No.

mmutis

Republic of the Philippines

DOTC*MMDA*DPWH*NEDA*PNP-NCR*HUDCC*UP-NCTS*EMB
Japan International Cooperation Agency (JICA)

METRO MANILA URBAN TRANSPORTATION INTEGRATION STUDY

TECHNICAL REPORT NO. 2

MMUTIS DATABASE

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1. INTRODUCTION

A reliable database is an essential input to urban transportation planning, especially in large urban areas such as Metro Manila where traffic movements are complex and interactions among different modes and between land use exist. Without adequate database and analytical tools, which can handle large amounts of different data, planning cannot be done scientifically. The lack of proper database for common use by different projects or for different planning purposes in an urban area always makes sound decision-making difficult and tends to invite arbitrary political intervention. The MMUTIS intends to identify the need for a database in different planning organizations, to review existing database and to develop a suitable one with its own management system.

In order for the MMUTIS database to be effectively utilized by various agencies and planning bodies as well as be properly managed over the years, the following were duly considered:

a) Items and coverage of data should meet the needs of relevant agencies or actual planning;

b) The MMUTIS database should basically cover the data items of JUMSUT database to make a historical comparison possible;

c) Access and use of the database should be easy, with a simple and clear structure, easy data search and retrieval, direct access through computer network, availability of optional output form such as lists, maps, prints, floppy disk, etc. It should be readable with currently used software; and

d) Management of the MMUTIS database should be within the existing administrative framework.

2. COVERAGE AND CATEGORIES OF DATABASE

2.1 Coverage

The MMUTIS database consists of major results of the field surveys and interview surveys conducted and related data obtained from secondary sources.

2.2 Data Category by Extent of Processing

Each data set is categorized by the extent of data processing performed. The first category is composed of unprocessed or less processed data such as traffic counts data and the HIS (Person Trip) master file. These raw data will be useful for a person with specific or particular intention of analysis.

The second category is a group-processed data such as various kinds of OD matrices and a computerized transport network for simulation work. A lot of tables, maps, charts and graphs were accumulated in the MMUTIS database for general use.

The last category group is composed of forecast data, which includes future demographic data, land use plan, and future OD matrices, future networks and projects planned in MMUTIS, etc., which are the most direct outputs of MMUTIS. These data should be used with caution for other planning concerns because every forecast is made inevitably based on several assumptions or preconditions. For instance, future population distribution was done based on an assumed land use plan and future car ownership was projected with some uncertain factors assumed such as future income distribution and government policies.

The classification of data into the above mentioned three categories is shown in Table 2.1. Although the HIS master file includes processed data such as expansion coefficient and adjustment factors, it is regarded as a primary data because each record of the file corresponds to one person's trip record obtained in the HIS survey.

2.3 Data Category by Correspondent Figure

Most of the data can be plotted or interpreted on a map in a form of an area, a line or a point. As such, the data are classified according to the shape of their figure. From this point of view, the data are classified according to the following six categories:

a) Zone information data
b) Line information data
c) Point information data
d) OD information data (Inter-zonal information data)
e) Area information data
f) Other non-geographical data

An example of the above data classification is shown in Figure 2.1. The classification becomes important when the data retrieval system is designed.

TABLE 2.1
MMUTIS DATABASE CLASSIFICATION BY DATA PROCESSING EXTENT

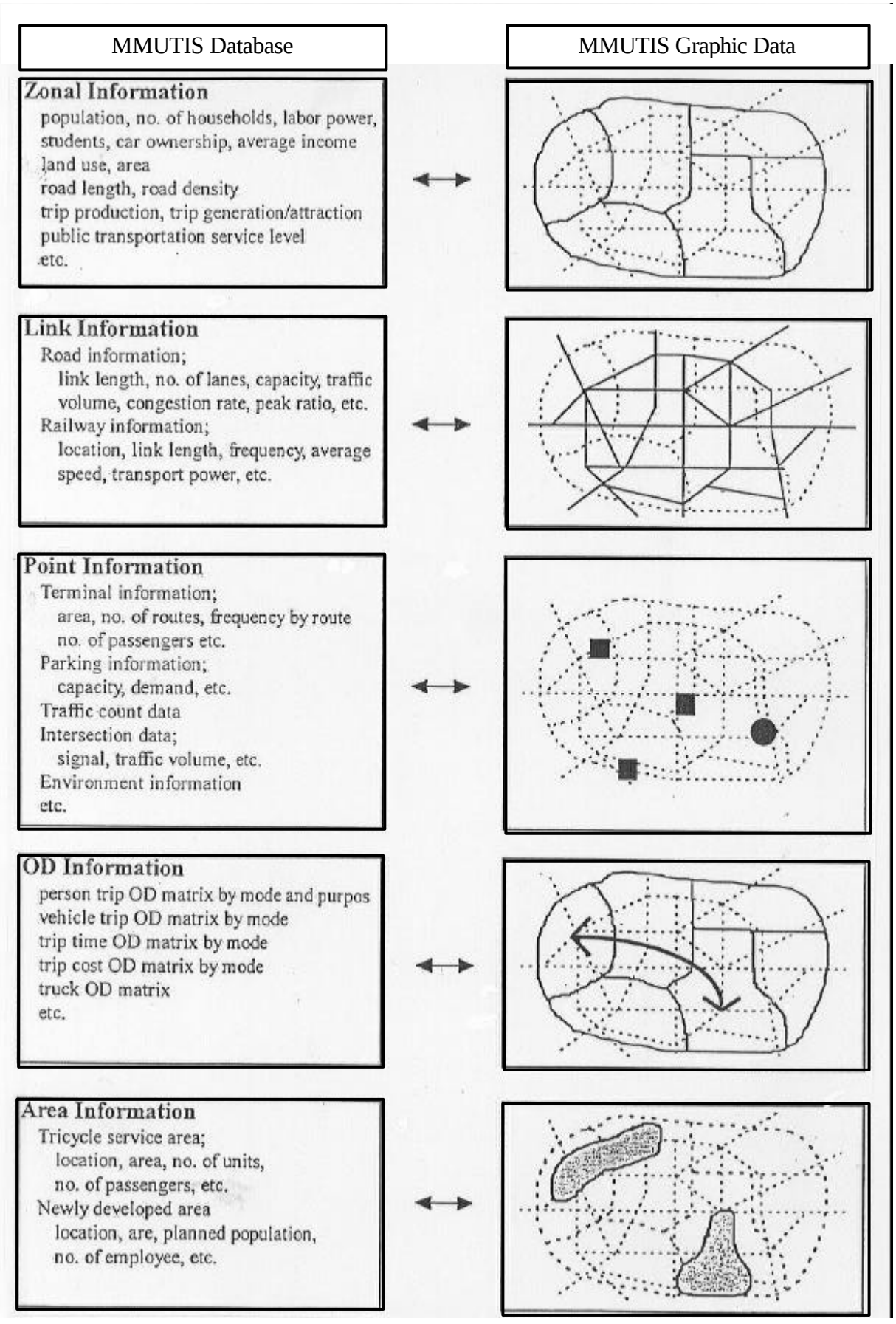
Data Category	Primary Data (Original Data)	Secondary Data (Processed Data)	Tertiary Data (Forecast Data)
Socio-Economic and Land Use Data	• Population and Household data • Land use map • Zone map data	• Worker/Employment data • Income data • Household/Car Ownership data • Land Use data • VOC/TTC data	• Future Demographic Framework data • Future car ownership data • Land use Plan
Road and Traffic Data	• Road Inventory data • Screenline Traffic data • Traffic Count data • Truck Survey data • Travel Speed data	• Present Network data • Traffic data	• Future Road Network data • Project data
Public Transportation data	• Bus/Jeepney Route map • Bus/Jeepney Route Survey data • Terminal Location data • Rail-Transit data • Passenger/Operator/ Driver Interview Survey data	• Bus/Jeepney route data • Bus/Jeepney Terminal data	• Mass-transit Network data • Project data
Parking Data	• On- and off-Street Parking data	• Parking Demand Characteristics data	• Future Parking Demand data • Parking Project data
HIS Data	• HIS Master File • Cordonline Interview	• Person Trip OD Matrix • Vehicle OD Matrix	• Future Person Trip OD Matrix • Future Vehicle OD Matrix
Environmental Data	• Noise Level data • Air pollution data	• Noise Contour Model • Air Pollution Model	• Future Noise level • Future Air Pollution Level

Other data sources such as population, land use, road inventory, etc., are also classified according to the above six categories as follows:

a) Socio-economic/Land Use data

- Population and household
- Employment by work place
- Workers by residence
- School attendant data
- Income level
- Car ownership data
- Car registration data
- Land area by type of use
- Land use map
- Land price data

FIGURE 2.1
INTERELATIONSHIP OF DATABASE AND GRAPHIC DATA (GIS)



b) Road and traffic data

- Road network
- Road inventory data
- Traffic data
- Travel speed data
- Traffic management data

c) Public transportation data

- Public transport fleet data
- Public transport operator data
- Bus/Jeepney route map and data
- Terminal location map and data
- Bus/Jeepney operational and financial data
- Rail transit operational and financial data

d) Parking data

- On-street parking data
- Off-street parking data
- Parking demand characteristic data

e) HIS data (Person trip data)

- HIS master file
- Person trip data
- Person trip OD Matrix
- Vehicle OD Matrix
- Cordon line interview data

f) Environmental data

- Air pollution data
- Noise data
- Traffic accident data

3. BASIC STRUCTURE OF MMUTIS DATABASE

3.1 Basic Concept of MMUTIS Database

Figure 3.1 illustrates a total image of the MMUTIS Database system. Each data file is compiled either in the numeric database (referred to simply as "database") or in the "graphic data."

It is basically conceived that the agency-in-charge of management and maintenance of the MMUTIS Database should open a home page in the Internet which will provide users with a detail menu, sample outputs of the Database and an application form to request a data.

The user agencies or customers should request a data set by filling the application form to specify their needs concerning the data items, conditions, zoning, area, output form, etc. A program package should be developed to manage the MMUTIS Database files. Based on the information described in the application form, the package will identify the necessary files automatically and load them to the main server.

In order to process the data into the requested format or output, it may be recommendable to apply ready made software rather than developing a new package for data processing. Two well-known software, which could be used are the "dBase series" as a database application and the "MapInfo" as a graphic application. For the transport planning application, the adoption of the "JICA-STRADA" software is intended. All data files are designed to be accessible with these applications.

The agency-in-charge is to offer operation services to process the data by using the above applications, which the user can preferably operate as well. Before making an output, the user can check the processed information on a terminal screen if indeed it is what he requires.

The output information can be obtained either in a file saved in a floppy disk as well as in a printed list or drawing.

3.2 System Configuration

The MMUTIS Database System will be operated and maintained with a hardware configuration illustrated in Figure 3.2. The agency-in-charge is envisioned to be well-equipped with a main server connected with I/O devices such as a digitizer, a scanner, a plotter, a color laser printer and several units of terminal computer.

The main server of the database is to be accessible through the Internet by major users such as the governmental organizations of DOTC, MMDA, DPWH, NEDA, NCTS, LRTA, PNR, TEC, Local Government Units and others. These organizations are not only users of the database but also suppliers/sources of said database. Therefore, the database system should not only be designed for the convenience of routine functions in these organizations but also maintained and updated by using new data created by the same organizations.

