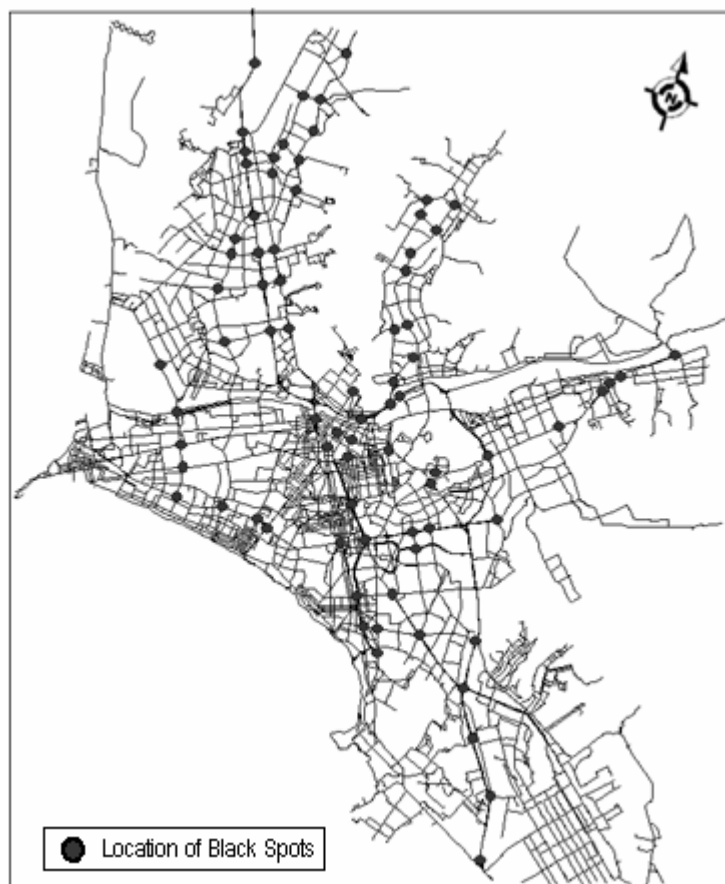


Figure 6.3-5 Number of Traffic Accidents by Cause

4) Location of Black Spots in Study Area

Figure 6.3-6 shows the location of black spots in the Study area. The black spots in traffic accidents are based on information obtained from the Metropolitan Municipality of Lima and Callao. This section only discusses the locations of black spots and the qualitative analysis, due to the lack of basic data, the analysis on hazardous black spots and the confirmation of problems should be followed up based on the detailed collision diagram. The basic data is still being collected. Of total 78 black spots, there are 49 signalized intersections and 32 non-signalized intersections. The locations of black spots are concentrated at intersections with major roads. In addition, most black spots are seen on the major gateways towards the central area of Lima, such as Av. Tupac Amaru, Av. Panamericana Norte, Av. Proceles de la Independencia, Av. Paseo de la República, Av. Tomas Marsano and Av. Panamericana Sur.



Source: Metropolitan Municipality of Lima, Municipal Direction of Urban Transport, 2003.

Figure 6.3-6 Locations of Black Spots in Study Area

Based on the foregoing, most accidents of black spots occur at major wide-sized intersections with high traffic volumes. About 41% of total black spots are located at the non-signalized intersections. Meanwhile, as pointed out in the analysis of accident type and accident causes, 1) the pedestrian involved accidents generally show a high share, 2) the accidents are mainly caused by the wrong driving manners of road users, and 3) the accidents that involve physical structures have a small share. Therefore, it is recommended that the traffic safety facilities of warning facilities should be mainly improved; in addition, effective traffic education programs and campaigns should be promoted to improve driver compliance with traffic laws and regulations.

6.3.2. TRAFFIC EDUCATION AND DRIVING LICENSE SYSTEM

(1) Driver and Pedestrian Behavior

Peruvian drivers, considered collectively, have been described as undisciplined. Their driving habits are considered better than those of drivers of other South America countries. However, they ignore traffic laws on the roads. For instance, they sometimes ignore red traffic lights, make sudden and frequent lane changes without notice, ignore speed limits, jump queues, and block intersections. In particular, bus drivers are among the worst, since they habitually load and unload passengers everywhere inside intersections and between center lanes. They overtake or change lanes near intersections in order to pick up extra passengers, and they wait for passengers even at green lights. Such driving behavior leads to a lower traffic capacity and the occurrence of traffic accidents. Therefore, effective

traffic education programs and campaigns should be promoted in order to improve drivers' compliance with traffic laws and regulations.

The pedestrians in the Study area are seen as lawless in some cases and well behaved in others. Pedestrians understandably become irritable at major intersections where they must wait a long time to cross roads in bad environmental conditions caused by heavy vehicle exhaust and noise. For instance, they cross the streets ignoring signal lights. Pedestrians wander into vehicle lanes to shortcut their journey. Such pedestrian behavior is generally regarded as one of the causes for traffic congestion in the study area, particularly from the viewpoint of motorists. Therefore, appropriate pedestrian education programs and facilities are required to improve pedestrian behavior.

(2) Traffic Safety Education System

The National Council of Road Safety (CNSV) and the road safety facilities section of the Municipal Direction of Urban Transport (DMTU) are responsible for the traffic safety education of road safety.

1) National Council of Road Safety

As per the request of the Ministry of Transport and Communications (MTC), the President of the Republic of Peru signed the Supreme Decree No.010-96-MTC on August 22nd, 1996, establishing the National Council of Road Safety (CNSV) in order to promote and coordinate activities related to road traffic safety in Peru. Supreme Decree No.010-96 MTC was modified by Supreme Decree No.024-2001-MTC published on June 28th, 2001, which modified the name of the CNSV to the National Education and Traffic Safety Council (CONSEV). The CNSV is under the secretary responsible for the Vice Ministry of Transport.

a) Function and Activities

The CNSV is chaired by the Minister of Transport and Communications (MTC), and the council consists of four (4) representatives of Government Agencies such as the Ministry of Transport, Communications, Housing and Construction, the Ministry of the Interior, the Ministry of Education and the Ministry of Health. The CNSV is formed with the objective of proposing prevention policies, coordinating the execution of action plans for middle and long terms. Main activities are: design and evaluation of actions for traffic safety and education, promotion and organization of training courses for the prevention of traffic accidents in order to carry out the campaign of traffic safety and traffic education, and proposing legal manuals for the improvement of traffic safety.

b) National Developed Actions in 2004

In 2004, the following educational projects were implemented by the CNSV:

- Edition and reprinting of road safety education methodological guide;
- Video editing of road safety for children;
- Design and printing of road safety educational kits;
- Design, organization and execution of the road safety educational program-2004 by using the method of training workshops for teachers of Lima/Callao related to the methodological guide use.
- Execution of the first traveling school for road safety education;
- Delivery and distribution of educational material for the road safety regional committees;
- Organization and execution of traffic safety campaign, and
- Design and implementation of road safety children parks.

In terms of road safety, the CNSV is formed with the main aim of reducing road traffic accidents. It also functions as a body to stimulate action with regards to road safety education; information and publicity; observance of traffic laws and orders; coordination of activities among government agencies and relevant organizations. Based on the foregoing, it should be noted that the MTC has developed the CNSV for traffic safety purposes. If it were functioned effectively, the organization would have great directional value for road safety. However, the CNSV is presently limited with regards to their activities due to a limited annual budget. In addition, human resources will be required for the CNSV in order to develop the skills of the CVTV staff and enhance its institutional capacity.

2) *Municipal Direction of Urban Transport -Dirección Municipal de Transporte Urbano- (DMTU)*

The Municipal Direction of Urban Transport -Dirección Municipal de Transporte Urbano- (DMTU) is implementing the traffic safety education for the drivers/ticket conductors of public transport in order to ensure road traffic safety. Applicant of public bus's driver and ticket conductor must attend a class of traffic safety lectures. The driver applicants must attend a class during 20 hours a month, and the ticket conductor applicants must attend a class during 16 hours a month.

(3) *Driving License System*

1) *Type of Driving License*

In Peru, the Touring y Automóvil Club del Peru, entrusted by the Ministry of Transport and Communications (MTC), is responsible for issuing the driving licenses. There are three types of driving licenses for different vehicle types. To obtain a driver's license, he/she must be 18 years old or above, physically and mentally fit to drive a motor vehicle, free from any contagious diseases, and literate. The type of driving licenses is shown below:

- a) Class A-I: This license allows the holders to drive automobiles such as station wagons, pick ups and small trucks.
- b) Class A-II: This license allows the holders to drive professional automobiles (car under 36 seats excluding the driver's seat, 1-axel truck with designed load under 4,000kg, and a vehicle length of 6.0m).
- c) Class A-III: This license allows the holders to drive professional automobiles (bus with designed load under 8,500kg and over 45 seats, and a vehicle length of 10.0m, 1-2 axel truck and semi-trailer, and a vehicle length of 10.0m).
- d) Class B-II: This license allows the holders to drive motorbikes with cylinder capacity under 250cc including three-wheel bikes, four-wheel bikes (motorbikes with a capacity over 250cc are categorized in Class A-I).

2) *Drivers Training and Testing*

- a) Procedures for Obtaining the Driving License
The general procedure for the driving license is as follows:
 - A person who intends to obtain a driver's license can first apply for a practical driving instruction (about 14 hours) and classroom instruction (about 18 hours) at the driving school of the Touring y Automóvil Club del Peru or a private driving school. This procedure is not a legal obligation for obtaining a driving license.
 - Preparation of official materials: photos, identification card indicating 18

years old/above, medical certification to show physical/mental conditions such as physical fitness, hearing/visual ability and driver's blood type.

- The applicant is then scheduled to take a written examination and practical driving test at the examination center of the Touring y Automóvil Club del Peru.

b) Driving School

There are above 30 private motor vehicle driving schools and a motor vehicle driving school of the Touring y Automóvil Club del Peru in the city of Lima (see Figure 6.3-7). Most applicants practice on the roads as part of their private lessons. The training course for cars requires about 18 hours of classroom instruction and 14 hours of practical driving instruction. After finishing the training course of the school, the applicant can go and take the driving examination. They usually pass it.



Figure 6.3-7 Motor Vehicle Driving School at the Touring y Automóvil Club del Peru

c) Driving Examination

The written examination with questions concerning traffic laws, manners, and traffic signs will be done. The examination asks the applicants around 30 questions. In order to pass the examination, the applicants must pass 70% of total questions. Practical examination: after passing the written examination, the practical examination has the following three (3) procedures; 1) turning on the car engine and making the applicant go on a straight-line then a twisted-line, 2) passing through a road evaluating the applicant's attention to traffic signs, and 3) putting in/out of the parking area.

- d) The quality of instruction given to student drivers is quite insufficient, although a more detailed investigation may be required in this area. Further classroom practices in the driving school are required, in other words, more private classes should be provided before the driving practice. As a consequence, proper attitudes or ideas towards driving and law enforcement, that include self-discipline and social responsibility, are not adequately stressed.

6.4. PRESENT PARKING CONDITIONS

This section discusses the present curb parking characteristics based on the parking facility survey and the parking demand survey in the study area.

6.4.1. PARKING SURVEY

(1) Objectives

As road traffic demand increases, parking problems such as shortage of parking spaces and the increase of illegal parking must become visible. It is very important for transportation planning to understand current parking conditions with the information reflecting the existing demand. The parking survey conducted by the Study team aims to prepare a parking database and analyze the current situation of parking in the center of the study area,

including capacity and utilization of parking spaces on and off street, and characteristics of typical usage of parking.

- a) Parking facility survey
- b) Parking demand survey

(2) Coverage and Method

Parking spaces are physically divided into 2 types of on-street and off-street parking. The coverage of the surveys and its methodology by parking space type is described below.

1) Parking Facility Survey

The entire Study area was covered with the interview by hearing at the district administrative section for on-street parking, while for off-street parking, all buildings and spaces in the selected districts such as Lima, Magdalena, Jesús María, Pueblo Libre, San Borja, La Victoria, Miraflores, San Isidro, La Molina, and Surco, were covered. At each of the 299 parking places, the following was surveyed, 1) name and address, 2) type of parking, 3) service hours and price, 4) capacity, 5) etc. Figure 6.4-1 shows the location of the parking lots for the parking facility survey.

2) Parking Demand Survey

88 of the principal parking places were selected for the Parking Demand survey based on the database obtained by the Parking Inventory survey. At last, 10 on-street parking facilities and 59 off-street parking facilities were surveyed thanks to the cooperation of the administrators. Surveyors recoded the plate numbers of cars in selected parking spaces when they entered and exited the facility. Based on the recorded plate number with in-out time, the parking demand was analyzed.

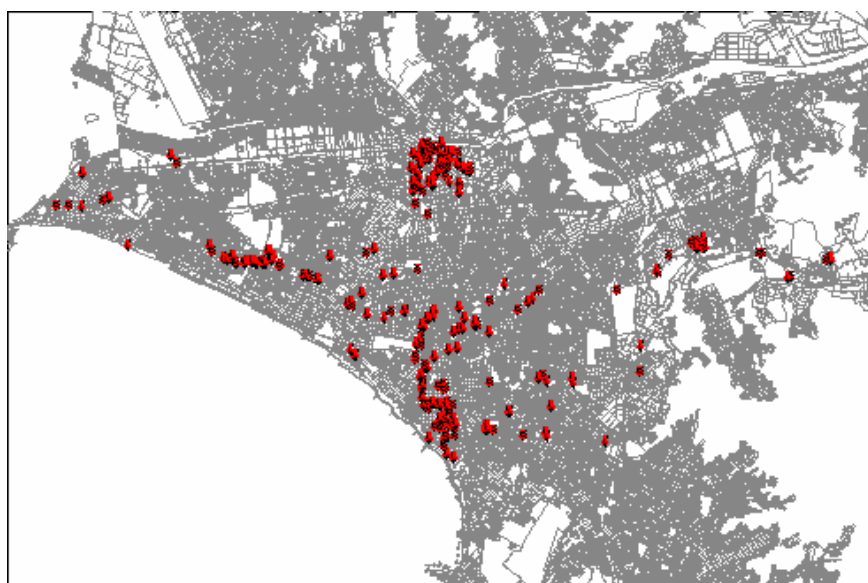


Figure 6.4-1 Location of Parking Lots for Parking Facility Survey

6.4.2. PARKING SURVEY RESULTS

(1) Off-Street Parking Facility Conditions

The situation of the major off-street charged parking facilities is shown in Table 6.4-1. The parking capacity of each type ranges, public parking holds between 10-500 cars, private parking holds between 5-1,500, and charged on- street parking holds between 11-131. The service time for off-street parking facilities shows various periods. The average hourly parking charge for the off-street parking facility ranges between S/1.0 and S/4.0, on the other hand, the on-street parking facility is at S/1.0 and S/1.5. Daily parking charges and monthly parking charges are in the range of S/5.0 and S/10.0, S/60 and S/180 respectively.

Table 6.4-1 Characteristics of Off-Street Charged Parking Facilities

Type of Parking Facility		Parking Capacity (Cars)	Type of Service Time	Type of Parking Charge		
				1 Hour	1 Day	1 Month
Off-Street	1. Public	10-500	a. 5:00-22:00 b. 6:00-22:00 c. 7:00-21:00/22:00 d. 8:00-18:00/23:00 e. 9:00-21:00/22:00 f. 24 hours	a. s/1.0 b. s/2.0 c. s/2.5 d. s/4.5 e. s/7 for 3 hrs.		a. s/ 60.0 b. s/120.0
	2. Private	5-1,500	a. 5:00-22:00 b. 6:00-18:00, 01:00 c. 7:00-20:00/24:00 d. 8:00-18:00/24:00 e. 9:00-18:00/23:00 f. 10:00-21:00/23:00 g. 24 hours	a. s/1.0 b. s/1.5 c. s/2.0 c. s/2.5 d. s/3.0 e. s/3.5 f. s/4.0	a. s/5.0 b. s/6.0 c. s/10.0	a. s/60.0-s/110 b. s/112.0 c. s/120.0 d. s/150.0 e. s/160.0-s/180
On-Street	Charged Parking	11-131	-	a. s/1.0 b. s/1.5	-	-

Source: JICA Study Team 2004.

(2) Off-Street Parking Demand Conditions

1) Parking Duration

Table 6.4-2 shows the off-street parking situation by type of land use in the study area. Average parking durations at off-street parking lots in the study area were in the range of between 0.5 hrs and 1.0 hrs. The average parking duration by type of land use is as follows: parking facility in the commercial area at 0.5 hrs, the business area at 1.0 hrs, and the mixed area at 1.0 hrs. Such average parking durations in the business area was nearly the same as that of the mixed area.

The accumulated curves of on-street parking duration, by type of land use, are shown in Figure 6.4-2. In all the parking lots, 40% of the total vehicles parked for less than 0.5 hour, 61% for less than 1 hour, 80% for less than 2 hours, 88% for less than 3 hours and 12% parked for more than 3 hours. Parking duration in the business area was longer than in any other area, the shares were; 22% of the total vehicles parked for less than 0.5 hour, 48% for less than 1 hour, 72% for less than 2 hours, 81%, for less than 3 hrs and 19% parked for more than 3 hours. A high share of parking duration of more than 3 hours was seen in the business area and in the mixed area.

On the other hand, the share of parking durations in the commercial area was; 46% for less than 0.5 hour, 68% for 1 hour, 86% for 2 hours, 92% for less than 3 hours and 8% parked for more than 3 hours. A high share of parking duration of less than 1 hour was observed in the commercial area.

Table 6.4-2 Off-Street Parking Situation by Type of Purpose

Type of Land Use	Parking Demand (Veh.)	Parking Capacity (Veh.)	Av. Parking Duration (Value of 50 Percentile) (Hrs)	Av. Parking Turn-Over Rate	Parking Duration (%)									
					Less than 0.5H	Less than 1.0H	Less than 1.5H	Less than 2.0H	Less than 2.5H	Less than 3.0H	Less than 3.5H	Less than 4.0H	Less than 4.5H	Less than 5.0H
Commercial Area	8,251	5,079	0.5	1.62	46	68	80	86	90	92	93	94	95	96
Business Area	1,335	658	1.0	2.03	22	48	63	72	78	81	84	86	87	88
Mixed Area	3,034	1,992	1.0	1.52	33	49	60	68	75	80	84	86	88	90
Total	12,620	7,729	0.5	1.63	40	61	73	80	85	88	90	92	93	94

Source: JICA Study Team 2004

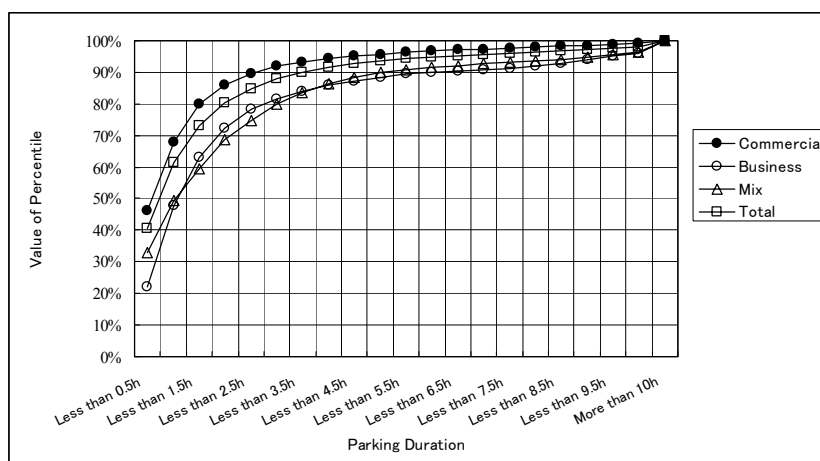


Figure 6.4-2 Distribution of Cumulative Parking Duration

2) Fluctuation of Hourly Parked Vehicles

Figure 6.4-3 shows the typical fluctuation of hourly-parked vehicles at the off-street parking lots by type of land use. In the commercial area, the peak periods were generally between 11:00-15:00 at midday. In the business area, the peak periods were generally between 11:00-12:00 in the morning and 17:00-18:00 in the evening. The peak period in the mixed area was nearly the same as that of the business area.

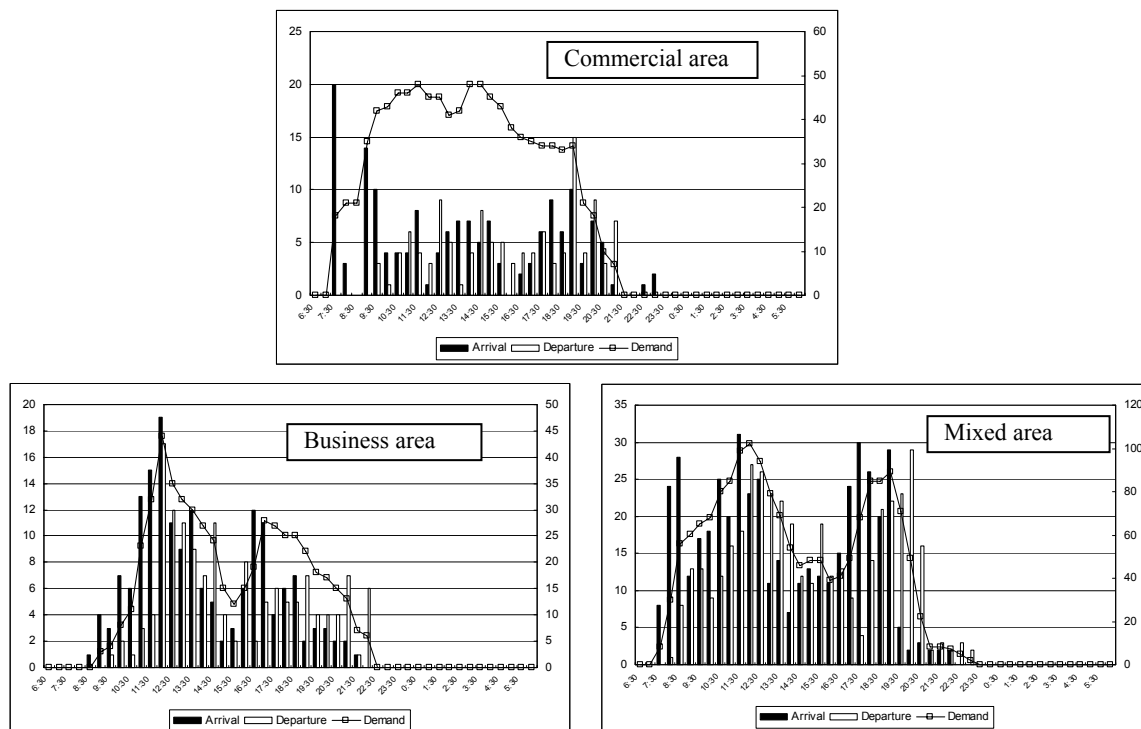


Figure 6.4-3 Typical Fluctuation of Hourly-Parked Vehicles

3) Parking Turnover Rate

Table 6.4-2 shows the turnover rate of off-street parking lots in a day. The entire average parking turnover rate shows at 1.63. Each average turnover rate in the commercial area, business area and mixed area was 1.62 times, 2.03 and 1.52 respectively. The parking turnover rate in the business area has a higher rate at 2.02.