FIGURE 3.1
BASIC CONCEPT OF MMUTIS DATABASE SYSTEM

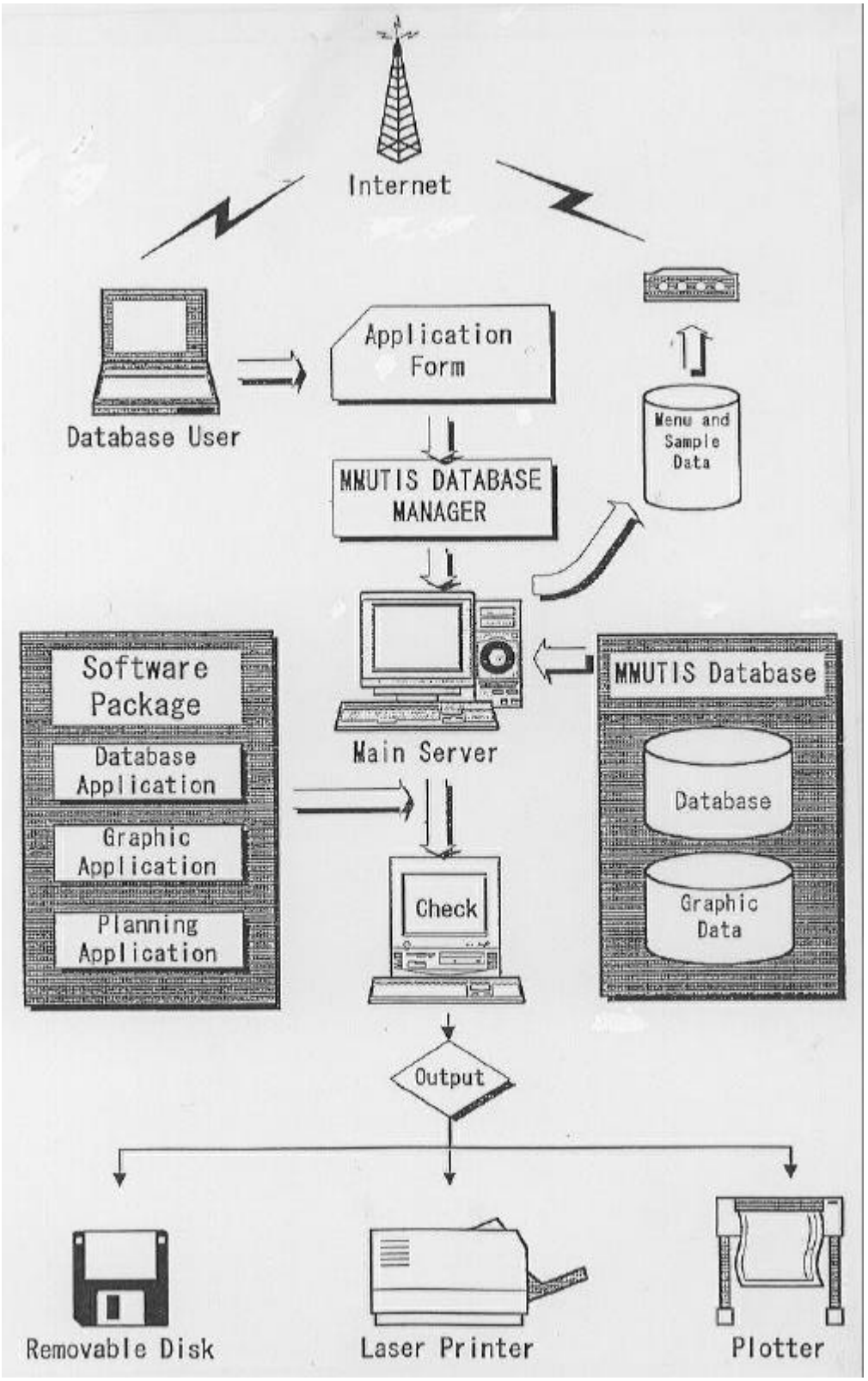
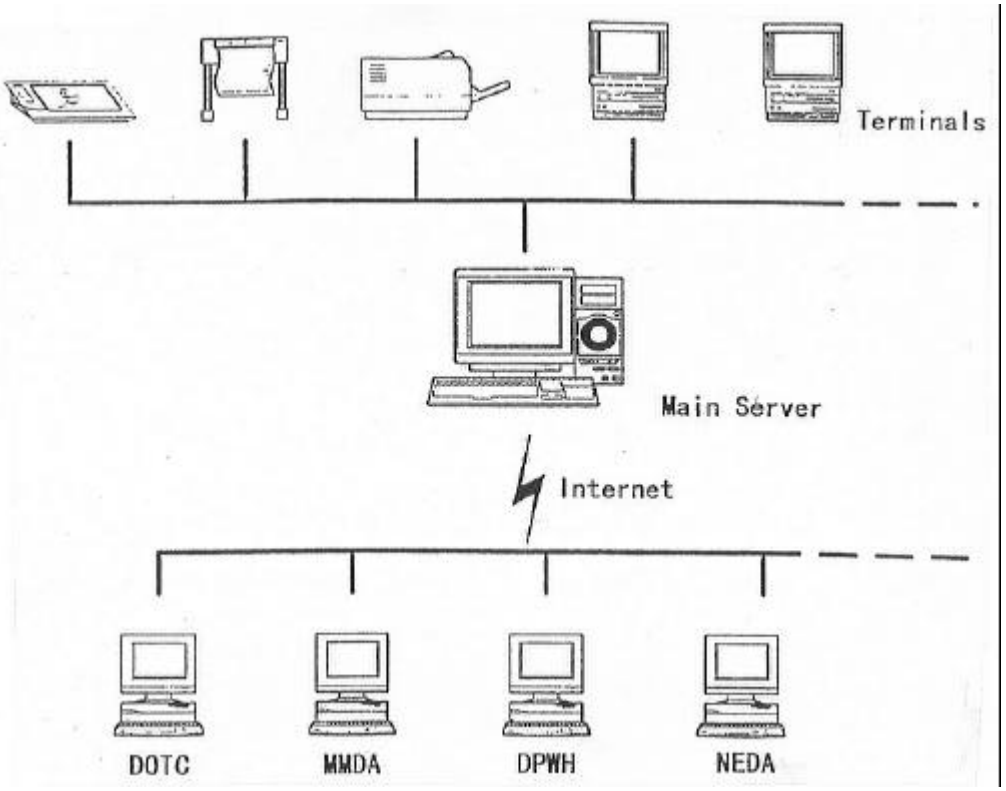


FIGURE 3.2
SYSTEM CONFIGURATION



At the first Steering Committee of MMUTIS, it was agreed upon to set up a database sub-committee in proper time under the Steering Committee. Said database sub-committee is to consist of representatives from the major data user-organizations mentioned above, in order to attain effective usage and maintenance of the database.

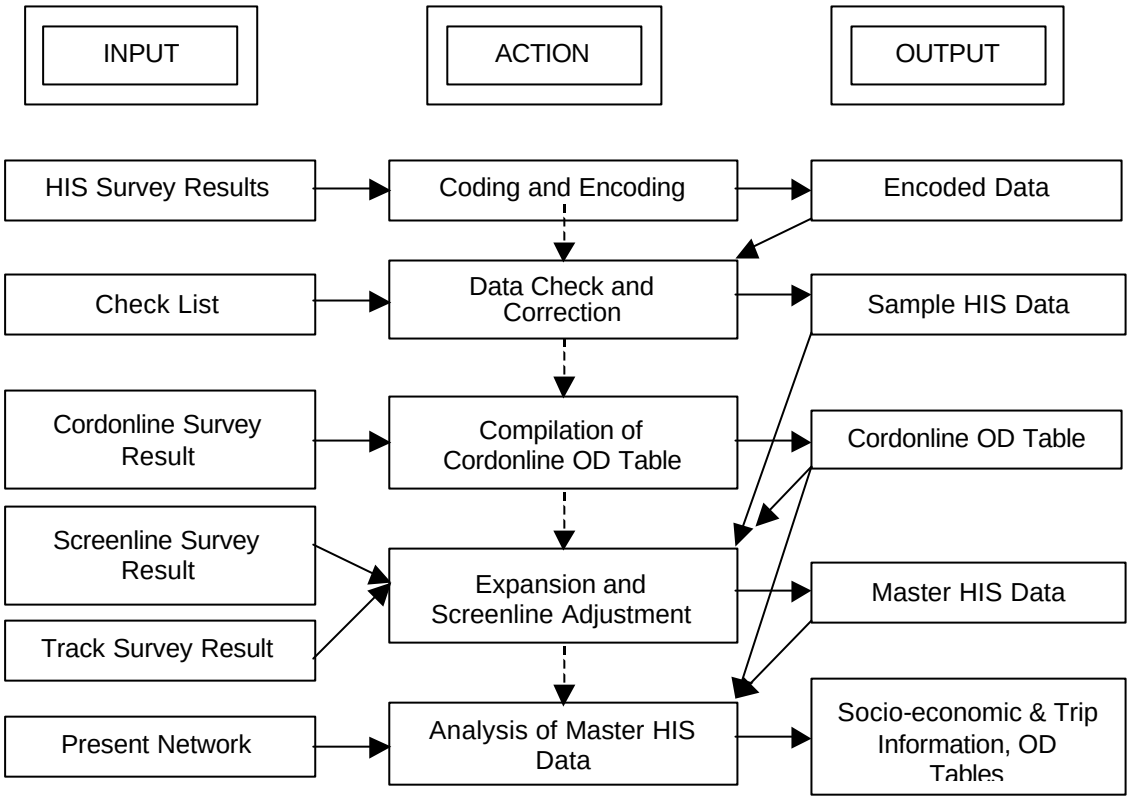
3.3 Processing of the Person Trip (HIS) Data

Among others, the HIS master file is one of the most essential data in the MMUTIS Database. After the survey was completed, data processing commenced with the development of the master file. It was a huge and complex undertaking entailing tasks outlined and explained in succeeding sections.

3.3.1 Outline of the Data Processing

Data processing was divided into five major tasks as illustrated in Figure 3.3. The HIS survey results include non-numeric information such as the residential address and address of the origin/destination places. This non-numeric information must be transformed to numeric data (a zone number) according to a zoning code system. After the coding, information was encoded with a data entry system. Encoded data are checked and the error data were corrected. The cleaned information was referred to as the "sample HIS data". This sample HIS data was expanded based on the reported total population of the area (at "barangay" levels) and the corresponding sample rates. On the other hand, the information obtained by the cordon line survey was processed to make the OD tables on non-residents trips.

FIGURE 3.3
OUTLINE OF DATA PROCESSING



3.3.2 Coding and Encoding

(1) Coding

The surveyed data were edited and coded manually according to a zoning code system. The zoning code system was verified based on the system developed in the 1980 HIS data processing. The new zoning code system consists of 265 zones in Metro Manila, 91 zones in the province area and 38 zones outside of the study area. The list of the new zoning for Metro Manila is shown in Table 3.1 in comparison with the zoning used in JUMSUT.

(2) Encoding

The home interview survey is composed of six different questionnaire forms:

- Form 1 – Household Information

  Socio-economic conditions such as number of household members, vehicle ownership, ownership of house and land and so on.

TABLE 3.1
ZONE DIVISION IN METRO MANILA

Municipality	Number of Zones	
	JUMSUT	MMUTIS
Manila	52	57
Pasay	13	15
Makati	15	23
Mandaluyong	8	9
San Juan	5	5
Quezon City	42	59
Kalookan	11	17
Valenzuela	8	9
Malabon	7	7
Navotas	4	6
Marikina	8	8
Pasig	8	11
Pateros	1	1
Taguig	5	6
Parañaque	8	17
Muntinlupa	3	7
Las Piñas	4	8
Total	**202**	**265**

- Form 2 – Household Member Information

  Socio-economic information of each individual members such as age, sex occupation, monthly income and so on.

- Form 3 – Trip Information

  Trip behavior such as origin and destination, trip purpose, mode, transfer place and so on.

- Form 4 – Additional Question for Vehicle Users

  Situation and opinion regarding control of vehicle use and parking.

- Form 5 – Additional Question for Specially Abled and Elderly People

  Trip information of specially abled and elderly people.

- Form 6 – Additional Question for 1/10 Households

  Trip information of weekend/holiday travel, opinion about living environment and assessment of public transportation service for selected households (i.e., 1 out of every 10 sampled).

Each data is encoded using the dBase language for its data relational advantage. The encoded data format of the above Forms 1 to 6 is shown in Annex A. Annex B, on the other hand, gives all the codes used to convert some information captured on the survey forms of the HIS as well as other transportation surveys for ease of processing.

3.3.3 Data Checking and Correction

The initial manual data checking and the correction of wrong data were done repeatedly with the following steps.

- Manual check during coding by coding staff;
- Validation check of numerical data by the data entry system;
- Data checking referring to a check list; and
- The correction of wrong data

After encoding, the information in the HIS database goes through another series of checks as follows:

- Sequence check of the information;
- Re-check of numerical validation of household and household member's information; and
- Consistency check between information.

3.3.4 Compilation of Cordon Line OD Table

(1) Objectives

The objective of cordon line OD table compilation is to establish an OD table of trips related to the study area made by non-residents. HIS focuses on trip behavior of residents in the study area. However, trips concerning the study area are made not only by residents but also by non-residents in general. These trips which cannot be obtained by HIS are complemented with the results of a cordon line survey.

A cordon line survey is composed of a traffic count survey and an interview survey. The traffic count survey was conducted at 14 stations in order to obtain the traffic volume passing the cordon line. During the survey, randomly sampled vehicles were stopped at the roadside and passengers in the vehicle were interviewed about their trips.

The data processing of the cordon line survey results took the following procedures:

a) Coding of the interview survey result;
b) Data checking and correction of the coded data;
c) Expansion of the data obtained from interview based on the counted volume;
d) Adjustment of double-counted volume by through traffic;
e) Elimination of residents trips; and
f) Compilation of an OD table for trips made by non-residents

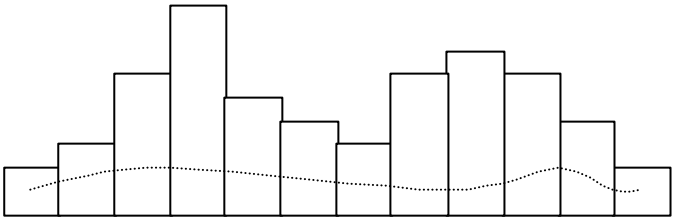
(2) Methodology

1) Expansion

Expansion was done at each survey stations with the following steps:

1) Samples were expanded by a specified mode (vehicle) according to a sample rate;
2) Expansion was done for all vehicles by hour;
3) Traffic volume was expanded from 16 hours volume to 24 hours volume; and
4) Inbound traffic was adjusted to correspond to outbound traffic.

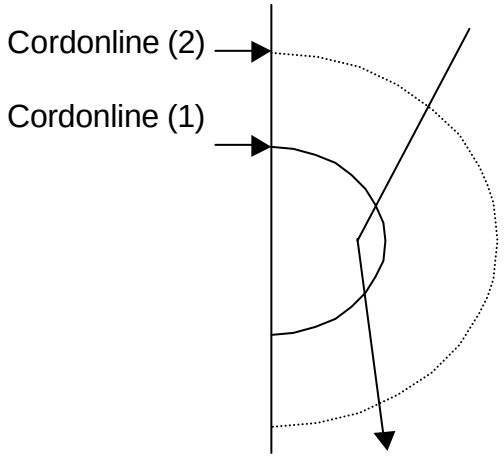
FIGURE 3.4
DIFFERENCE OF DISTRIBUTION BETWEEN TRAFFIC COUNTED AND SAMPLED INTERVIEW



2) Adjustment of double-counted volume of through traffic

Through traffic of the study area was included in the traffic volume counted at station. There were two cordon line stations (i.e., cordon 2 covering the entire study area and cordon 1 covering the metropolis only). Theoretically, this brought about the double-counting of traffic at two or more survey stations as shown in Figure 3.5. Therefore, only one result/data of the sample was selected and the others of the same sample eliminated.