(3) On-Street Parking Demand Conditions

1) Parking Duration

Table 6.4-3 shows the on-street parking situation by type of land use in the study area. Average parking durations at the on street parking lots in the study area were in the range of 0.5 hrs and 1.0 hrs. The average parking durations by type of land use are as follows: parking facility in the commercial area at 1.0 hrs, and in the mixed area at 0.5 hrs. The average parking duration in the commercial area was nearly the same as that of the total area.

The accumulated curves of on-street parking duration, by type of land use, are shown in Figure 6.4-4. In all the parking lots, 39% of the total vehicles parked for less than 0.5 hour, 58% for less than 1 hour, 72% for less than 2 hours, 78% for less than 3 hours and 22% parked for more than 3 hours. By comparison to off-street parking lots, a high share of parking duration of more than 3.0 hour was observed on-street parking lots, this might be caused by a parking charge of S/1.0-S/1.5 per hour (parking charge at off-street parking lots is S/1.0-S/4.0). Parking duration in the commercial area was longer than in the mixed area, the shares were: 32% of the total vehicles parked for less than 0.5 hour, 50% for less than 1 hour, 65% for less than 2 hours, 71%, for less than 3 hrs and 29% parked for more than 3 hours. A high share of parking duration of more than 3 hours was seen in the commercial area.

On the other hand, the share of parking durations in the mixed area was; 51% for less than 0.5 hour, 69% for 1 hour, 83% for 2 hours, 88% for less than 3 hours and 12% parked for more than 3 hours. A high share of parking duration of less than 1 hour was observed in the mixed area.

Table 6.4-3 On-Street Parking Situation by Type of Purpose

Type of Land Use	Parking Demand (Veh.)	Parking Capacity (Veh.)	Av. Parking Duration (Value of 50 Percentile) (Hrs)	Av. Parking Turn-Over Rate	Parking Duration (%)									
					Less than 0.5H	Less than 1.0H	Less than 1.5H	Less than 2.0H	Less than 2.5H	Less than 3.0H	Less than 3.5H	Less than 4.0H	Less than 4.5H	Less than 5.0H
Commercial Area	1,195	1,195	1.0	2.35	32	50	60	65	69	71	74	76	77	80
Mixed Area	756	756	0.5	2.30	51	69	77	83	86	88	90	93	96	96
Total	1,951	1,951	1.0	2.33	39	58	66	72	75	78	80	82	84	86

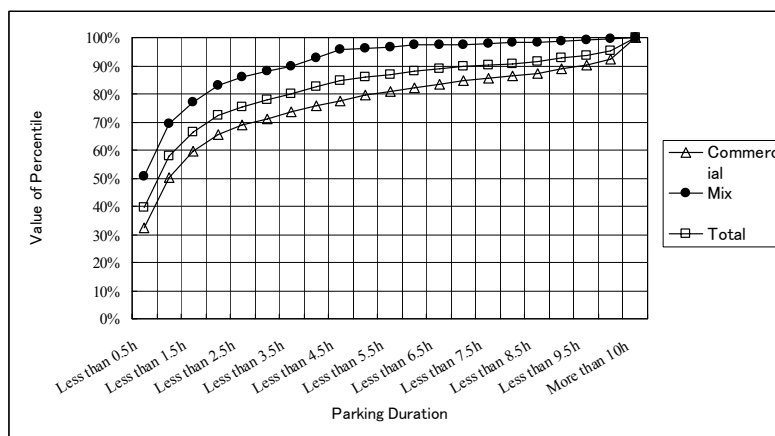


Figure 6.4-4 Distribution of Cumulative Parking Duration

2) Fluctuation of Hourly-Parked Vehicles

Figure 6.4-5 shows the typical fluctuation of hourly-parked vehicles at the on-street parking lots, by type of land use. In the commercial area, the peak periods were generally 11:00-15:00 at midday, the figure is almost the same as that of off-street parking lots. On the other hand, the peak period in the mixed area was generally between 13:00-14:00 in the midday, and between 17:00-18:00 in the evening.

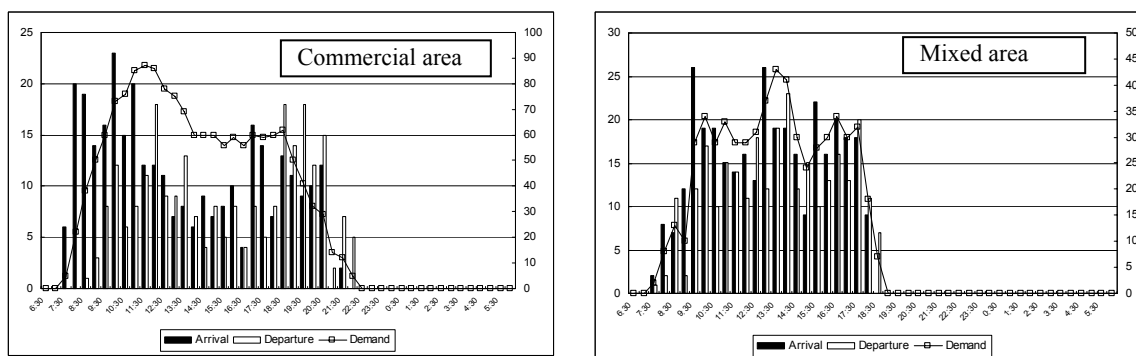


Figure 6.4-5 Typical Fluctuation of Hourly-Parked Vehicles

3) Parking Turnover Rate

Table 6.4-3 shows the turnover rate of off-street parking lots in a day. The entire average parking turnover rate is shown at 2.33. The each average turnover rate in the commercial area and the mixed area was 2.35 and 2.30 times respectively. Such parking turnover rates in the commercial and mixed areas had nearly the same condition.

6.5. EXISTING ISSUES, OPPORTUNITIES AND CONSTRAINTS

The following problems and issues have been identified from a traffic-engineering point of view in the Study Area. The problems and issues are identified from data based on several investigations of traffic volume flow, vehicular travel time, parking conditions and traffic control facilities.

6.5.1. PROBLEMS AND ISSUES OF TRAFFIC FLOW AND CONTROL

(1) Excessive Vehicular Traffic Volume to/from the Central Area

Traffic congestion in the central area of Lima becomes very severe during the peak period, when major signalized intersections reach near-saturated level. This indicates that there are significant gaps between road space supply and vehicular traffic demand for commuting.

(2) Low Average Travel Speed and Area of Congestion

In the morning peak period, the area surrounded by the Av. Javier Prado, Av. Brasil, Av. Arica, Via de Evitamiento, and Av. Nicolas Ayllón roads was identified as a heavily congested area in terms of travel speed with 10km/h or less. In the midday period, the congested area is that area bordered by Av. Angamos Oeste-Este-Av. Primavera, Av. Brasil, Av. Arica, and Vía de Evitamiento. In the evening peak hour, the congested area increases more than the area in the midday peak period.

These figures show that the congested area covers almost the same area of the central area of Lima, where the supply of road space is very difficult because of its characteristics of land use. Thus, the question should be how to divert the excessive traffic demand made by private vehicles to other forms of traffic flows.

(3) Main Causes of Traffic Congestion

The main causes of traffic congestion characterized by travel speeds of 10km/h or less during peak periods are categorized into 6 types in the context of traffic engineering as described below.

- Unsuitable traffic signal control system at intersections;
- Traffic congestion caused by traffic spill-back from upstream;
- Conflict from buses, minibuses and combis near bus stops;
- Blocking of signalized intersections due to heavy left-turn vehicles, and
- Conflict of merging and diverging, from/to side roads without signal light, including from/to parking lot along street.

It is, therefore, highly recommended that effective countermeasures should be considered, to mitigate traffic congestion at “BOTTLENECKS”, through a traffic control and management plan.

(4) Traffic Education of Drivers and Pedestrians is Weak

Peruvian drivers, considered collectively, have been described as undisciplined through actions such as ignoring red traffic lights, making sudden and frequent lane changes without notice, ignoring speed limits, jumping queues, and blocking intersections. In

particular, bus drivers are among the worst. Such driving behavior leads to a lower traffic capacity and the occurrence of traffic accidents. In the analysis of traffic accidents, the pedestrian involved accidents generally show a high share, and the accidents are mainly caused by wrong driving manners of road users. Therefore, effective traffic education programs and campaigns should be promoted to improve driver's compliance with traffic laws and regulations.

The behavior of pedestrian's is also bad i.e. they cross streets at the middle sections of roads (jay-walking), and they walk along vehicle lanes to shortcut their journey. Appropriate pedestrian education programs are, therefore, required to improve pedestrian discipline as well as the capacity improvement of pedestrian facilities.

In addition, the quality of instruction given to student drivers is insufficient. More practice and classroom teaching by driving schools should be provided. As a consequence of insufficient instruction, proper attitudes or ideas toward driving and law enforcement, that is necessary for self-discipline and social responsibility, are not adequately stressed.

6.5.2. PROBLEMS AND ISSUES OF TRAFFIC CONTROL AND MANAGEMENT FACILITIES

(1) Unsuitable Traffic Signal Control System

At the present time, October 2004, there are over 710 signalized intersections in the study area. During peak periods, traffic policemen manually control the signalized intersections on the major streets, because the current level of traffic congestion in the city of Lima may be difficult to manage by the existing system because of near-saturation. With a view to achieving a smooth traffic flow along major roads, the technical improvement of the signal control system at the bottlenecks will be necessary with the introduction of a real time control system by using a synchronized system with traffic sensors, in order to respond to the unstable traffic fluctuation by time periods.

(2) Key Bottlenecks

The current traffic congestion is mainly caused by the spill-back caused by near-saturated bottlenecks. The signal control system can only be effectively operated when the traffic shows a stable fluctuation pattern. Thus, the technical improvement of the signal control system, to manage near-saturated conditions, will be necessary instead of the manual operation by traffic police.

Traffic to and from side roads without traffic lights disturb main traffic flows. These non-signalized intersections will be considered for the installation of signals, including channelization, in order to control both motor vehicles and pedestrian traffic.

(3) Shortage of Traffic Safety Facilities

In the analysis of accident types and accident causes, 1) the pedestrian involved accidents generally show a high share, 2) the accidents are mainly caused by wrong driving manners of road users. It is recommended that the traffic safety facilities of warning facilities be mainly improved; in addition, effective traffic education programs and campaigns should be promoted to improve driver compliance with traffic laws and regulations.

(4) Lack of a Vehicle Inspection System

Currently, the vehicle inspection system is not fully adopted, however, in this year, the inspection procedure could be licensed to private companies the full responsibility of the government. The air pollution due to the vehicular emission should be improved by a suitable vehicle inspection system. A technical improvement of the vehicle inspection system is highly recommended.