FIGURE 3.5
THROUGH TRAFFIC ACROSS PLURAL CORDON STATIONS



In general, only one cordon line is drawn to surround the study area, whereas two cordon lines were applied in MMUTIS. This dual cordon setting made it more difficult to adjust the double-counted volume of the through traffic and compile the OD tables.

If the structure of the cordon line OD table is described as illustrated in Figure 3.6, the highlighted portion of the OD tables in Figure 3.7 means the OD trips captured at each cordon line. The trips in the portion of C13, C31, C23 and C32 are only observed at the cordon line (2). Therefore, double-counted volume should be adjusted between stations. On the other hand, the trips in the portion of C12, C21 and C22 should be adjusted not only between stations but also between cordon line (1) and cordon line (2).

3) Elimination of residents' trips

The result of traffic count survey at cordon line survey stations includes not only trips made by residents but also trips made by non-residents. HIS logically captured trips made by residents. Therefore, both trips calculated from HIS and observed by the cordon line were examined. The trips observed at cordon line survey stations were eliminated from the database.

4) Compilation of an OD table made by non-residents

After adjustment of double-counted volume of through traffic and elimination of residents' trips, OD tables of each survey station were added together to be an OD table of trips made by non-residents. This OD table was classified by mode of travel and added to an OD table calculated from the HIS database.

FIGURE 3.6
STRUCTURE OF CORDON LINE OD TABLE

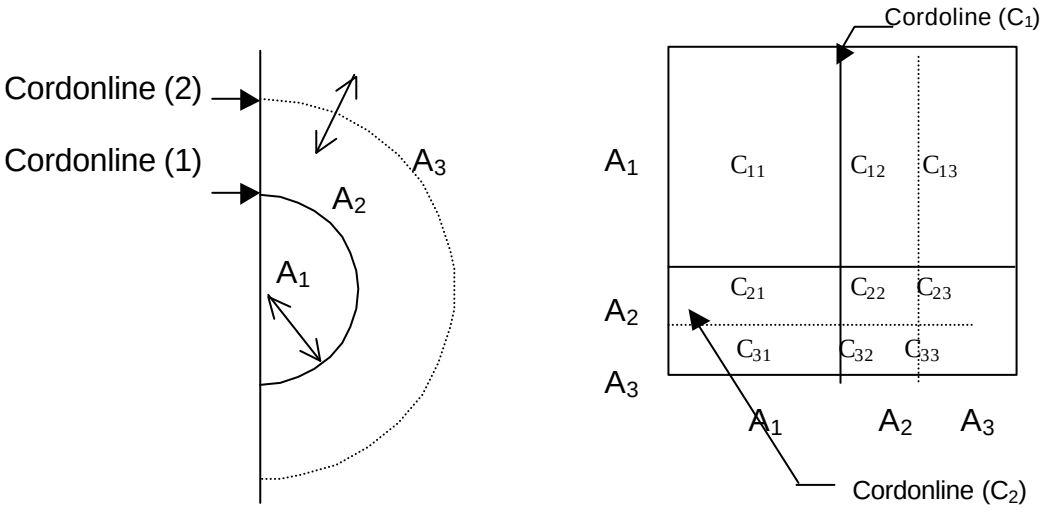
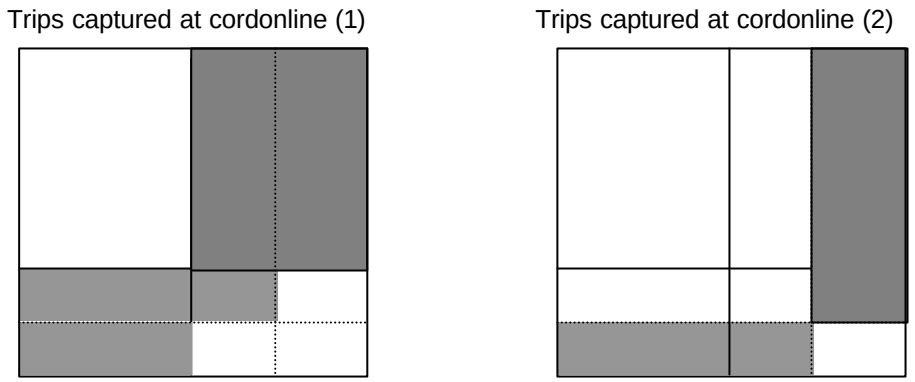


FIGURE 3.7
TRIPS CAPTURED AT CORDON LINE



3.3.5 Expansion and Screen Line Adjustment

(1) Expansion

Expansion of the sample HIS data to actual population was generally made by zone and household or personal attribute. The attributes applied were determined after comparative examination of sample distribution and actual distribution. Attributes to be examined are as follows:

- Sex
- Age
- Car ownership

(2) Screen line adjustment

An OD table made from the sample HIS data and expanded to the actual population was compared with the traffic volume observed at the screen line by mode of transportation in terms of number of trips. A number of person trips crossing the screen line was calculated from the sample expanded HIS. The number of trips was converted to the number of vehicle trips by dividing it with average occupancy ratio by mode of transportation. This figure was compared with the traffic volume counted at the screen line. For significant differences between the number of vehicle trips calculated from the expanded sample HIS data and the traffic volume at the screen line, adjustment was done. The difference by mode of transportation was used as an adjustment factor. Trips of walking and by bicycle, which were not counted at the screen line, were not adjusted.

The screen adjustment factor was calculated using the formula below.

$$A = (Ts - Tc) / Tp$$

Where: A = screen line adjustment factor
Ts = traffic volume counted by the screen line survey

Tc = traffic volume traveled by non-residents through the screen line calculated from cordon line survey
Tp = traffic volume through the screen line calculated from the sample HIS data after expansion

Before calculating the adjustment factors, the screen traffic (Ts) was modified by excluding the effects of the "color coding" control based on the results of interview survey to car users on Form 4.

3.4 Composition of the Final MMUTIS Database

The final output of the processed MMUTIS data, which is intended for planning use beyond the MMUTIS concern (i.e., for public consumption) has been compiled in one database. This database is composed of 9 data categories with their corresponding various processed data as shown in Table 3.2. These data categories cover the following:

(a) outputs of model runs;
(b) socio-economic information from secondary sources;
(c) networks used for planning for land use and roads;
(d) demand related data;
(e) physical and operational attributes of roads and traffic;
(f) master file of information resulting from the Person Trip survey;
(g) public transport data;
(h) modal choice related information; and
(i) other data from various supplemental transportation surveys.

Annex B presents all the codes used in encoding, which may be viewed in the various excel files contained in the database compilation.

TABLE 3.2
COMPOSITION OF THE MMUTIS DATABASE

DATA CATEGORY	SECOND CATEGORY	THIRD CATEGORY	FILE NAME	FILE SIZE (kb)	FILE FORMAT	DESCRITPION
JICA STRADA	Network	Lind Data	Tr68-dom.int	292	INT	Do-Maximum Network
			Tr68-mst.int	292	INT	Master Plan Network
			Tr68-mtd.int	292	INT	MTDP Network
			Tr68-doc.int	292	INT	Fixed Projects Network
			Tr68-don.int	292	INT	Present Network
		Line Data	Tr68-dom.int	107	TNT	Do-maximum Lines
			Tr68-mst.int	106	TNT	Master Plan Lines
			Tr68-mtd.int	102	TNT	MTDP Lines
			Tr68-doc.int	99	TNT	Fixed Projects Lines
			Tr68-don.int	99	TNT	Present Lines
	OD Table		Od96-new.aod	462	AOD	1996
			Od05.aod	462	AOD	2005
			Od15s2.aod	462	AOD	2015
	Parameter		Ipa.ipa	2	IPA	Parameter file for incremental assignment
			Mt05.tpa	3	IPA	Parameter file for transit assignemtn (2005)
			Mp.15.tpa	3	IPA	Parameter file for transit assignment (2015)
	Zone Boundary		Zone1.zxy	13	ZXY	Metro Manila 24-zone boundary
			Zone2.zxy	53	ZXY	Metro Manila 265-zone boundary
			Zone5.zxy	65	ZXY	Metro Manila 265-zone and Outside 51 zone boundary
			Plan.zxy	17	ZXY	MMUTIS Planning 36-zone boundary
Socio-Economy	Population Employment/Student /		Summary.xls	273	Excel	Socio-economic indexes by traffic zone
			Socio96.xls	698	Excel	Socio-economic indexes by traffic zone
			Bantab.dbf	261	Dbf	Barangay Population by MMUTIS zone
			Outside.dbf	10	Dbf	Population in MMUTIS Study Area
Land Use / Road Network	Land Use Data		Landuse_95.xls	818	Excel	Area of each land use class within each zone (1986/96)
			Landusebyzone_95.xls	59	Excel	Land Use by type of land
Demand	Cordonline / Screenline		Cordon.dbf	314	Dbf	Cordonline traffic volume by time and section
			Cordon15.dbf	1,191	Dbf	Cordonline traffic volume by 15 minutes and station
			Cordon.xls	46	Excel	Cordonline
			Screen.dbf	422	Dbf	Screenline traffic volume by time and section

Cont. Table

DATA CATEGORY	SECOND CATEGORY	THIRD CATEGORY	FILE NAME	FILE SIZE (kb)	FILE FORMAT	DESCRITPION
			Screen15.dbf	1,605	Dbf	Screenline traffic volume by 15 minutes and station
			Screen.xls	57	Excel	Screenline
			Forma.dbf	449	dbf	Interview data in form A
			Formb.dbf	305	Dbf	Interview Data in form B
			Formc.dbf	414	Dbf	Interview Data in form C
	OD Matrix		Pa96ma11.mst	5,371	Text	Origin destination data by mode
			Pa96pa11.mst	1,993	Text	Origin destination data by purpose
Rroad Traffic	Road Inventory		Road InventoryPR.xls	51	Excel	Road Inventory data for provinces
			Road InventoryMM.xls	150	Excel	Road Inventory data for Metro Manila
	Subdivision Road Inventory		Subinvent1.xls	658	Excel	Subdivision road inventory survey data
			Sub-gate.xls	8	Excel	Subdivision road inventory survey data
	Truck	Travel Speed	Route96.doc	54	Word	Travel Speed survey data by route
			Sect96.doc	528	Word	Travel speed survey data by section
			Worst.doc	267	Word	Travel speed survey by worst section
		Ferry	Ferry.dbf	65	Dbf	Cordonline roadside interview survey at ferry
		Truck	Tod.dbf	314	Dbf	Cargo vehicle roadside interview survey
Person Trip (HIS)	PT Master File	1996	Form1.dbf	4,748	Dbf	HIS data survey
			Form2.dbf	8,067	Dbf	HIS data survey
			Form3.dbf	46,968	Dbf	HIS data survey
			Form4.dbf	1,021	Dbf	HIS data survey
			Form5.dbf	259	Dbf	HIS data survey
			Form6.dbf	1,457	Dbf	HIS data survey
		1983	House80.dbf	2,415	Dbf	JUMSUT Person Trip Survey Household data
			Member80.dbf	3,900	Dbf	JUMSUT Person Trip Survey Member data
			Trip80.dbf	14,577	Dbf	JUMSUT Person Trip survey Household
Public Transport	Route Data	Bus Route	Bus_ro~2.xls	1,045	Excel	Bus route data
		Jeepney route	Jeepney~3.xls	553	Excel	Jeepney route data
			Route.xls	165	Excel	Public transport survey by route
	Link Data		Alinkrpt.xls	401	Excel	Public transport survey link
			Linktrip.xls	216	Excel	Public transport survey link
	Terminal Data	Passenger	Passint.doc	220	Dbf	Terminal survey for passenger
			Passint.doc	74	Word	Terminal survey for passenger
		Driver	Driver.dbf	522	Dbf	terminal survey for driver
			Drvint.doc	15	Word	terminal survey for driver

Cont. Table 3.2

DATA CATEGORY	SECOND CATEGORY	THIRD CATEGORY	FILE NAME	FILE SIZE (kb)	FILE FORMAT	DESCRITPION
Modal Choice	Willingness to Pay	Special Car	Sp-car.xls	420	Excel	Willingnes to pay for travel time reduction (car user)
		Special FX	Sp-FX.xls	378	Excel	Willingnes to pay for travel time reduction (FX user)
		Special Taxi	Sp-taxi.xls	513	Excel	Willingnes to pay for travel time reduction (taxi user)
			Sp-fx-tab.xls	59	Excel	Summary of Interview for willingess to pay
	Water Transport		WaterJpy.xls	622	Excel	Water transport survey for jeepney
			Waterbus.xls	192	Excel	Water transport survey for Bus
			WaterFry.xls	280	Excel	Water transport survey for ferry
			WaterBnc.xls	168	Excel	Water trasnport survey for bancas
Others	Airport	Agency Interview	Emp.dbf	92	Dbf	Staff/Employee airport survey data
		Occupancy Volume	Empod.dbf	40	Dbf	Origin destination of staff / employee
			Airod.dbf	131	Dbf	Origin destination at airport
		Others	Apc.dbf	59	Dbf	Arriving passengers / crews
			Dpc.dbf	67	Dbf	Departing passengers / crews
			Wwv.dbf	111	Dbf	Well-wishers / visitors
	Garbage Truck		!Paya-ma.xls	312	Excel	Garbage truck survey for Payatas
			Carmona.xls	419	Excel	Garbage truck survey for Carmona
			Catmon.xls	180	Excel	Garbage truck survey for Catmon
			Dayly.xls	294	Excel	Garbage truck survey in daily results
			Las Pinas.xls	493	Excel	Garbage truck survey for Las Pinas
			Sanmat-1.xls	842	Excel	Garbage truck survey for San Mateo
	Traffic accident		Nctsacc1.xls	1,250	Text	Accident Record
			Nctsacc2.xls	1,250	Text	Accident Record
			Accident.xls	1,955	Excel	Accident Record
	Environmental		ENV.Daa.xls	186	Excel	Survey of air pollution, relation to traffic volume
			Traffic Vol (5 sites).xls	214	Excel	Traffic volume survey at air pollution monitoring sites
			Vicinity Map.xls	59	Excel	Vicinity map of survey place

4 TRANSPORT DATABASE SYSTEM - HOST INSTITUTION

4.1 Postulates

At the start of the MMUTIS, the assumption was that National Center for Transport Studies (NCTS) would inherit the database and become the host institution. The JICA study team was made to understand that this was not a fixed premise, but an issue that the team must work on to help find the answer. The NCTS is described in succeeding sections in terms of its function and capability.

The data classes have been outlined in chapter 3 of this report. What is clear is that there are many producers of data as well as multiple users whose needs may vary even for the same set of data. Therefore, the database have many 'fathers' and multiple dependents or clients.

While each agency or user can attempt to establish its own database, it will be expensive and time consuming. Their internally generated data class will be current, and usually gets updated automatically, but the other data classes will not be updated. Consolidating and re-formatting them into the structure desired by the user will not be feasible unless there is a common referencing framework. In an urban setting, this common framework is spatial. The technology that made this economically and technically feasible is GIS (Geographic Information System). Figure 4.1 illustrates how different data files (or data overlays) relate together in spatial terms. With GIS, the desired database can be established without the data generators surrendering neither proprietary ownership nor responsibility over its own 'data overlays'.

4.2 Options for a Transportation Database Host Institution

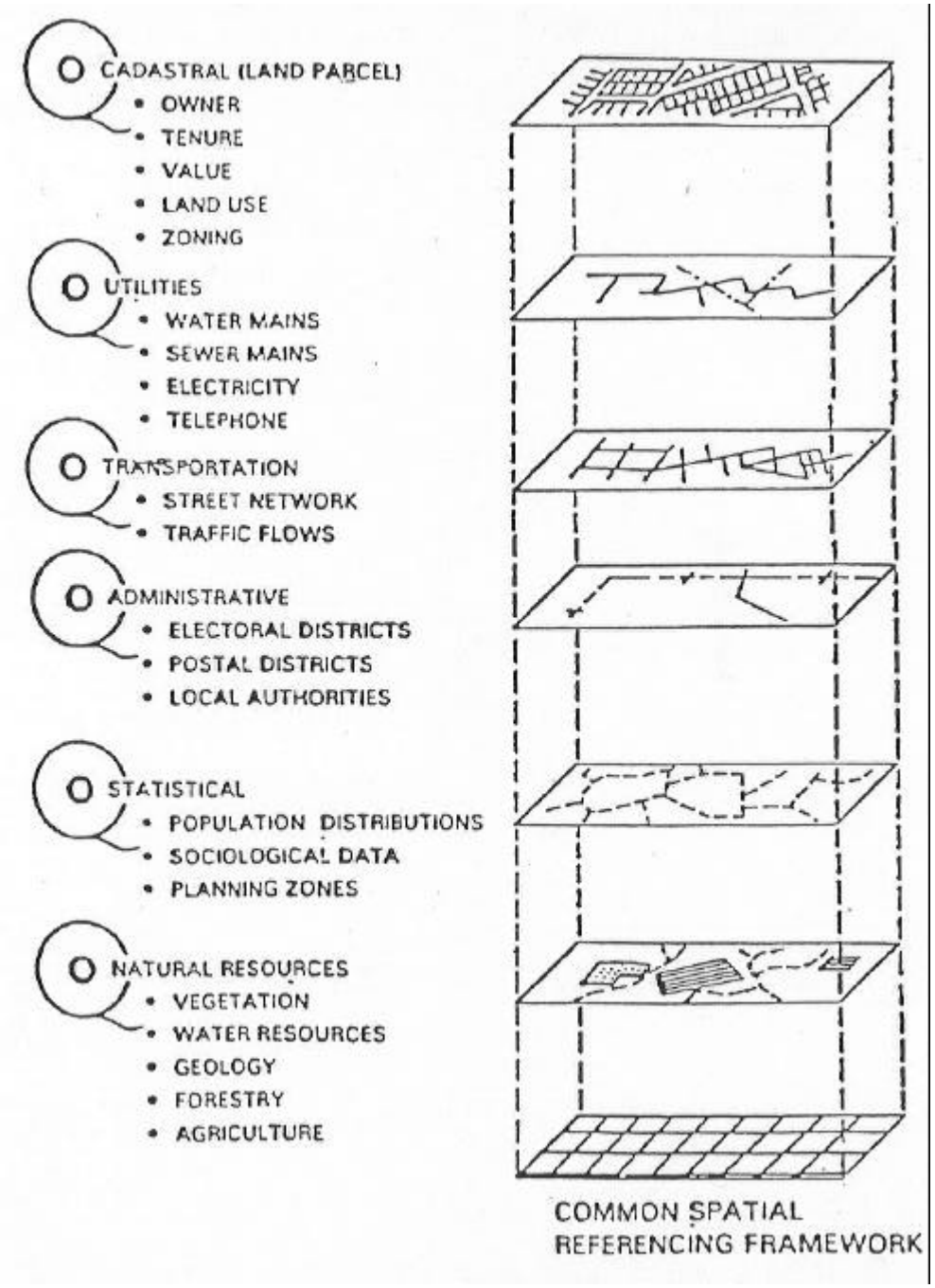
There must be a host institution for the Server (and central database). Its functions include:

- Design of the data model and development of the "Database Manage interface,
- Development and administration of the Home Page on Internet,
- Supplying the required sets of data,
- Updating and maintenance of the database,
- Provide advisory services to users.

There are several criteria that make for an ideal host, such as the following:

- Commitment from top management to take charge and deploy the required resources;
- Technical capability and financial independence;
- Has a major stake, and incentive, to keep the database alive;
- A major generator of at least one of the data classes; and
- Organizational culture that respects and treats data as a resource.

Figure 4.1
Data Attribute and Corresponding Graphical Data



The pros and cons of the different host institutions are shown in Table 4.1. Several attempts in the past to establish similar GIS-oriented databases within government agencies have produced disappointing results. Privatization is a major policy thrust of the Philippine government, but it has not yet been applied nor adopted to this kind of database. Commercializing spatial databases, however, has been tried in other countries. A large title insurance company decided to set up a database comprised of taxation parcel maps for its own use as well as sell the information to realtors and municipalities. In Los Angeles, ETAK created a roadway centerline files. Technology (computer hardware, software, and communications) is now capable to permit distributed data across geographically distributed networks. This means that those government agencies (or private utilities) that are traditionally responsible for maintaining, updating, and managing the databases that they typically work with can still manage and maintain those coverages and databases; yet other users that have requirements for those data can access those data remotely across a network.

4.3 The National Center for Transportation Studies

The National Center for Transportation Studies (NCTS) is a regular unit of the University of the Philippines (U.P.) System. It is actively involved in research and development activities covering areas of transportation engineering, urban transportation planning, traffic management, environmental and safety studies, as well as, regional development studies.

4.3.1 Objectives of the NCTS Project

One of the objectives of the NCTS Project (from 1 April 1992 to 31 March 1997) is to provide necessary information services on transportation.

The TRANSPLAN for a center of excellence in transportation studies which is the strategic plan for the year 1995 to 2008 has been approved by the Joint Committee chaired by the Chancellor of U.P. Diliman as of 14 October 1994. The plan calls for the following:

a) As part of its regular activities, the Center plans to create a database management system containing transportation and infrastructure-related data and information nationally (in the short term) and from Asian countries (in the medium term).

   Also in the short term, the linkage with other information centers worldwide will be established. The system will be designed as a repository of basic data to support research activities, and to facilitate the exchange of information among researchers in Asian countries and ultimately worldwide.

b) The TRANSPLAN also specifies that the NCTS shall offer transportation-related computer seminars in topics such as statistical analysis and transportation planning.

TABLE 4.1
INSTITUTION OPTIONS FOR THE TRANSPORTATION DATABASE SYSTEM

Host Entity	Description	PROS	CONS
A1-NCTS	Main server and database with NCTS premises, operated and maintained by NCTS. Source data regulatory updated with the help of transport agencies.	• Neutral institution • Could nurture the technical capability • Hospitable to research • High respect for data	• Too remove for most users • Vulnerable to 'bureaucratic' • Data likely to become stale, as NCTS is already a 'user'
A2-MMDA	Same as above, except that MMDA assumes the responsibilities	• Has long-term interest to have such a database • A major generator and user of part of the data	• No technical capability • Vulnerable to 'bureaucratic' • Sustainability also doubtful
A3-DPWH	Same as above, except that DPWH assumes the responsibilities	A major generator of road data and an interested user	• Vulnerable to 'bureaucratic' • Sustainability also doubtful
A4-DOTC	Same as above, except that DOTC assumes the responsibilities	A major user of traffic data	• Vulnerable to 'bureaucratic' • Sustainability also doubtful
B1-Consortium	A private entity is incorporated (as a joint venture of MMDA, MWSS, Meralco, PLDT, DOTC, DPWH, Realtors Assn., etc.) to operate, maintain, market, and update a GIS-type database that includes transport data.	• Save the stakeholders a lot of money in developing their own 'base'GIS • Flexibility in operations and maintenance • Leads to a wider, network GIS • Sustainable	• Need a lot of organizing effort • To be sellable, the database must be expanded to include other land-based files • Possible issue on public data under private hands
B2-Systems Shop	B2- Systems private entity with a vested interest on the 'database' volunteers to host and maintain the system	• Flexibility in operations and maintenance • Easier to set up, single responsibility	• Equity, and uncertain market likely to discourage private firm • No incentive for data generators to 'deposit' or 'share' • As good only as long as there's profit at the end of the tunnel

All workstations and computers are dedicated for use in research activities. However, given the surplus of these equipment, the Center is opening such equipment to external use such as CPU Lease (with appropriate cost sharing, with remote access service to our system via Internet) and Computing Service through research cooperation.

4.3.2 Existing Facilities and Equipment

So far, under the NCTS Project, the Government of Japan through JICA has provided the center with one mainframe computer, four workstations and a host of personal computers.

Specialized applications for Computer Aided Design (CAD) and Geographical Information System (GIS) have been interlude. The Center has already installed software for programming environment and application software for statistical analysis, transportation planning, and operations research and systems simulation. These are managed and maintained in the computer room which is about 300 square meters.

It is expected that more workstations and personal computers will be needed due to the increase in research activities in this center. Furthermore, existing computer need to be upgraded.

4.3.3. Local Area Network

Existing LAN Configuration

The mainframe computer, along with the four engineering workstations and about 25 personal computers presently make up the Local Area Network maintained at the Center. The machines are interconnected through a thin ethernet (10BASE2) backbone system.

The computer system administration at the center stands on the optimal balance among convenience of users, security against hackers and invaders, and manpower and economical cost of administration.

The network was originally designed to provide connection of PC machines to the UNIX workstations and mainframe computer. The network basically operates in the UNIX environment with the workstations and the mainframe providing the central and main server/management and storage functions.

The rest of the personal computers are connected to the network in a star-network configuration and using PC-NFS software. This original design, however, only provides communication between a PC and the other network servers. (EWS and mainframe) and not to other PC machines.

Future Network Plan and the Internet

Until recently, access to system resources, information transfer and overall utility of the local area network has been limited. However, computer networking have made great developments especially the Internet.

The Center is taking steps to upgrade the existing network to provide efficient and cost-effective client-server functionality. The future local area network shall consider the following objectives, including Internet services:

1. Improvement in information transfer and processing
2. Resource sharing
3. Improvement in productivity in research and training programs
4. Utilization of hardware/software and optimization of resources.
5. Promotion of exchanges in internal and external research activities
6. Information dissemination and networking in the global community

Just recently, the Center was connected to the Internet through a Fiber-Optic connection to the UP College of Engineering LAN. The NCTS was able to acquire two valid IP addresses. Construction is still underway in installing new and upgraded PC network servers.

The present trend of downscaling has rendered the PC more powerful in terms of CPU speed and memory and storage capabilities comparable to their UNIX workstations and mainframe counterparts.

The Center has formulated a network plan that will provide the full-range of network services and Internet access while maintaining network security and overall efficiency for both internal and external functions. Some of the services envisioned include FTP and Web server, Mail server, Dial-in Facility, Library and Database Server.