CHAPTER 7
Traffic Administration, Institution and
Legislation

7. TRAFFIC ADMINISTRATION, INSTITUTION AND LEGISLATION

7.1. NATIONAL ORGANIZATIONS AND INSTITUTIONS

7.1.1. GENERAL CONDITIONS

As a result of decentralization, the central government lost its influence in the infrastructure projects of the municipalities. The MML and MPC make plans for their areas individually and there is no organization in charge of making the integrated transport plan for the whole metropolitan area. The cities of Lima and Callao have opposed each other rather than cooperated. While the city of Callao is geographically small, the fact that it shelters the nation's primary international airport and port makes the status of the city more important than its size. The MPC holds the same status as the MML and the two municipalities have not cooperated but been opposed in many cases. As mentioned, the central government lost the power to elaborate the integrated transport master plan for the Metropolitan Area. These facts resulted in an abundance of plans but no implementation.

This chapter explains the transport administration and organization for the Metropolitan Areas of Lima and Callao on a national level, municipality level, Consejo for Lima and Callao, District and related international organizations, along with related legislations. In this section, national level organizations for Lima and Callao are described. Table 7.1-1 shows the summary of each organization.

Table 7.1-1 Transport Organizations in the Metropolitan Area of Lima and Callao

Central Government	Institutions	Supervisor	Rationality	Organization	Staff	Regulation	URL	Direction
MTC	Ministerio de Transporte y Comunicaciones	n.a.	Permission to transportation, Development of road	○ (Web)	Decreto Legislativo N° 183 – Ley Orgánica del Ministerio de Economía y Finanzas Ley N° 27806	http://www.mtc.gob.pe	Ministerio de Transportes y Comunicaciones Av. 28 de Julio No. 800 Lima 1 Teléfono Central - 439-7800	
DGOT	Dirección General de Circulación Trimestre	MTC	Elaboration and Evaluation of Investigation studies on transport, traffic, formulate norms and regulations	○ (Web)	Supreme Decree No 041-2002-MTC			
ORP	Oficina de Planificación y Presupuesto	MTC	Formulate and evaluate plans of transport sector coordinate with public decentralized institutions.	○ (Web)	Supreme Decree No 041-2002-MTC			
PROMAS	Proyecto Especial de Infraestructuras de Transporte Nacional	MTC-Hoyos de Explotación	To develop road sector infrastructure in national, departmental and rural area except Lima Metropolitan area	○	Ley N° 27208 Ley de Creación Promas/MTC Decreto Supremo N° 003-2002-MTC	http://www.promas.gob.pe/		
CORPAC	Corporación Peruana de Aeropuertos y Aviación Comercial	MTC-SA (Sociedad Anónima)	To offer services to the safe and efficient aeronavigation, as well as, services aeroportuarios with infrastructures and facilities that assure the client's full satisfaction, with levels of competitiveness and profitability	○ (Web)	Legislative Ordinances 099 and 219 for the Law of Mercantile Societies, Law of managerial activity	http://www.corpac.gob.pe		
SEPOST	Servicios Postales del Perú S.A.	MTC-SA (Sociedad Anónima)	To provide to the country the infrastructure of postal communication that requires for their development, looking after the modernity of their services	○ (Web)	Legislative Ordinance No 685	http://www.serviciopostal.com.pe	Av. Tomás Valle s/n T/S/N Lima 38 – Los Olivos Tel 539-2001-6	
FINARU	Fin. Servicios de Perú	MTC-SA (Sociedad)	To achieve and to maintain economic-financial self-sufficiency, improving the quality of the postal service	n/a		http://www.finaru.com.pe/		
MEF	Ministerio de Economía y Finanzas	n.a.	* To optimize the economic and financial activity of the State. * To establish the macroeconomic activity * To Achieve a sustained growth of the economy of the country	○ (Web)	Ley de Presupuesto Público 2004, Ley de Endeudamiento del Sector Público 2004, Ley modificatoria Ley N° 27245 que modifica la Ley N° 27245 de Presidencia y Transparencia Fiscal Ley de Presidencia y Transparencia Fiscal Ley N° 27245	http://www.mef.gob.pe	Av. Javier 319, Conde de Lima, Lima 1 Teléfono 427 9930 – Fax: 428 2508	
SUNAT	Superintendencia Nacional de Administración Tributaria	MEF	Administration of all type of taxes except municipal taxes/bases. Includes contribution to the social security of health and to the office of social security of retirement person.	○	Law No 24028 (creation) and General Law approved by Legislative Decree No 501	http://www.sunat.gob.pe	Avenue Garcilazo de la Vega 1472, Lima (511) 215 3000, (511) 469 0060	
Proinversión	Agencia de Promoción de la Inversión Privada	MEF	PROINVERSION aims at promoting investment flows, included non-State investments managed by private agents, in order to boost Peru's competitiveness and sustained development with the aim at improving people's welfare. Likewise, it is engaged in becoming an efficient strategic ally for doing business in Peru.	○	150	http://www.proinversion.gob.pe	Av. Pisco de la República 3361, Piso 8, San Isidro Lima 27 Número telefónico (511) 612 1200 Fax: 221 2941/2942	
FOHAM	Fondo Nacional del Ambiente	President of Minister Council	Entity of private right without profit purpose and of social and public interest to improve the public and private environment to develop plans, programs and activities oriented to the improve environment quality	○	10	http://www.fonham.gob.pe/	Castellano, Santiago de Surco, Lima 33 – PERU Tel: Fax: (511) 448-9500	
CONAMA	Consejo Nacional del Ambiente	President of Minister Council	To plan, promote, coordinate, control and watch for the environment preservation and the natural inheritance of the country	○ (Web)	40	http://www.conama.gob.pe	Av. Guardia O'Hill No. 205 San Borja, Lima Teléfono : (511) 2255370 ; Fax : 2255399	
SUNARP	Superintendencia Nacional de los Registros Públicos	Ministry of Justice	to guarantee, maintain and reestablish the internal order to give aid and support to persons and community to guarantee fulfillment of law and security to control of delinquency	○ (Web)	Law No 26410 dated Dec21/944	http://www.sunarp.gob.pe	Calle Armando Bologni N° 200 – San Isidro – Lima 27 – Perú Central Telefónicas (0-51-1) 221-1401 / 221-1540 / 221-3494	
PNP	Policía Nacional del Perú	Ministry of Interior	to guarantee, maintain and reestablish the internal order to give aid and support to persons and community to guarantee fulfillment of law and security to control of delinquency	○ (Web)	Law No 26366 (creation) Oct.16.1994 Supreme Resolution No 195-2002-Jus (approved statute of SUNARP)	http://www.pnp.gob.pe	Calle Las Mercedes No. O. Lote 15, Urb. San Borja, Lima 27 422 0421 / 212 5555; 5315 / 421 8097	
SEDAPAL	Servicio de Agua Potable y Alcantarillado de Lima	Ministerio de Vivienda, Construcción y Saneamiento	Accident and safety in transportation, regulation to contribute to the improvement of the quality of the population's life, to improve the economic and financial efficiency, to facilitate the access to the services of drinkable water and sewer system	○ (Web)	Law No 24394 (1985) Reorganization of PNP	http://www.sedapal.com.pe/	Aeropista Ramón Pizate N1210, El Agustino Call Center: 317-9000 Email: sedapal@sedapal.com.pe	
INEI	Instituto Nacional de Estadística e Informática	President of Minister Council	to supply statistics information of quality	○ (Web)	Ley de Transparencia 27906 (V Trimestre 2003)	http://www.inei.gob.pe/	Av. Grial Carver 654 – 05R, Jesús María Lima Teléfono 433-4223 – Fax 431-1340	
Municipalidad de Lima Metropolitana – 43 distritos de Lima and 6 distritos de Callao								
OTLC	Consejo de Transporte de Lima y Callao (Created as the result of agreement of inter-institutional cooperation and is integrated by MTC, MEF, Mayor of Callao Province and Mayor of Lima Metropolitan)	(MTC)	find solution to the problems of system of public, road, traffic and transports in the urban and metropolitan area of Lima and Callao to analyze and coordinate the urban and metropolitan transport in the matter of public, road system, traffic and transport between Callao and Lima cities - formation and execution of studies and projects relative to interinstitutional agreement of technical campaigns subsidized by Peruvian Government - to support programs of national interest of public, road security and national interest of environment	○	8 (12)	http://www.otlc.gob.pe/	Torre del Centin, Chivilta de Lima Piso 14, 011402 Av. Bolivia 170, Lima 1 Tel: 433-2908	
ONSV	Cesep Nacional de Seguridad Vial	(MTC)	Ex-Road Security Council	○	8	n.a.	same as above	

The Master Plan for Lima and Callao Metropolitan Area Urban Transportation in the Republic of Peru
(Phase 1)
Final Report

Municipalidad Metropolitana de Lima (MML)				Website	40	Acuerdo de Consejo MML No 002 07-02-91	http://www.mml.gob.pe/	Néstor Sánchez 200 – Piso 12, Jesús María, Lima Tel: 330-7574, 7375, 6071
JMP	Instituto Metropolitano de Planeación	MML	Planning of transportation/development policy Formulation of development program Study of transport demand to save energy, direct services and to control activities and operation of projects in transport and traffic system of Metropolitan to improve public transit policy that promote best measures of transport and traffic to supervise transfer projects of bus routes in order to give convenience of services in public transport to advance studies for other transport and traffic solutions.	Website	59		http://www.mml.gob.pe/	RA 65 de la Vía de Eslamirto, Lima Tel: 452-0238
DMTU	Dirección Municipal Transporte Urbano – MML	MML		Website	191		http://www.mml.gob.pe/	Vía de Eslamirto, Vía 7, Aso Tel: 437 760, 437-4820
SET/AME	Servicio de Taxis Metropolitanos	DMTU-MML		Website	300		http://www.mml.gob.pe/	Vía de Eslamirto, Vía 7, Aso Tel: 437 760, 437-4820
DMAPE	Empresa Municipal de Administración del Peaje	MML (Empresa)		Website	20		www.oxidacion.com	Peaje-Surtejo Av. #177, Of. 205, Lima 1 Tel: 511-147-8084, Telefax: 428-9200
CEPRE	Comité Especial de promoción de la inversión privada	MML		Website	100		www.oxidacion.com	Concepción 425 – Urbanización La Olla – Central Telefónica: +51 1 273 2001
AATE	Autoridad Autónoma del Proyecto Especial Sistema Electrónico de Transporte Masivo de Lima y Callao	MML		Website	41		http://www.mml.gob.pe/	Av. Apurimbu N° 166 510 Peo Teléfono: 421 7479
PROTRANSPORTE	PROTRANSPORTE de Lima	Mayer (MML)		Website			http://www.mml.gob.pe/	Av. Primavera Primavera Line Jesús María, Lima
INVERNET	Inversiones Metropolitanas	MML		Website			http://www.mml.gob.pe/	Néstor Sánchez – Piso 7, Jesús María, Lima
SAT	Servicio de Administración Tributaria	MML		Website			http://www.mml.gob.pe/	Calle 551, Santa Marina Sur Teléfono: 426477, 426477, 426477, 426477
Municipalidad Provincial del Callao (MPC)				Website			http://www.mml.gob.pe/	Calle 501, Santa Marina Sur Teléfono: 426477, 426477, 426477, 426477 Alcalde: 4695590 Fax: 4692948
DGTU	Dirección General de Transporte Urbano	MPC		Website	40			
DCEU	Dirección General de Desarrollo Urbano	MPC						
FINVER	Fondo de Inversiones Financ-Callao	MPC						
Diriaba				Some				
D3	Dirección en Lima							
B	Dirección en Callao							
Organismos Internacionales								
BIRD (IDRD)	Banco Interamericano de Reconstrucción y Fomento			Website			http://www.bic.org.pe/	
BID (IDB)	Banco Interamericano de Desarrollo			Website			http://www.bic.org.pe/	
OPR (IDC)	Comisión Financiera Interamericana							
OMC (MESA)	Organismo Multilateral de Gestión de Inversiones	Grupo del Banco Mundial						
Private Entity								
CIDAT	Centro de Investigación y Asesoría del Transporte Terrestre	n.a.			10		http://www.mml.gob.pe/	Av. Padre Pablo Elio 1104 de 402, San Isidro Tel: 224-9800

7.1.2. NATIONAL TRANSPORT ORGANIZATIONS AND INSTITUTIONS

(1) Ministry of Transport and Communications (Ministerio de Transporte y Comunicaciones - MTC)

The main responsibilities of the Ministry of Transport and Communications (MTC) include the establishment of efficient transport systems by improving land transport infrastructures; including road and railway, port infrastructure and airport facilities.