FTP and Web Server

File Transfer Protocol (FTP) is a simple and effective means of transferring files between computers that are connected on a TCP/IP network, the communication foundation of the Internet. This facility will allow users to transfer both ASCII and binary files.

The Web server will allow the center to maintain its own website and publish its homepage on the net. This facility will permit users worldwide access on information regarding the Center's activities.

DNS and Mail Server

The Domain Name Service (DNS) will allow the Center to register and maintain a separate domain for the computers in the LAN. Individual e-mail accounts can also be provided for users in the network.

FIGURE 4.2
EXISTING NCTS LAND CONFIGURATION

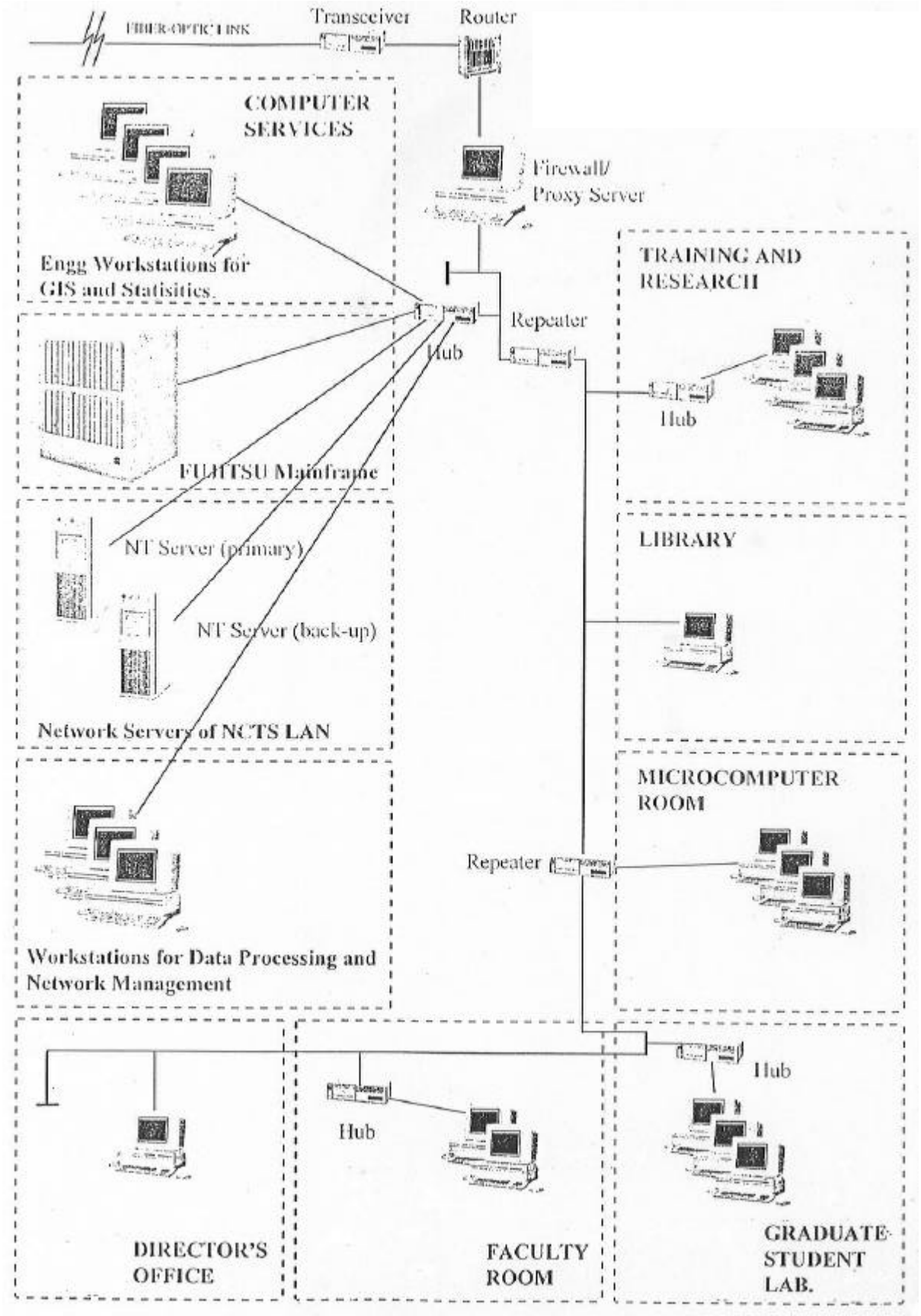
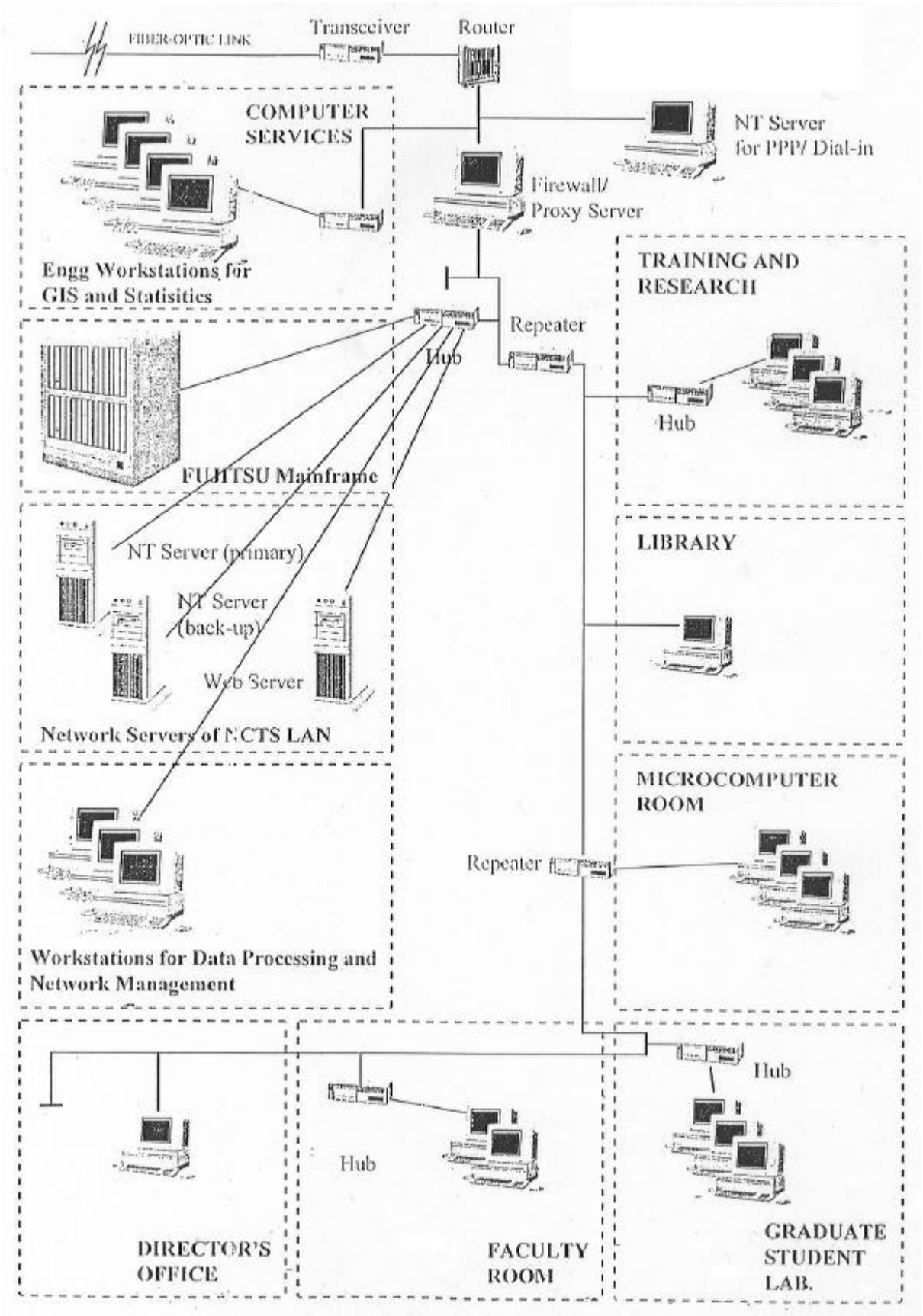


Figure 4.3
FUTURE NCTS NETWORK PLAN



Dial-in-Facility

This facility can allow users to log in on the network servers at the center using a high-speed modem connected to a PC machine through a telephone line. This gives greater flexibility and wider access to system resources at the center from outside location.

4.3.4 NCTS Follow-up Program

The evaluation of the NCTS Project was undertaken on the basis of its achievements over the span of five years on 22 November 1996 as follows:

1) As for the transportation information services, extensive data have been accumulated and valuable information on transportation and traffic studies have been generated as part of the academic, research, training and extension activities of the NCTS Project.

   However, the collected data and information have not been disseminated in an effective and systematic manner to transportation-related sectors. This is mainly due to the fact that the setting up of the computer hardware system and implementation of the database system are not yet complete.

   For reasons beyond its control, the NCTS experienced great difficulty in the recruitment and retention of qualified computer staff. Furthermore, because of the limited number of NCTS staff, some of the computer staff had to assist in the research and training activities of the NCTS. These are the major reasons that showed down the development and full implementation of a system for providing information services on transportation.

2) As a result on the discussions in accordance with the joint evaluation by the Japanese and the Philippine teams, both sides agreed to recommend to their respective governments, the implementation of the follow-up program of Japanese Technical Cooperation for the project (from 1 April 1997 to 31 March 1999). One of the major scopes of the program is the provision of information services on transportation.

The follow-up program will require activities to accumulate more extensive data and generate more valuable information on transportation. In accordance with the collection of data, it is also the main activity to disseminate in an effective and systematic manner to transportation-related sectors.

4.3.5 Creation of an Information Center

Although the follow-up activities have just begun, the Center hopes to attain the objectives relating to information services during this two years. Presently, NCTS is actively undertaking activities as follows:

1) To establish the framework for the computer system.
2) To improve the local area network and Internet connection with the drawing of LAN documents.
3) To accumulate more extensive data and generate more valuable information on transportation.
4) To create database management system.
5) To disseminate in an effective and systematic manner to transportation-related sectors.
6) To promote active research cooperation
7) To have strategy on maintenance and sustainability of information services
8) To investigate and formulate library information system.

NCTS is capable of becoming an information center because of the existence of facilities and computer equipment, availability of technology for the information system and budget for computer system.

With the continuous training of the present staff and hiring of new personnel for specialized work, the NCTS is sure to achieve its objective in truly providing relevant and updated information on transportation.

The following are the steps that are to be undertaken in initializing the Information Center to meet the Philippine transportation planning needs:

A. Establish firmly the framework for the computer and network system.
B. Absorb the MMUTIS database into the NCTS information service.
C. Create a database management system and organize and assign personnel to the information service
D. Accumulate transportation and infrastructure-related data for the rest of the country.
E. Conduct orientation and training activities in computer systems and networking
F. Develop sustainability strategy to finance purchase and maintenance brought about by the expansion.
G. Intensify research activities and investigate library functions.

4.3.6 MMUTIS and NCTS

NCTS is accumulating more extensive data on transportation. One of the most urgent issues on transportation is on Metro Manila. The pervading complexities of transport problems and issues in the metropolis have long necessitated more in-depth research and solution finding from all social sectors.

NCTS is different from all other agencies because of its neutrality. It is inevitable for a neutral agency to distribute neutral data to various agencies because every agency will have to utilize the same basic data. This data set may not at all be entirely sufficient for the agency's needs and requirements and still some other supplementary information may be gathered from other sources.

Since one of the MMUTIS objectives is to establish an updated transportation database system, which is intended to contribute to transportation planning, research and education, then NCTS presents a suitable center for the repository of the MMUTIS database

The suitability of making NCTS as the host institution for the MMUTIS database can be discussed on the following points:

1) There is location advantage because the MMUTIS database is currently being developed in NCTS starting with the building and updating of the Metro Manila Road Network and Land Use Classification Data using GIS format.

2) The NCTS has adequate staff and accumulated technology since the beginning of NCTS Project to be able to maintain and operate the database although the help of other agencies is needed.

3) The NCTS has existing network and working relations with other transportation-related agencies, experts in transportation field locally and internationally.

4) The NCTS has achieved various recognitions on its research and training activities.

5) The NCTS has the capacity to build the database on existing equipment and hardware and expand its services. With plans to upgrade the local area network and utilization of Internet technology, the Center can easily provide information services.

6) The NCTS can easily exchange information on transportation because it has already created the human network through its various research, training and extension services over the years.

5 THE TRANSPORTATION RESEARCH AND INFORMATION NETWORK PLAN FOR THE PHILIPPINES

5.1 Introduction

One of the problems facing major cities in developing countries of the Asia-Pacific Region is the increasing level of traffic congestion. This is due to the great disparity between the available transportation infrastructure and the levels of economic and social activity among these cities.

Generally, the level of transport development is not able to cope up with the rapidly expanding metropolitan region while the Government's resources is also scarce and limited. Policy-makers and transport professionals must manage effectively whatever limited resource to provide the most efficient transportation system to promote urban growth and development. However, effective judgments will have to be made on the basis of up-to-date and accurate information.

The creation of the Transportation Research and Information Network (TRAIN) is geared towards instituting a central repository for transportation research and information in the Philippines. It is envisioned to assist and inform policy-makers and transport professionals, scientific and academic researchers, transport industry and the general public regarding the state of transportation research and information in the country.

5.2 Rationale

The TRAIN shall provide a reliable system for research cooperation and exchange of information in the field of transportation in the country. The network shall consist of an agglomeration of professionals and researchers involved in the field exchanging transportation information through electronic means, as well as, other media.

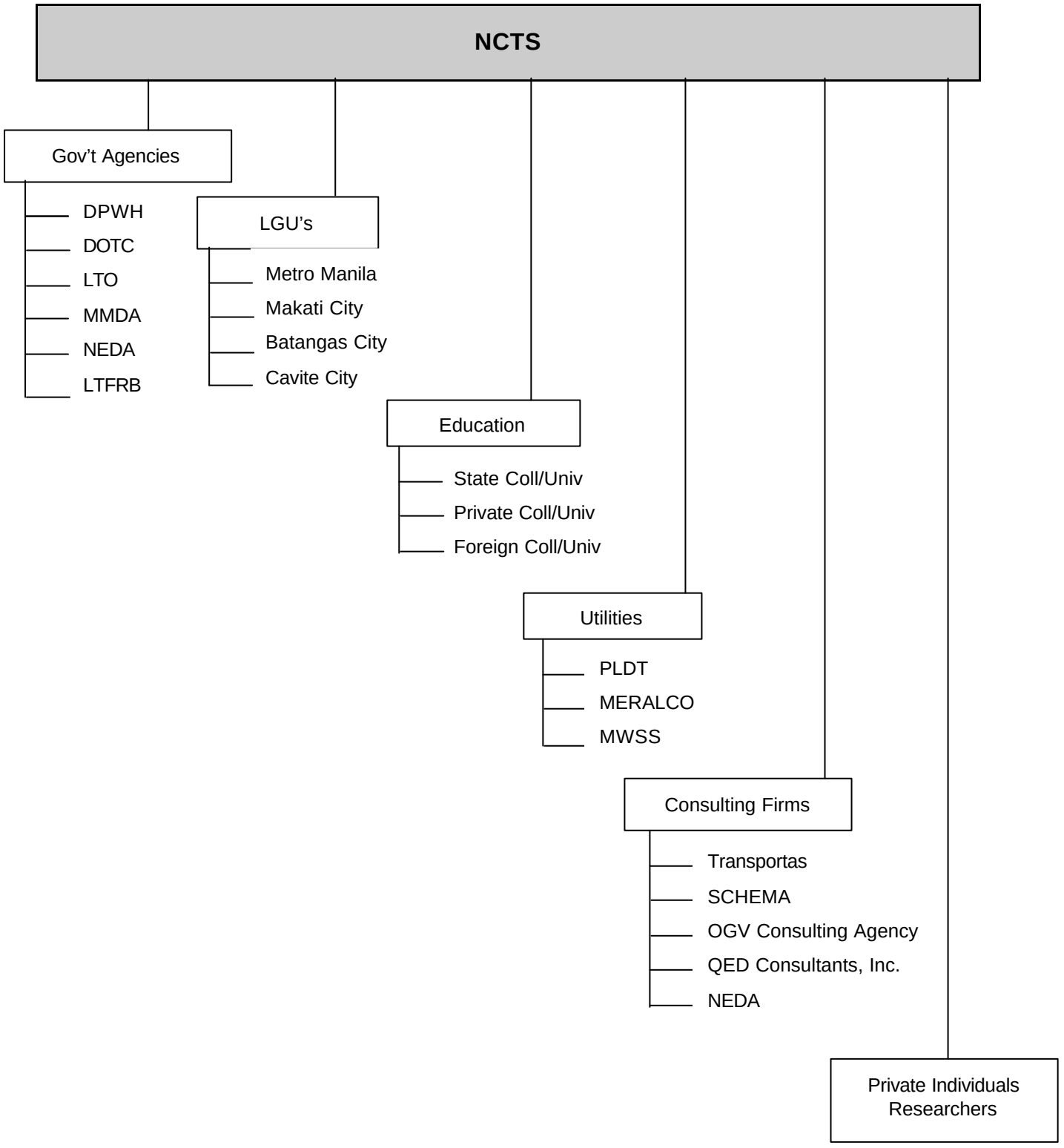
The TRAIN shall maintain a network of computers and servers electronically linked by Internet technology. In this way, network information is provided in a fast and cost-effective manner. Appropriate systems design shall be designed and implemented to ensure secure and up-to-date data across the network.

Being connected to the Internet, the TRAIN can provide all the services available such as World Wide Web, Remote Log-in, News Groups, File Transfer Protocol (FTP), On-line talk, and electronic mail (E-mail). It shall also have access to a wider network of computers and information worldwide referred to as the 'Information Superhighway' or 'Global Community'.

5.3 Objectives

The objective of the project is to institute a network of professionals and researchers involved in transportation and other related fields for the promotion of research cooperation and information exchange. This general objective is broken down to more specific objectives as follows:

FIGURE 5.1
PROPOSED TRAIN ORGANIZATION



a) Provide on-line research and information on transportation through database development and on-line advertisement of TRAIN activities;

b) Maintain a database of member individuals who are involved in the field of transportation;

c) Provide services available through Internet to its members such as remote access, on-line talk, electronic mail, file transfers (FTP), public access database, on-line public access catalogue (OPAC) and discussion groups;

d) Set up and maintain a Network Operations Center at the National Center for Transportation Studies (NCTS) at the University of the Philippines at Diliman and maintain a wide-area computer network to facilitate access among its members;

5.4 Strategies

The project will involve the processing of network membership applications. The membership will be open to all professionals and researchers in the field of transportation and other related fields. At the initial phase, however, members shall come from the following institutions:

- National Center for Transportation Studies
- School of Urban and Regional Planning
- Major Universities
- Department of Transportation and Communications (DOTC)
- Department of Public Works and Highways (DPWH)
- Metro Manila Development Authority (MMDA)
- National Economic and Development Authority (NEDA)

As well as other agencies in transportation, namely:

- Land Transportation Office (LTO)
- Land Transportation Franchising and Regulatory Board (LTFRB)

The project will require initial equipment acquisition and installation, connection with the Internet through a reliable Internet Service Provider (ISP) such as PHNet, computer programming and content-creation, and training of number of staff on the administration of the network and Internet services.

A Network Operations Center (NOC) will be set up at the National Center for Transportation Studies (NCTS). The existing local area network (LAN) at the NCTS will be upgraded to maximize Internet connection. A high-speed leased line connection will be acquired, as well as additional telephone lines. Appropriate network components such as routers, switches, high-speed dial-in modems, servers and software will be procured to provide the network with efficient and expanded capability.

FIGURE 5.2
PROPOSED TRAIN SWITCHED LAN AND WAN PROJECT

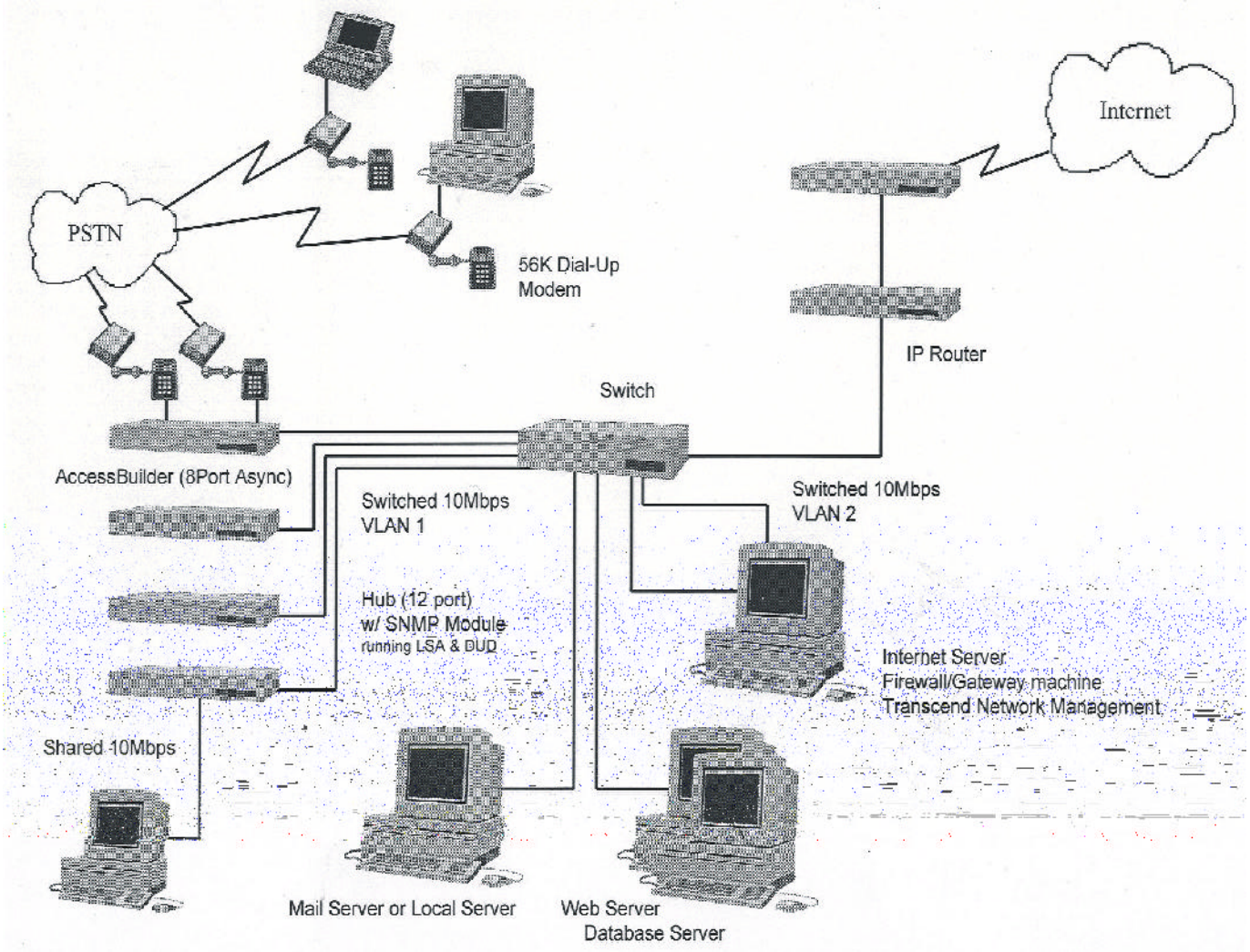
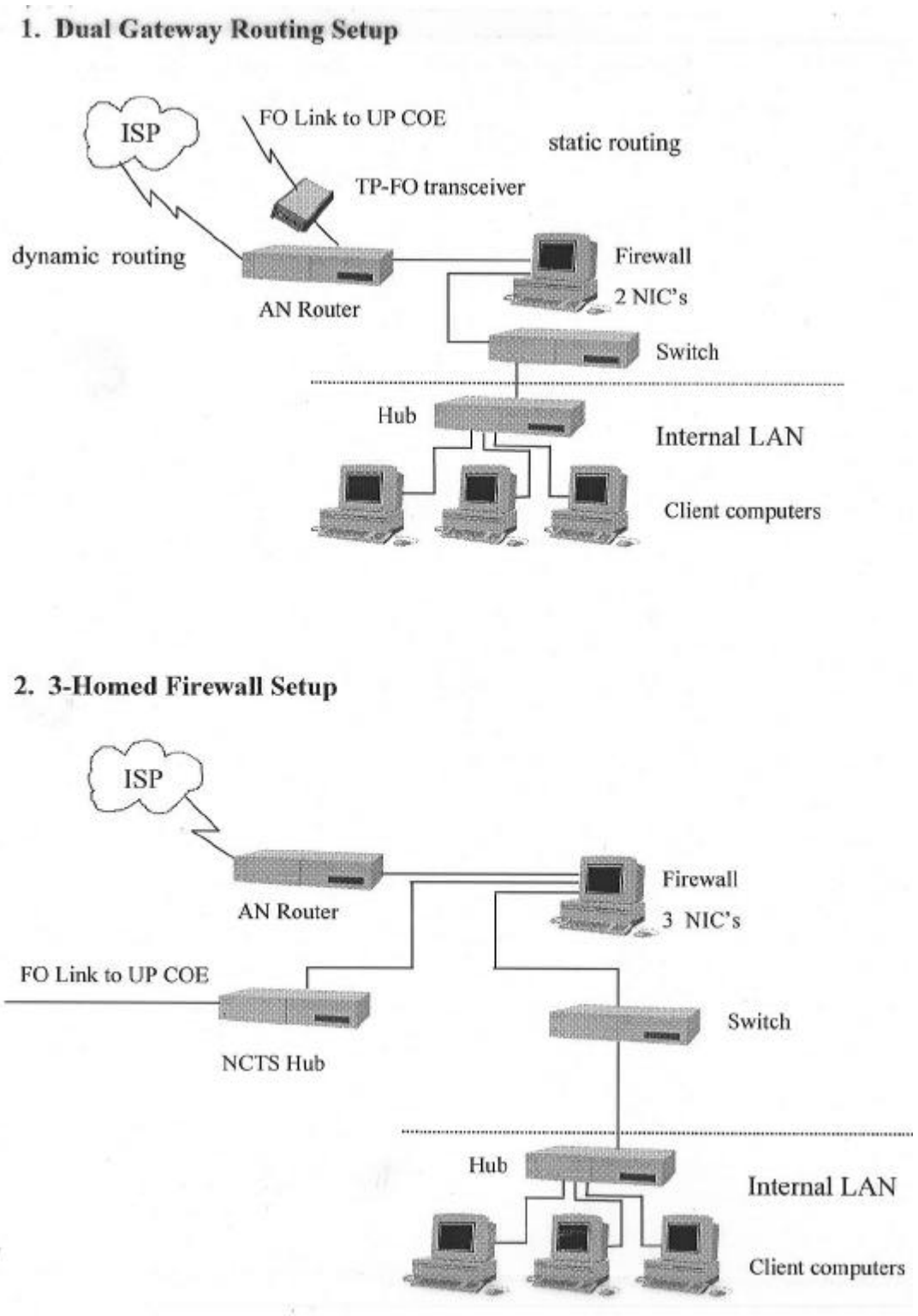


FIGURE 5.3
PROPOSED TRAIN GATEWAY CONFIGURATIONS



5.5 Systems Design

Computer Network

The train will utilize the existing LAN at the NCTS. Presently, the NCTS LAN is configured using a bus topology. However, this set-up is already old and network connectivity is limited. A new 64-kbps leased line connection will be secured from an appropriate ISP.