Approval and licensing related to the transport system is the main task of the MTC and inter-city domestic transport, except for the Metropolitan Area of Lima and Callao, is under the control of the MTC. Nevertheless, the MTC is the supreme institution responsible for controlling the transport system of the whole nation and plays an important role for the Metropolitan Area as one of the core members of the Transport Council of Lima and Callao (CTLC). Figure 7.1-1 shows the organization chart of the MTC.

The MTC consists of two bureaus, excluding the administrative divisions, which are the Transport Bureau and the Communications Bureau. A division related to transport is the Viceministerio de Transportes (Transport Bureau) that consists of five divisions.

1) General Direction of Ground Circulation (Dirección General de Circulación Terrestre - DGCT)

The Transport Bureau consists of five divisions:

- a) General Direction of Civil Aviation (Dirección General de Aeronáutica Civil - DGAC)
- b) General Direction of Marine Transport (Dirección General de Transporte Acuático - DGTA)
- c) General Direction of Railway Transport (Dirección General Caminos y Ferrocarriles - DGCF)
- d) General Direction of Land Transport (Dirección General de Circulación Terrestre - DGCT)
- e) General Direction of Social Environmental Affairs (Dirección General de Asuntos Socio-Ambientales - DGAS)

Special Projects (Proyectos Especiales) consists of three PROVIAS (Proyecto Especial de Infraestructura de Transporte – Special Project of Transport Infrastructure), National PROVIAS, Departmental PROVIAS, and Rural PROVIAS, which aim to develop high quality roads.

Public corporations, which belong to the MTC, are CORPAC (Corporación Peruana de Aeropuertos y Aviación Comercial – Peruvian Corporation of Airports and Commercial Aviation), SERPOST (Servicios Postales del Peru – Postal Services of Peru) and ENAPU (Servicios Portuarios del Peru – Port Services of Peru). CORPAC offers air-navigation and airport infrastructure services. ENAPU offers port services and SERPOST provides postal communication services.

Among these organizations, DGAC, DGTA, CORPAC, ENAPU and SERPOST do not have relation with the project. The three PROVIAS (National, Departmental, and Rural) do not operate in the Metropolitan Area of Lima and Callao.

From its geographic condition, civil aviation in Peru plays an important role in major intercity transport. On the other hand, railway is hardly operated due to various reasons. In the Metropolitan Area of Lima and Callao road transport is almost the only transport method. Although the transport administration for roads and railways has shifted to local government through the decentralization, local governments expect the assistance of the MTC for the planning of transport policies, improvement of transport legislation and

development of social environmental administration. In this aspect, the role expected of the MTC in the improvement of the transport system in the Metropolitan Area of Lima and Callao remains high. Since the shift in the ownership of AATE to the MML, the role of the DGCF has been limited to long distance rail transport and not urban transport. Therefore, the DGCF has hardly any relationship with the study and the DGCT is the division in charge of the project

2) General Office of Planning and Budgets (Oficina General de Planificación y Presupuesto - OPP)

While each division of the five sectors mentioned above basically elaborates the transport plans of the study and their implementation, it is necessary to carry out discussions and cooperate with the General Office of Planning and Budgets (OPP). The OPP consists of four divisions, which are the Direction of Planning (Dirección de Planificación), Direction of Investments (Dirección de Inversiones), Direction of Budgets (Dirección de Presupuesto) and Direction of Administrative Information (Dirección de Información de Gestión).

The Transport Council of Lima and Callao (Consejo de Transporte de Lima y Callao -CTLC) is the independent committee that is composed of the chief officers of the MTC, MEF, MML, MPC and PNP and it contains the Technical Secretariat (Secretaría Técnica) as its subordinate organization. The budget for the Technical Secretariat is provided by the MTC and, therefore, it may be assumed that the CTLC belongs to the MTC. It is currently being discussed whether the CTLC should directly report to the prime minister and be completely independent.

(2) Ministry of Economy and Finance (Ministerio de Economía y Finanzas - MEF)

The main role of the MEF in transport projects is the efficient management of budgeting, investment planning and financing for the necessary national projects as well as controlling development assistance from World Bank (IBRD), Inter-American Development Bank (IDB) and other donor organizations and developed countries. Regarding projects in the Lima Metropolitan Area, the Municipality of Lima is the borrower for the loan from IBRD and IDB guarantee by the government of Peru. The MEF is in charge of taxation and the SUNAT, an organization that belongs to the MEF, is the levying organization. The MEF is also promoting private investment for the public infrastructure projects of PROINVERSION, which belongs to the MEF.

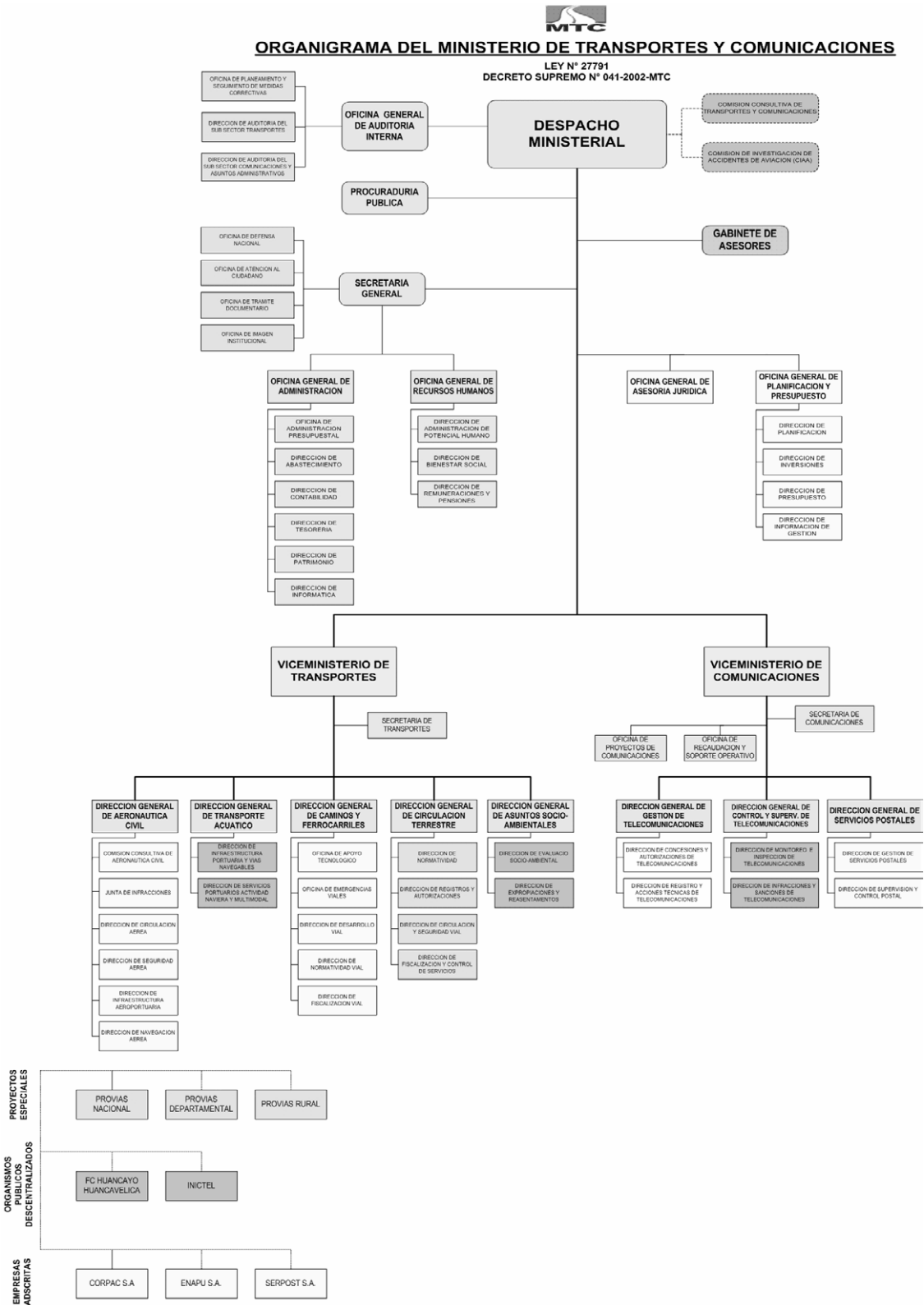


Figure 7.1-1 Organization Chart of MTC

1) National Superintendence of Tributary Administration (Superintendencia Nacional de Administración Tributaria - SUNAT)

The SUNAT (Taxing Authority) levies national taxes, except municipality taxes, and manages the national welfare system include pensions.

The SUNAT, headed by the National Superintendent of Tax Administration, has two bureaus, the Associated National Superintendence of Internal Taxes and the Associated National Superintendence of Custom Duties.

2) PROINVERSION (Agency that Promotes the Private Investment)

Peru is not the exception to most countries, which are in short of budget for public infrastructure and promote private investments for public projects. The COPRI was born to promote private investment within the organization of the MEF and later transformed to PROINVERSION. PROINVERSION arranges the concession for PPP and PFI projects. The MML has the CEPRI for its PPP and PFI projects, similar to PROINVERSION for the national projects.

(3) National Superintendence of Public Registration (Superintendencia Nacional de los Registros Públicos - SUNARP)

The SUNARP is the decentralized organization of the Ministry of Justice and entity of the national system of public property registrations. The SUNARP supports the modernization, simplification, integration and specialization of the registration function in the whole country. In the transport field, vehicle registration is the main function of the SUNARP.

(4) National Police of Peru (Policía Nacional del Perú - PNP)

The basic function of the PNP is to guarantee public security, protect the public and private right, maintain internal order and order traffic regulations. The PNP has 11 Directions with 23 Regions in the whole nation. For the Lima Metropolitan Area, VII Dirección Territorial de Policía (VII Territorial Police Direction) – Lima PNP is the sole police force in the area. The MML has a self-defense organization called SERENAZGO, apart from PNP, but it does not have police functions.

(5) National Environmental Council (Consejo Nacional del Ambiente - CONAM)

The CONAM is the independent committee in charge of the environmental preservation and national inheritance of the country that directly reports to the prime minister. It plans, promotes, coordinates, controls and watches environmental issues. It is considered as the supreme environmental administration in the nation and environmental laws are discussed, implemented and amended by the CONAM. The CONAM also advices, mediates and instructs in the disputes between environmental organizations of ministries and municipalities. For transport planning, it is necessary to discuss and coordinate with the CONAM regarding environmental issues.

(6) National Environmental Fund (Fondo Nacional del Ambiente - FONAM) - Entity of private right without profit purposes and of social and public interest

The FONAM is the fund specified for environmental issues and directly reports to the Prime Minister as well as to the CONAM with the function of promoting public and private investment for the national environmental improvement. Its mission is to act for Global Warming issues, capacity building to take action for Global Warming issues and reaction for the destruction or contamination of the ecosystem. Its investment policy includes four areas, which are 1)Energy, 2)Transport, 3)Forestry and 4)Water Resources.

The Directive Council is the supreme function of the FONAM and its members include the following.

- 1) Representative of the CONAM
- 2) Representative of the MEF
- 3) Representative of environmental NGO
- 4) National Confederation of Private Institutions (Confederación Nacional de Instituciones Privadas – CONFIEP)
- 5) Academic (university) representative

(7) National Institute of Statistics and Computer Science (Instituto Nacional de Estadística e Informática - INEI)

The INEI is the national statistics bureau and reports directory to the Prime Minister. The INEI provides figures and statistical information related to transport, population, property, maps and socio-economic information.

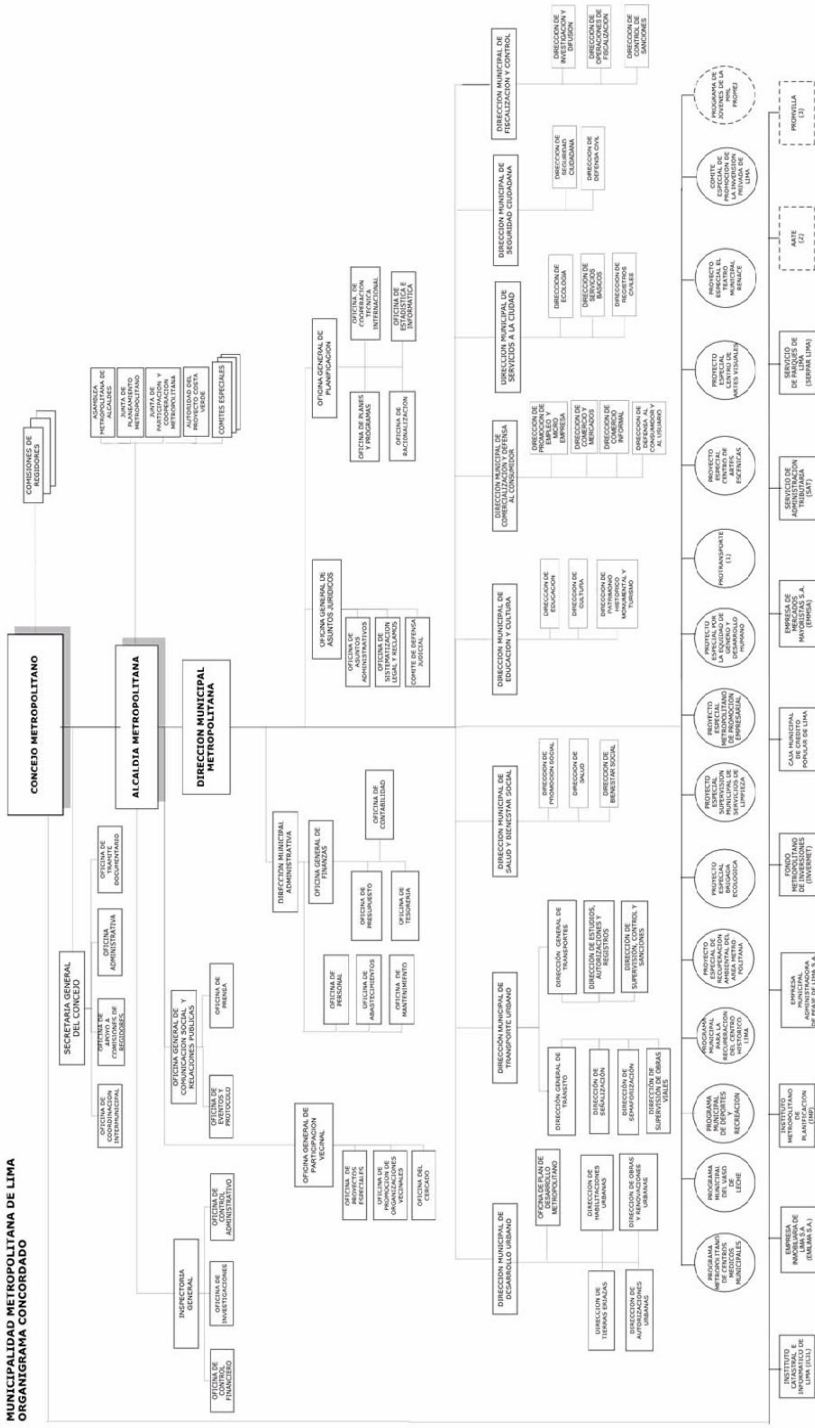
7.2. TRANSPORT ORGANIZATIONS AND INSTITUTIONS OF THE MML

Transport administration in the Metropolitan Area of Lima and Callao is executed by the MML, the MPC and Districts (43 districts in the MML and 6 districts in the MPC) for their territories. For the whole Metropolitan Area, the Transport Council of Lima and Callao – CTLC, which has been established to coordinate between the MML and the MPC, ministries and transport institutions, are involved.

Both the MML and the MPC have kept independence in their administrations and rather opposed on many occasions. A certain number of the concerned parties share the opinion that institutional matters are essential in the development of transport systems in the Metropolitan Area and the CTLC was created to coordinate and mediate between organizations.

ESTRUCTURA ORGANICA

**MUNICIPALIDAD METROPOLITANA DE LIMA
 ORGANIGRAMA CONCORDADO**



(1) PROYECTO ESPECIAL DE INTEGRACION DEL PLAN DE INVERSIONES PARA EL TRANSPORTE METROPOLITANO DE LIMA
 (2) AUTORIDAD MUNICIPAL DE LOS BAÑOS DE VALLE
 (3) AUTONOMIA AUTONOMA DEL PROYECTO ESPECIAL SISTEMA ELECTROICO DE TRANSPORTE MASIVO DE LIMA Y CALLAO

Figure 7.2-1 Organization Chart of the Metropolitan Municipality of Lima

7.2.1. TRANSPORT ORGANIZATIONS AT THE MML

(1) Municipal Direction of Urban Transport (Dirección Municipal de Transporte Urbano – DMTU)

The DMTU is responsible for the planning, coordination and management of projects related to the transport system in the Municipality of Lima. The DMTU is in charge of transport administration but does not execute projects. The DMTU also plans projects but does not carry out feasibility studies, evaluation and formation. It is composed of the Transit Division (General Direction of Transit - Dirección General de Transito – DGTO) and the Transport Division (General Direction of Transport - Dirección General de Transporte – DGTE). The authorization to control and regulate traffic in Lima lies in the MML and the DMTU is responsible for setting up and managing traffic signals and signs, licensing to buses (large bus, micro-bus, combi, etc.), taxis and motor-taxis and permits to operate bus and taxi routes.

Budget for the necessary investment of transport projects in the municipality comes from the annual budget of the MML and the municipality does not receive any subsidy from the central government. The MML has been in short of necessary funding for transport infrastructure projects and the concession for PPP or PFI has been considered inevitable in recent years. International assistance from international donor organizations such as IBRD and IDB and other OECD countries has been promoted by the own initiative of the MML. When making applications to those donor organizations, the MML discusses them with the central government for the necessary guarantee. The organization chart of DMTU is shown in Figure 7.2-2.

(2) Metropolitan Planning Institute (Instituto Metropolitano de Planificación – IMP)

The IMP is the independent institution under the supervision of the MML. Its mission is to plan, form, program and investigate urban planning. It does not only work for the municipality but also for the districts, the MPC and private companies. Although the DMTU makes short term planning, it does not have the function for transport planning. Plans for road sector transport in the MML are made by the IMP and the DMTU maintains and executes small-scale repairs and improvements.

The IMP also coordinates the planning of the Metropolitan Area of Lima and Callao with the Municipality of Callao. Basically, the IMP is in the position to elaborate integrated plans for urban and transport planning but, in reality, AATE makes plans for the railway sector and PROTRANSPORTE makes plans for buses. Consequently, no organization elaborates integrated transport plans for the entire metropolitan area. The organization chart of IMP is shown in Figure 7.2-3.

(3) EMAPE – Municipal Toll Administration Company

As mentioned in the previous section, road maintenance and small-scale improvements and road repairs are executed by the DMTU and full-scale road projects are implemented by EMAPE, which is a public corporation of the MML. Though EMAPE is an independent organization, all its equity is invested by the MML and it is considered that the function of EMAPE belongs to the MML and it works for the projects planned by the MML. The projects with private investments using concession scheme are arranged by CEPRI, another division of the MML. Therefore, the road projects which have revenue and are feasible will be implemented by CEPRI and EMAPE focuses on projects that are less efficient but have a high public demand.