Library Information System

The primary role of the library is to make transportation and other related information readily and easily available over the network. In line with this, the library will automate its basic functions and will incorporate it with the proposed Transportation Research and Information Network (TRAIN). These functions include the following:

On-line Public Access Catalog (OPA)

This is a bibliographic listing of all the holdings of the library available on line, which can be accessed remotely. This will have an easily distinguishable hyperlink on the TRAIN's main website. The link will provide access to all of the library's holdings. The catalog will include all serial/journal titles, articles and all print and non-print materials available on the library.

The OPAC will also include the holdings of other cooperating transportation libraries. The catalog will include a field, which will identify the branch location of a cooperating library where the title can be found.

On line Reference Service

Query negotiation and answering can be posted on Bulletin Board System (BBS) open to subscribers. This will help facilitate instant inquiry for subscribers instead of having to go all the way to the library for just one very simple reference question.

In line with this, the plans to implement a key component in reference service which is the Selective Dissemination of Information or SDI and the Current Awareness Service or CAS. The CAS will keep subscribers posted with the latest developments and activities happening in the library. This includes relevant articles, which are of interest to subscribers: the latest acquisitions, current library trends, and exhibits. SDI on the other hand is a more personal approach. Optionally, subscribers may submit their interest and research profiles. They in turn will be notified of new titles and current developments that might be of particular interest to them.

Online Acquisitions

Online acquisitions would facilitate online requesting and ordering of titles. Linkages will be established with contact publishers such as Macmillan Publishing, McGraw Hill, Prentice Hall and others of the like which have the capability of receiving orders on line. Requests for book purchase can be facilitated through a request form accessible on the web.

Inter Library Loan

An inter library loan agreement will be developed among the premiere transportation libraries around the country. This will form a cooperative effort among the selected libraries to share, exchange and redirect information with each other. A complete listing of the holdings of all the cooperative libraries will be accomplished to form a union catalog. The purpose of a union catalog is to easily identify the branch library location where the title can be found. Titles not available on one library may be redirected to other member libraries, which may have them. This union catalogue will integrate with the OPAC and will also be accessible remotely.
The automation and incorporation of library services with the proposed TRAIN would benefit greatly, the academic and research arena of the institution and the country as well. Through automated services, the processing of information will be hastened and information delay will be lessened. Information would be made available with the touch of our fingertips. This is one aspect of information advocacy, which is the current trend happening in the libraries abroad. The proposed services involved a two-way interpersonal communication between librarian and users via the network. Through the network, we can reach more clientele around the country for a lesser cost and effort.

In order to achieve the above services, the library will need the following equipment:

a) An Integrated Library System or database
b) A dedicated database server which will house the Integrated Library System
c) A Web Server who will handle all web based applications.

Database Development

MMUTIS has assembled new traffic information through the conduct of various surveys. NCTS has been designated as the central repository of data for the MMUTIS Project. It is expected that MMUTIS will delegate the data to NCTS before it ends by 1999.

Network Security

The network will adopt a secure network policy in order to achieve the highest levels of data integrity. Such policy will also safeguard the network against possible computer theft and corruption of information"

Some measures include:

a) Installation of firewall machine
b) Creation of a network control room at NCTS where all the network servers will be secured
c) Monitoring and logging of network access

5.6 Project Benefits

Once the TRAIN Website is on-line, information about the TRAIN will be available to institutions and individuals connected to the Internet. The TRAIN may provide on-line advertisements through its Website. The TRAIN Website will feature information on its on-going activities, information on on going and past researches, transport publications, as well as, information about its members.

Although monetary benefits arising from the operation of the network and Internet connection are difficult to quantify, the resulting advancement in information technology and increased work efficiency is immense. The members will have access to virtually any information available worldwide in any topic imaginable. Research under takings will benefit from such a vast information and technology resource.

5.7 Sustainability of the Network

The TRAIN shall maintain qualified and competent staff that will operate and maintain the network's activities like maintenance of computer networks and equipments, design and implementation of database management systems, as well as, maintenance and updating of the database.

In order to sustain the network, some fund will have to be created. The overall cost of running the network will have to be shouldered by data users. The form of earnings, sponsorships and endorsements from concerned government agencies can build the fund.

Further possible cost recovery schemes are being explored.

5.8 Implementation Schedule

The project will be done in phases, as follows:

Phase	Tasks Involved
Phase 1	Upgrading of NCTS LAN Procurement of network components Negotiation with ISP Negotiation of NCTS domain Negotiation with client agencies Updating of NCTS homepage Milestone: Switched NCTS network
Phase 2	Leased line connection with ISP Creation of network center at NCTS Initial configuration of network servers Creation of TRAIN homepage Milestone: New NCTS domain
Phase 3	Pre-testing of remote connection Network programming
Phase 4	Availability of dial-in access Fully operational remote access services
Phase 5	Full internet services Global connection and on-line applications

APPENDICES

ANNEX A

Page No.

HIS DATA FORMAT

FORM 1

No.	Item	Type	Length	Column	Answer	Var
ID	HIS Zone number	N	3	1 - 3		HZONOS
ID	Household Number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHMS
(2)	Address zone	N	3	12 - 14		F1_2ADDR1
	Ownership of telephone	N	1	15 - 15	1 or 2	F1_2TEL1
(3)	Number of residents	N				
	Male, under 4, w/o disability	N	2	16 - 17	0 to 20	F1_3MU4O
	Male, under 4, w/ disability	N	2	18 - 19	0 to 20	F1_3MU4W
	Male, 4 years, w/o disability	N	2	20 - 21	0 to 20	F1_3MA4WO
	Male, 4 years, w/ disability	N	2	22 - 23	0 to 20	F1_3MA4W
	Male, helpers, w/o disability	N	2	24 - 25	0 to 20	F1_3MHHWO
	Male, helpers, w/ disability	N	2	26 - 27	0 to 20	F1_3MHHW
	Female, under 4, w/o disability	N	2	28 - 29	0 to 20	F1_3FU4O
	Female, under 4, w/ disability	N	2	30 - 31	0 to 20	F1_3FA4W
	Female, 4 years, w/o disability	N	2	32 - 33	0 to 20	F1_3FA4WO
	Female, 4 years, w/ disability	N	2	34 - 35	0 to 20	F1_3FAW
	Female, helpers, w/o disability	N	2	36 - 37	0 to 20	F1_3FHHWO
	Female, helpers, w/ disability	N	2	38 - 39	0 to 20	F1_3FHHW
	Total, under 4, w/o disability	N	2	40 - 41	0 to 20	F1_3TU4O
	Total, under 4, w/ disability	N	2	42 - 43	0 to 20	F1_3TU4W
	Total, 4 years, w./o disability	N	2	44 - 45	0 to 20	F1_3T4WO
	Total, 4 years, w/ disability	N	2	46 - 47	0 to 20	F1_3T4W
	Total, helpers, w/o disability	N	2	48 - 49	0 to 20	F1_3THHWO
	Total, helpers, w/ disability	N	2	50 - 51	0 to 20	F1_3THHW
(4)	Household Income	N	2	52 - 53	0, 1 to 12	F1_4
(5)	No. of vehicles owned (Type)	N	2	54 - 55	0,1 to 15	F1_5O
	No. of vehicles owned (unit)	N	1	56 - 56	0, 1 to 9	F1_5O1
	Ditto (Type)	N	2	57 - 58	0,1 to 15	F1_5OA
	Ditto (Unit)	N	1	59 - 59	0, 1 to 9	F1_5O2
	Ditto (Type)	N	2	60 - 61	0,1 to 15	F1_5OB
	Ditto (Unit)	N	1	62 - 62	0, 1 to 9	F1_5O3
	Ditto (Type)	N	2	63 - 64	0,1 to 15	F1_5OC
	Ditto (Unit)	N	1	65 - 65	0, 1 to 9	F1_5O4
	No. of vehicles rented (type)	N	2	66 - 67	0,1 to 15	F1_5R
	No. of vehicles owned (unit)	N	1	68 - 68	0, 1 to 9	F1_5R1
	Ditto (Type)	N	2	69 - 70	0,1 to 15	F1_5RA
	Ditto (Unit)	N	1	71 - 71	0, 1 to 9	F1_5R2
	Ditto (Type)	N	2	72 - 73	0,1 to 15	F1_5RB
	Ditto (Unit)	N	1	74 - 74	0, 1 to 9	F1_5R3
	Ditto (Type)	N	2	75 - 76	0,1 to 15	F1_5RC
	Ditto (Unit)	N	1	77 - 77	0, 1 to 9	F1_5R4
(6)	No. of vehicles garaged (type)	N	2	78 - 79	0,1 to 15	F1_6
	No. of vehicles garaged (unit)	N	1	80 - 80	0, 1 to 9	F1_61
	Ditto (Type)	N	2	81 - 82	0,1 to 15	F1_6A
	Ditto (Unit)	N	1	83 - 83	0, 1 to 9	F1_62
	Ditto (Type)	N	2	84 - 85	0,1 to 15	F1_6B
	Ditto (Unit)	N	1	86 - 86	0, 1 to 9	F1_63
	Ditto (Type)	N	2	87 - 88	0,1 to 15	F1_6C
	Ditto (Unit)	N	1	89 - 89	0, 1 to 9	F1_64
(7)	Ownership of house (own)	N	1	90 - 90	0 or 1	F1_7HO
	Ownership of house (rented)	N	1	91 - 91	0 or 1	F1_7HR
	Monthly rate of house	N	9	92 - 100		F1_7HRA
	Ownership of land (own)	N	1	101 - 101	0 or 1	F1_7LO
	Ownership of land (rented)	N	1	102 - 102	0 or 1	F1_7LR
	Monthly rate of land	N	9	103 - 111		F1_7LRA
(8)	Length of stay (year)	N	2	112 - 113	0 to 99	F1_8STY
	Length of stay (month)	N	2	114 - 115	0 to 11	F1_8STM

FORM 2

No.	Item	Type	Length	Column	Answer	Var
ID	HIS Zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(1)	Member code	C	2	12 - 13	00 to 20	F2_1NM
(2)	Age	N	2	14 - 15	0 to 00	F2_2AGE
(3)	Sex	N	1	16 - 16	1 or 2	F2_3SEX
(4)	Disabled	N	1	17 - 17	1 or 2	F2_4DIS
(5)	Work address zone	N	3	18 - 20	0, 1 to 394	F2_5WADD
(6)	School address zone	N	3	21 - 23	0, 1 to 394	F2_6SADD
(7)	Occupation type	N	2	24 - 25	1 to 14	F2_7OCC
(8)	Employment sector	N	2	26 - 27	0, 1 to 17	F2_8EMP
(9)	Monthly income	N	2	28 - 29	0, 1 to 12	F2_9INC
(10)	Driver's license type	N	1	30 - 30	1 to 4	F2_10DLIC
(11)	Number of trips	N	2	31 - 32	0, 1 to 99	F2_11TRP
(12)	Office hours	N	1	33 - 33	0, 1 or 2	F2_12OFF

FORM 3

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
ID	Member code	C	2	12 - 13	00 to 20	F2_1NM
(1)	Origin zone	N	3	14 - 16	1 to 394	F3_1OR1
(2)	Institution of origin	N	2	17 - 18	1 to 11	F3_2INSOR
(3)	Time started	C	5	19 - 23	??:??	F3_3ST1
(4)	Time arrival	C	5	24 - 28	??:??	F3_4AR1
(5)	Institution of destination	N	2	29 - 30	1 to 11	F3_5INSDE
(6)	Destination zone	N	3	31 - 33	1 to 394	F3_6DE1
(7)	Former trip purpose	N	2	34 - 35	1 to 12	F3_7B
	Trip purpose	N	2	36 - 37	1 to 12	F3_7E
(8)	1st mode of travel	C	5	38 - 42		F3_1TR
(9)	transfer zone	N	3	43 - 45	1 to 394	F3_1TRN
(8)	2nd mode of travel	C	5	46 - 50		F3_2TR
(9)	transfer zone	N	3	51 - 53	1 to 394	F3_2TRN
(8)	3rd mode of travel	C	5	54 - 58		F3_3TR
(9)	Transfer zone	N	3	59 - 61	1 to 394	F3_3TRN
(8)	4th mode of travel	C	5	62 - 66		F3_4TR
(9)	Transfer zone	N	3	67 - 69	1 to 394	F3_4TRN
(8)	5th mode of travel	C	5	70 - 74		F3_5TR
(9)	Transfer zone	N	3	75 - 77	1 to 394	F3_5TRN
(8)	6th mode of travel	C	5	78 - 82		F3_6TR
(9)	Transfer zone	N	3	83 - 85	1 to 394	F3_6TRN
(8)	7th mode of travel	C	5	86 - 90		F3_7TR
(9)	Transfer zone	N	3	91 - 93	1 to 394	F3_7TRN
(8)	8th mode of travel	C	5	94 - 98		F3_8TR
(9)	Transfer zone	N	3	99 - 101	1 to 394	F3_8TRN
(8)	9th mode of travel	C	5	102 - 106		F3_9TR
(9)	Transfer zone	N	3	107 - 109	1 to 394	F3_9TRN
(8)	10th mode of travel	C	5	110 - 114		F3_10TR
(8)	Transfer zone	N	3	115 - 117	1 to 394	F3_10TRN
(9)	11th mode of Travel	C	5	118 - 122		F3_11TR