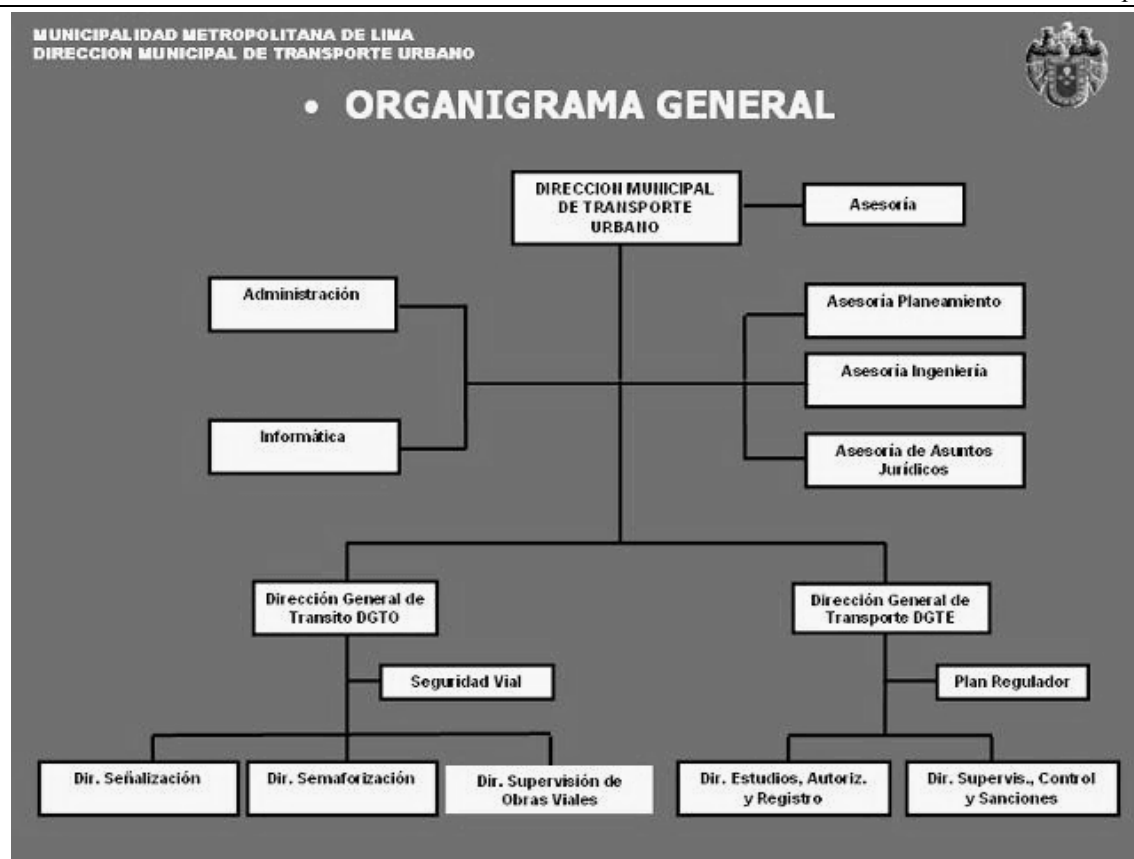


Figure 7.2-2 DMTU' Organization Chart

Flowchart of the Metropolitan Planning Institute

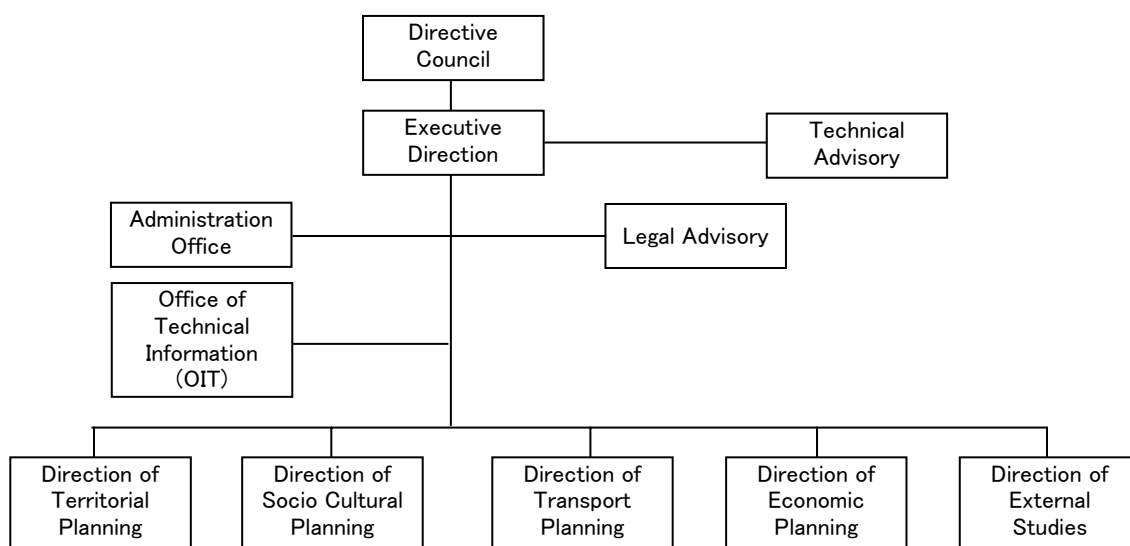


Figure 7.2-3 Flowchart of the Metropolitan Planning Institute

(4) CEPRI – Special Committee of Private Investment

CEPRI was born in the organization of the MML, aiming to promote private investment for public works. Its mission is to arrange concessions and it does not work for the execution of the projects and does not possess technical knowledge of the projects. Its purpose is to promote private investment in the public works and it does not focus only on the transport sector. The tender condition of the concession of the METRO extension project of AATE is arranged by CEPRI. The areas that CEPRI works in to arrange concessions includes automobile inspection, bus terminal, traffic signal, highway, transport safety improvement, privatization of markets, etc. The project for CEPRI is the concession and CEPRI does not work for the road projects that do not have toll income. Also, the project for CEPRI is limited to those within the Municipality of Lima and the concession projects outside of Lima are arranged by PROINVERSION.

The web site of CEPRI is under construction and information for the web will be provided to the study team prior to its availability to the public.

(5) PROTRANSPORTE – Special Preparation Project of the Investment Plan for the Metropolitan Transport of Lima

PROTRANSPORTE was established in March 2002 based on Municipal Decree No 035, dated March 18th 2002, aiming to promote and implement plans for mass public transit by high-speed buses. PROTRANSPORTE is an organization within the MML, similar to CEPRI, and it is responsible for the investigation, planning, development and implementation of the project for high-speed buses. Currently, the COSAC project, exclusive bus lane project promoted by IBRD and IDB based on PROTUM in the Strategic Plan of Urban Transport Metropolitan Projects, is in force by PROTRANSPORTE and expected to commence construction by December 2004.

(6) SETAME – Metropolitan Taxi Service

SETAME is the organization under the DMTU of the MML and it is responsible for the registration, permission and vehicle inspection of taxis. Once a taxi is registered in SETAME, a license will be issued and it is required to show the license plate and sign board that indicates “Taxi”. The private taxi vehicle must be painted yellow and corporate taxis must carry the mark that indicates taxi and radio stations should be established along with a telephone service. In spite of all these regulations, a huge number of non-registered taxis make it difficult for SETAME to control all the taxis in the metropolitan area.

(7) AATE – Autonomous Authority of the Special Project Electric System of Mass Transport of Lima and Callao

The first railway in South America was established in Lima in 1850 and by 1907 Lima had seven rail lines. Railways once had popularity in Peru, however, prevalence of motorization made railway unpopular and now, in 2004, there is only one rail line for freight in the Metropolitan area. It is mainly used for freight and there is only one passenger operation per day.

The problem of traffic congestion in the roads brought transport studies focused on railways as urban transport. Finally, in 1986, the construction of the metro project started. In 1993, when the section of the Metro between El Salvador and Atocongo was completed, the construction of the remainder part was forcefully suspended due to a political scandal. Although the section between El Salvador and Atocongo has been ready for service, regular operation has not taken place.

AATE was born in 1986 as a public company that belongs to the MML. In addition to maintaining the existing facilities of the Metro, AATE makes plans for railway transport as an urban commuter line. The plan includes the extension of the existing metro, the plan to make use of existing freight rail trucks from Callao via Lima to the east and the plan to introduce several tramways in the city.

Although the existing metro is not in operation, it is operated by AATE every Saturday between 10 am to 5 pm with 12 minutes head way at the fare rate of 0.50 Sol, for the purpose of maintaining the facility. The extension of this metro is finally decided through a concession with private investors and tender announcement was made on December 15th 2003. This arrangement was made by CEPRI and the concessionaire will be decided by the end of May 2004. The personnel for the metro operation in AATE is considered to be hired by the new operating company that will be established by the concession.

(8) INVERMET - Metropolitan Investments

INVERMET is the investment fund, organization that belongs to the MML that aims to finance the public investment projects of the MML. Funds for planned investments will be allotted to INVERMET from the annual budget of the MML. Whether the official development assistant loan/grant from donor countries or international institutions is distributed to INVERMET was not confirmed in this study (a prior official appointment is inevitable for a meeting with INVERMET and the arrangement was not successful within the study period). The MPC has a similar purpose fund called FINVERT (Finver - Callao Investment Fund).

(9) SAT - Tributary Administration Service

SAT is the municipal taxing authority of the MML and its objective is to organize and execute the administration, inspection and collection of all the tributary revenue of the city of Lima. It has the same function as the SUNAT for the national taxation. It aims to ensure necessary funding for the public projects aiming to improve citizen's life.

(10) TRANSMET - Metropolitan Transport Committee of Lima

As mentioned above, a large number of transport related organizations in the MML and the DMTU promote development plans in their sectors with little cooperation or exchanging information. TRANSMET was organized aiming to promote the integrated transport plan of the entire MML and to cooperate between sections. TRANSMET is the committee established on February 28th 2003 by Municipal Decree No 092 and it is composed of the following members :

- 1) The Municipal and Metropolitan Director who will be in charge
- 2) The Executive Director of PROTRANSPORTE
- 3) The Municipal Director of the DMTU
- 4) The executive President of the IMP
- 5) The General Manager of EMAPE
- 6) The President of INVERMET
- 7) The President of AATE

TRANSMET has the following functions:

- 1) To prepare, propose for its approval as well as to implement the investment plan for Lima metropolitan transport.
- 2) To propose mechanisms and coordinate with all entities of the municipal corporation
- 3) To propose rules and clauses regulating the public policies and municipal actions to

improve the management of the investment plan for Lima metropolitan transport.

As the CTLC, TRANSMET is a committee and lacks forcing engine.

(11) District

As mentioned, there are 43 Districts in the MML and they manage, control and plan the transport policies for their territories by themselves.

7.3. TRANSPORT ORGANIZATIONS AND INSTITUTIONS OF THE MPC

As described earlier, the MPC has power and is financially wealthy mainly due to the profits from the operation of the international airport and port. From a short site survey of the city, it does not look like it receives sufficient investment for the improvement of residence, commercial and industrial areas. Further investigation of the budget, cash flow and taxation system of the MPC is required. The organization chart of MPC is shown in Figure 7.3-1.

(1) DGTU – General Direction of Urban Transport

The DGTU, urban transport division, is in charge of the overall transport administration of the city of Callao. It consists of two divisions, the Direction of Transport and Transit, which plans and proposes the public transport projects, and the Direction of Coactive Execution, which regulates and controls traffic. There is no section responsible of elaborating transport plans in the DMTU and the MPC commissions this to other organizations, sometimes to the IMP of the MML.

(2) DGDU – General Direction of Urban Development

The DGDU is in charge of urban development and is composed of two divisions, Direction of Urbanism and Cadastre and Direction of Works

(3) FINVER - Finver-Callao Investment Fund

FINVER is a municipal company that aims to finance public projects of the MPC and the implementation of the projects.

Municipalidad Provincial del Callao

Organigrama Estructural

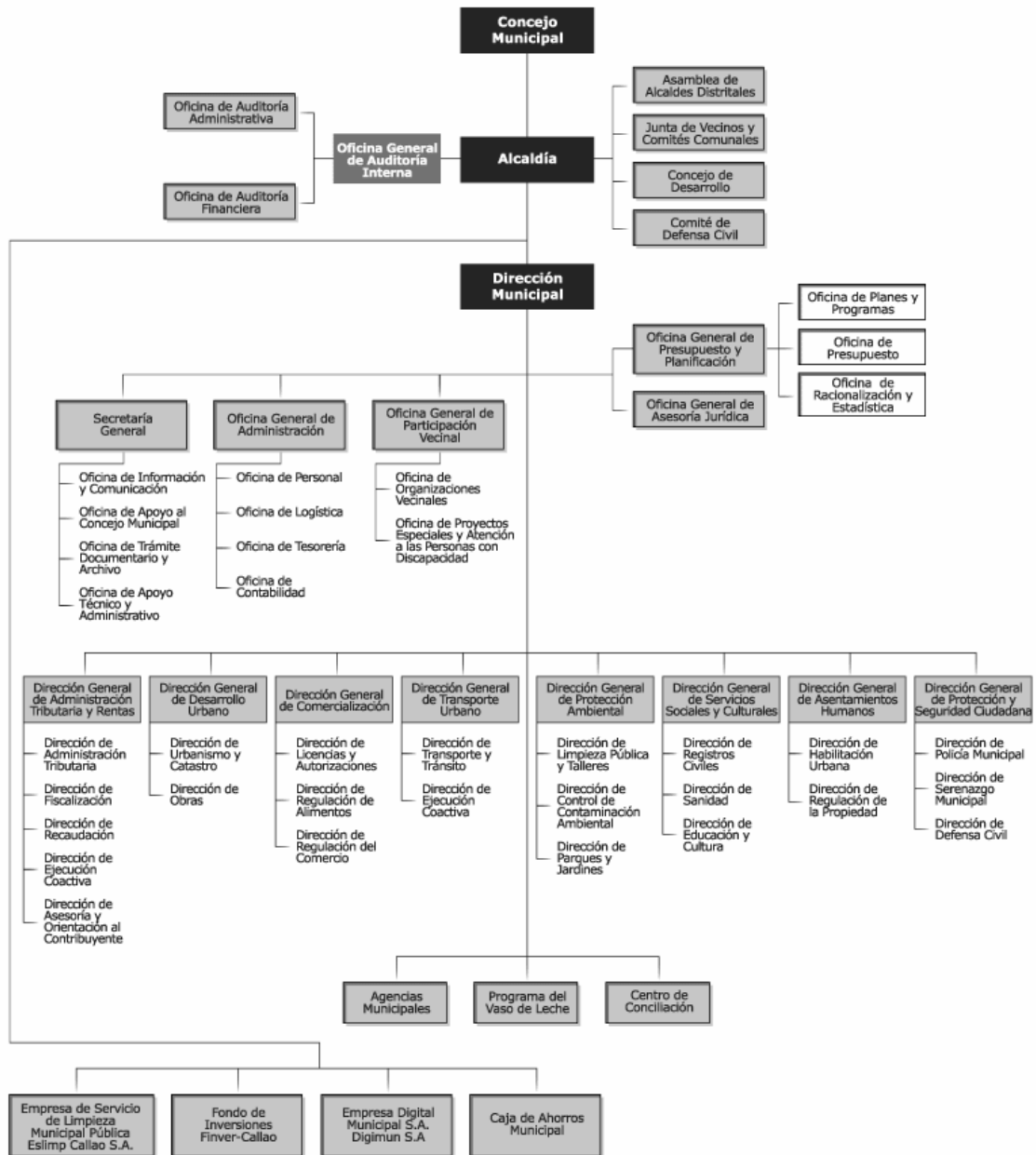


Figure 7.3-1 Organization Chart of the MPC

7.4. ORGANIZATIONS AND INSTITUTIONS OF THE CTLC

As mentioned in 7.2, the Transport Council of Lima and Callao (CTLC) was established with the objective of having better inter-organizational communications for the integrated transport development in the Metropolitan Area of Lima and Callao. It commenced its functions in June 1997 with 5 members, the Minister of Transport and Communications, the Minister of Economy and Finance, the Mayor of Callao, the Mayor of Lima and the General Director of the National Police. Though the current chair is the mayor of Lima, the Minister of Transport and Communications has been the past chair. In addition to the committee composed of these five members, the CTLC has a Technical Division as the implementing body. The organization chart of CTLC is shown in Figure 7.4-1.

(1) CTLC – Transport Council of Lima and Callao

While the CTLC plays top-level coordination between organizations for the integrated transport development, the Technical Division practically coordinates plans, investigation of projects, implementation and coordination of investment plans and project managements. The purpose of the establishment of the CTLC is summarized below:

- 1) To find solutions to the public road, traffic and transport problems in the city of Lima City and the Constitutional Province of Callao.
- 2) To act as coordinator of actions and investment in the matters related to the public road system, traffic and transport between the cities of Callao and Lima.
- 3) To formulate and execute studies and projects related to international agreements of Technical Corporation subscribed by the Peruvian Government.
- 4) To support programs of the national council of public road safety and the national council of the environment.

(2) CNSV – National Road Safety Council

In 1997, with the initiative of the World Bank, “The Road Safety Council” was established. Its objective was to improve the manner of drivers and reduce traffic accidents. Later, The Road Safety Council changed its organization to a private organization. When its termination was decided 2003, the CTLC thought that the experience of the road Safety Council was important and should not scatter away. The CTLC decided to assist the organization to exist as the CNSV. While the CNSV is the national level committee and an independent organization, its organizational structure is similar to that of the CTLC and most of its members are members of the CTLC. Basic differences between these two organizations are that the CTLC is rather political and the CNSV is a technical organization. The members of the CNSV are: the MTC, the Ministry of Health, the Ministry of Education, and the PNP.

Organigrama of CTLC

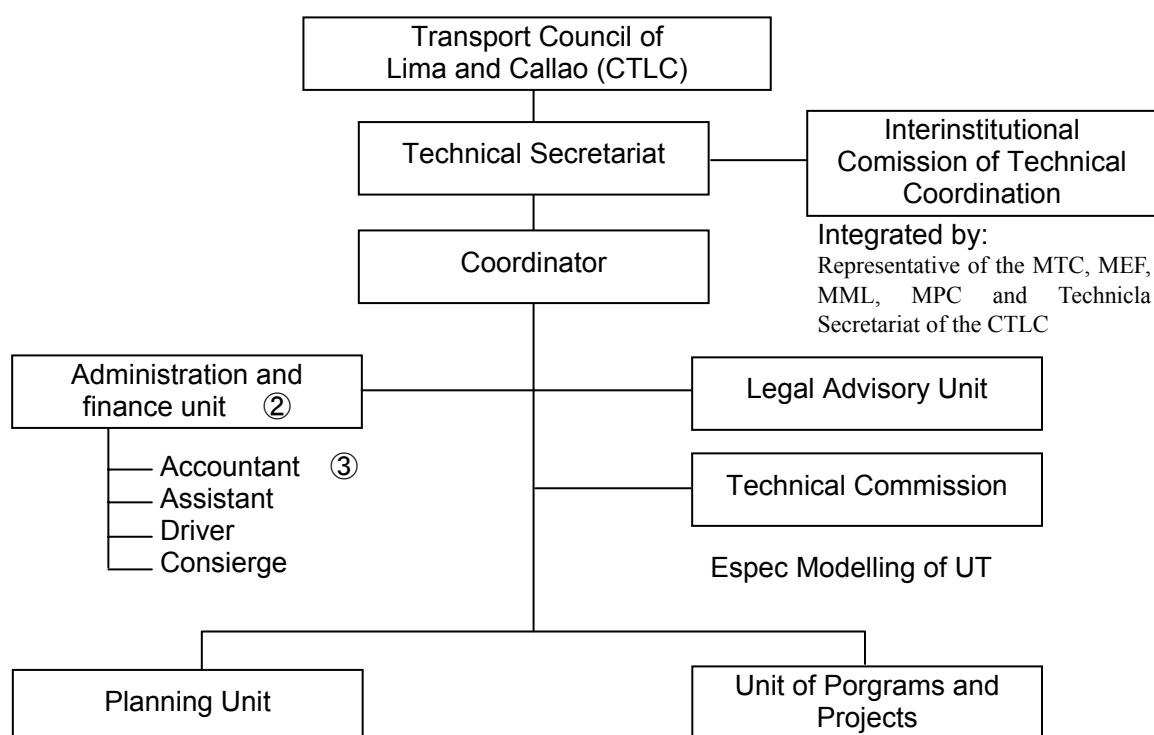


Figure 7.4-1 Organization Chart of the CTLC

7.5. LEGISLATIONS REGARDING TRANSPORT

Legislations regarding transport in Peru are categorized on a national and regional level, i.e. Laws, Supreme Decrees, Ministerial Resolutions and Mayor's Office Decrees. Most of the transport legislations in the Lima Metropolitan Area, objective area of the study of the master plan, are enacted by the MTC or the MML. Collection of information regarding transport legislations in Callao was not satisfactory and further investigation is required.

In Peru, legislations are described in detail and each regulation refers to related legislations that were issued earlier. Therefore, it is necessary to check related legislations from the Creation (original) to the latest one chronologically.

In this chapter we do not mention the details of each legislation, just a brief introduction of the report about transport legislation in the Metropolitan area studied by the CTLC in July 2002, named "Summary of Urban Transport Legislations".

7.5.1. GENERAL LAW OF TRANSPORT AND GROUND TRANSIT

- 1) The general law of Transport and Ground Transit: Law No. 27181 of 07.10.1999
- 2) Precise Article 17 of the General Law of Transport and Ground Transit: Supreme Decree No 046-2000-MTC of 06.10.2000

7.5.2. DECREES

- 1) National Traffic Regulation
- 2) National Regulation of Vehicles
- 3) Law of public infrastructure works in Public Services
- 4) National Regulation of Transport Administration
- 5) Norms on collection of Toll Rates for Public Services

- 6) National Civil Responsibility Regulation of Obligatory Insurance for Traffic Accidents
- 7) Regulation for the services of rail transport
- 8) Manual of Traffic Control Devices for Streets and Highways

7.5.3. REGULATIONS

- 1) Regulation of Road Classification
- 2) Regulation of Driving Licenses
- 3) Regulation of the Public Service of Urban and Intercity Transport of Passengers and Freights
- 4) Organization of the Investment in Public Transport Infrastructure
- 5) Penal Regulations — Driving under the influence of liquor and Table of the quantity of alcohol

7.6. ORGANIZATIONAL, INSTITUTIONAL AND LEGISLATIVE ISSUES

As mentioned, there are many parties concerned in the urban transport in the Metropolitan Area of Lima and Callao. It was decided that the local government would initiate the planning of all transport projects. The major obstacles that the Metropolitan Area of Lima and Callao needs to overcome are: the fact that two cities have not cooperated and rather opposed each other for the integrated planning. Also, budgetary limitation of the central government prevented the implementation of plans.

In other words, no organization was capable of carrying out the execution of the plan. Following the second issue, Peru needed to seek funding from international organizations and donor countries resulting in various plans in sectors by variety of assisting organizations. These plans reflect the intentions of each donor organizations and few considerations between plans without the integrated master plan.

7.6.1. ISSUES OF THE MML AND THE MPC

It is said that each municipality in Peru holds strong independency and this fact has brought opposition rather than cooperation between Callao and Lima. The most serious problem in the transport administration is the issuing of operation licenses for bus routes. Bus routes, in which buses operate in the city of Lima, could be licensed not only by the MML but also by its adjacent departments, including Huarochiri, Canta, Huaral and Cañete, without any discussion. Consequently, current road traffic in the city of Lima is out of control.

The Government of Peru recognizes the importance and necessity of a horizontal structure in addition to this vertical structure. The establishment of the Transport Council of Lima and Callao (CTLC) in 1997 is based on this recognition and it aims to strengthen the alignment among the central government, the city of Lima and the city of Callao for transport improvement. It coordinates the traffic planning, project investigation, investment planning and formation of technical assistance projects in the cities of Callao and Lima.

A weak spot of the CTLC is that it does not have original full-time members and all the staff belongs to other organizations and it is an external assignment. The fact that staffs have external assignments makes people see the staff as a representative of its original body. As a result, the Technical Division of the CTLC does not have the function of an executing body.

7.6.2. ISSUES OF THE MUNICIPALITY OF LIMA

Although there are a number of organizations in the transport sector of the MML, there is no integrated transport plan. The OPP is rather an administrative office that coordinates

plans submitted by sectors. There is no organization that elaborates integrated transport plans.

Originally, the IMP was to play that role, however, in reality the IMP elaborates road related plans, AATE elaborates railway plans and PROTRANSPORTE elaborates bus plans. Although TRANSMET was created as the coordinating committee between sectors, it plays a role similar to that of the CTLC in the MML and does not have the functions of and implementation body.

7.6.3. ISSUES FOR THE IMPLEMENTATION OF THE MASTER PLAN

Considering the current institutions and their activities, the deepest problem in the transport sector of the Metropolitan Area of Lima and Callao is the lack of the organization that plans, implements and supervises the integrated transport plan for the whole metropolitan area. Now it is expected to have the integrated transport master plan for the Metropolitan Area of Lima and Callao as the out come of the on-going study. Having the organization, which is independent of related institutions and still cooperates with each other, is the key to the implementation of the master plan. Without such an organization, the situation would be the same as the current one in which there exist piles of plans in sectors with no implementation. Once the organization succeeds in its establishment with a certain power to execute, it will not be affected by the political changes.

It is fortunate that the concerned parties share this same opinion regarding the proposed organization. It is inevitable to continue discussions with the CTLC and related organizations, including major donor institutions, during the process of the master plan.