FORM 4

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(1)	Know scheme			-		

	UVVRP	N	1	12 - 12	1 to 3	F4_1_1
	Color Coding	N	1	13 - 13	1 to 3	F4_1_2
	Odd-Even	N	1	14 - 14	1 to 3	F4_1_3
(2)	Affected with UVVRP	N	1	15 - 15	1 to 3	F4_2
(3)	Travel pattern changed					
	To work, 1. No change	N	1	16 - 16	0 or 1	F4_3_1
	To work, 2. Stay home	N	1	17 - 17	0 or 1	F4_3_2
	To work, 3. Change time	N	1	18 - 18	0 or 1	F4_3_3
	To work, 4. Change car	N	1	19 - 19	0 or 1	F4_3_4
	To work, 5. Others	C	20	20 - 39		F4_3_5
	Other, 1. No change	N	1	40 - 40	0 or 1	F4_3_1A
	Other, 2. Stay home	N	1	41 - 41	0 or 1	F4_3_2A
	Other, 3. Change time	N	1	42 - 42	0 or 1	F4_3_3A
	Other, 4. Change car	N	1	43 - 43	0 or 1	F4_3_4A
	Other, 5. Others	C	20	44 - 63	0 or 1	F4_3_5A
(4)	Use mode of travel					
	To work, 1. Another car	N	1	64 - 64	0 or 1	F4_4_1
	To work, 2. Share a ride	N	1	65 - 65	0 or 1	F4_4_2
	To work, 3. Use public transport	N	1	66 - 66	0 or 1	F4_4_31A
	To work, type of public transport	C	3	67 - 69		F4_4_32
	To work, 4. Use taxi	N	1	70 - 70	0 or 1	F4_4_4
	To work, 5. Other mode	C	20	71 - 90		F4_4_5
	Other, 1. Another car	N	1	91 - 91	0 or 1	F4_4_1A
	Other, 2. Share a ride	N	1	92 - 92	0 or 1	F4_4_2A
	Other, 3. Use public transport	N	1	93 - 93	0 or 1	F4_4_31B
	Other, type of public transport	C	3	94 - 96		F4_4_3A1
	Other 4. Use taxi	N	1	97 - 97		F4_4_4A
	Other 5. Other mode	C	20	98 - 117		F4_4_5A
(5)	Buy another vehicle	N	1	118 - 118	1 to 4	F4_4_1
(6)	Support UVVRP	N	1	119 - 119	1 or 2	F4_6
(7)	Suggest measures					
	1. Odd-Even, whole day	C	5	120 - 124		F4_7_1A
	1. Odd-Even, peak hours	C	5	125 - 129		F4_7_1B
	1. Odd-Even, all roads	C	5	130 - 134		F4_7_1C
	1. Odd-Even, major roads	C	5	135 - 139		F4_7_1D
	2. Color coding, whole day	C	5	140 - 144		F4_7_2A
	2. Color coding, peak hours	C	5	145 - 149		F4_7_2B
	2 Color coding, all roads	C	5	150 - 154		F4_7_2C
	2. Color coding, major roads	C	5	155 - 159		F4_7_2D
	3. Congestion fee, whole day	C	5	160 - 164		F4_7_3A
	3. Congestion fee, peak hours	C	5	165 - 169		F4_7_3B
	3. Congestion fee, all roads	C	5	170 - 174		F4_7_3C
	3. Congestion fee, major roads	C	5	175 - 179		F4_7_3D
	4. Others	C	45	180 - 224		F4_7_4A
(1)	Parking Addition					
	1. at home, type of parking	N	1	225 - 225	1 to 7	F421_1
	1. At home, parking charge	N	1	226 - 226	1 or 2	F421_2
	1. At home, payer of charge	N	1	227 - 227	1 to 3	F421_3
	1. At home, difficulties	N	1	228 - 228	1 to 4	F421_4
	2. At work place, type of parking	N	1	229 - 229	1 to 7	F422_1
	2. At work place, parking charge	N	1	230 - 230	1 or 2	F422_2
	2. At work place, payer of charge	N	1	231 - 231	1 to 3	F422_3
	2. At work place, difficulties	N	1	232 - 232	1 to 4	F422_4
	3. Business visit, type of parking	N	1	233 - 233	1 to 7	F423_1
	3. Business visit, parking charge	N	1	234 - 234	1 or 2	F423_2
	3. Business visit, payer of charge	N	1	235 - 235	1 to 3	F423_3
	3. Business visit, difficulties	N	1	236 - 236	1 to 4	F423_4
	4. Private visit, type of parking	N	1	237 - 237	1 to 7	F424_1
	4. Private visit, parking charge	N	1	238 - 238	1 or 2	F424_2
	4. Private visit, payer of charge	N	1	239 - 239	1 to 3	F424_3
	4. Private visit, difficulties	N	1	240 - 240	1 to 4	F424_4

FORM 5

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(1)	Specially abled/elderly person	N	1	12 - 12	1 to 2	F5_1
(2)	Type of disability	N	2	13 - 14	1 to 10	F5_2
(3)	Own a wheelchair	N	1	15 - 15	1 or 2	F5_3
(4)	Need a wheel chair	N	1	16 - 16	1 or 2	F5_4
(5)	Go out	N	1	17 - 17	1 or2	F5_5
(6)	If no, reasons	N	1	18 - 18	1 to 5	F5_6
	Others	N	20	19 - 38		F5_16A
(7)	If yes, how many times	N	1			
	Number of trip	N	3	39 - 39	1	F5_7
	1. Visited zone	N	2	40 - 42	1 to 394	F5_711
	1. Purpose	N	4	43 - 44	1 to 12	F5_712
	1. Mode of travel	C	1	45 - 48		F5_713
	1. Helper	N	1	49 - 49	1 or 2	F5_714
	1. Who	N	1	50 - 50	1 to 3	F5_715
	1. Use of wheelchair	N	1	51 - 51	1 or 2	F5_716
	2. Difficulties	N	1	52 - 52	1 to 4	F5_717
	3. Visited zone	N	3	53 - 55	1 to 394	F5_721
	2. Purpose	N	2	56 - 57	1 to 12	F5_722
	2. Mode of travel	C	4	58 - 61		F5_723
	2 Helper	N	1	62 - 62	1 or 2	F5_724
	2. Who	N	1	63 - 63	1 to 3	F5_725
	2. Use of wheelchair	N	1	64 - 64	1 or 2	F5_7266
	2. Difficulties	N	1	65 - 65	1 to 4	F5_727
	3. Visited zone	N	3	66 - 68	1 to 394	F5_731
	3. Purpose	N	2	69 - 70	1 to 12	F5_732
	3. Mode of travel	C	4	71 - 74		F5_733
	3. Helper	N	1	75 - 75	1 or 2	F5_734
	3. Who	N	1	76 - 76	1 to 3	F5_735
	3. Use of wheelchair	N	1	77 - 77	1 or 2	F5_736
	3. Difficulties	N	1	78 - 78	1 to 4	F5_737
(8)	Improvement measure	N	1	79 - 79	1 to 5	F5_8
	Others	C	20	80 - 99		F5_8A

FORM 6 (1. Weekend / Holiday Traffic)

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
1.	Household member cide	N	2	12 - 13	1 to 20	F6_11
	Visited zone	N	3	14 - 16	1 to 394	F6_12
	Trip purpose	C	3	17 - 19		F6_13
	Travel mode	C	4	20 - 23		F6_14
	Started time	C	5	24 - 28		F6_15
	Time of arrival	C	5	29 - 33		F6_16
	No. of companion	C	4	34 - 37		F6_17
	Type of companion	N	1	38 - 38	1 to 4	F6_18
2.	Household member code	N	2	39 - 40	1 to 20	F6_21
	Visited zone	N	3	41 - 43	1 to 394	F6_22
	Trip purpose	C	3	44 - 46		F6_23
	Travel mode	C	4	47 - 50		F6_24
	Started time	C	5	51 - 55		F6_25
	Time of arrival	C	5	56 - 60		F6_26
	No. of companion	C	4	61 - 64		F6_27
	Type of companion	N	1	65 - 65	1 to 4	F6_28
3.	Household member code	N	2	66 - 67	1 to 20	F6_31

	Visited zone	N	3	68 - 70	1 to 394	F6_32
	Trip purpose	C	3	71 - 73		F6_33
	Travel mode	C	4	74 - 77		F6_ 34
	Started time	C	5	78 - 82		F6_35
	Time of arrival	C	5	83 - 87		F6_36
	No. of companion	C	4	88 - 91		F6_37
	Type of companion	N	1	92 - 92	1 to 4	F6_38
4.	Household member code	N	2	93 - 94	1 to 20	F6_41
	Visited zone	N	3	95 - 97	1 to 394	F6_42
	Trip purpose	C	3	98 - 100		F6_43
	Travel mode	C	4	101 - 104		F6_44
	Started time	C	5	105 - 109		F6_45
	Time of arrival	C	5	110 - 114		F6_46
	No. of companion	C	4	115 - 118		F6_47
	Type of companion	N	1	119 - 119	1 to 4	F6_48
5.	Household member code	N	2	120 - 121	1to 20	F6_51
	Visited zone	N	3	122 - 124	1 to 394	F6_52
	Trip purpose	C	3	125 - 127		F6_53
	Travel mode	C	4	128 - 131		F6_54
	Started time	C	5	132 - 136		F6_55
	Time of arrival	C	5	137 - 141		F6_56
	No. of companion	C	4	142 - 145		F6_57
	Type of companion	N	1	146 - 146	1 to 4	F6_58

FORM 6 (2. Living Environment (1))

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		NHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(1)	Living environment					
	1. Air pollution					
	Assessment (member 1)	N	1	12 - 12	1 to 4	F6_11A
	Change (member 1)	N	1	13 - 13	1 to 5	F6_11C
	Assessment (member 2)	N	1	14 - 14	1 to 4	F6_12A
	Change (member 2)	N	1	15 - 15	1 to 5	F6_12C
	Assessment (member 3)	N	1	16 - 16	1 to 4	F6_13A
	Change (member 3)	N	1	17 - 17	1 to 5	F6_13C
	Assessment (member 4)	N	1	18 - 18	1 to 4	F6_14A
	Change (member 4)	N	1	19 - 19	1 to 5	F6_14C
	Assessment (member 5)	N	1	20 - 20	1 to 4	F6_15A
	Change (member 5)	N	1	21 - 21	1 to 5	F6_15C
	2. Traffic congestion					
	Assessment (member 1)	N	1	22 - 22	1 to 4	F6_21A
	Change (member 1)	N	1	23 - 23	1 to 5	F6_21C
	Assessment (member 2)	N	1	24 - 24	1 to 4	F6_22A
	Change (member 2)	N	1	25 - 25	1 to 5	F6_22C
	Assessment (member 3)	N	1	26 - 26	1 to 4	F6_23A
	Change (member 3)	N	1	27 - 27	1 to 5	F6_23C
	Assessment (member 4)	N	1	28 - 28	1 to 4	F6_24A
	Change (member 4)	N	1	29 - 29	1 to 5	F6_24C
	Assessment (member 5)	N	1	30 - 30	1 to 4	F6_25A
	Change (member 5)	N	1	31 - 31	1 to 5	F6_25C
	3. Traffic Survey					
	Assessment (member 1)	N	1	32 - 32	1 to 4	F6_31A
	Change (member 1)	N	1	33 - 33	1 to 5	F6_31C
	Assessment (member 2)	N	1	34 - 34	1 to 4	F6_32A
	Change (member 2)	N	1	35 - 35	1 to 5	F6_32C
	Assessment (member 3)	N	1	36 - 36	1 to 4	F6_33A
	Change (member 3)	N	1	37 - 37	1 to 5	F6_33C
	Assessment (member 4)	N	1	38 - 38	1 to 4	F6_34A
	Change (member 4)	N	1	39 - 39	1 to 5	F6_34C

	Assessment (member 5)	N	1	40 - 40	1 to 4	F6_35C
	Change (member 5)	N	1	41 - 41	1 to 5	F6_35C
4.	Noise					
	Assessment (member 1)	N	1	42 - 42	1 to 4	F6_41A
	Change (member 1)	N	1	43 - 43	1 to 5	F6_41C
	Assessment (member 2)	N	1	44 - 44	1 to 4	F6_42A
	Change (member 2)	N	1	45 - 45	1 to 5	F6_42C
	Assessment (member 3)	N	1	46 - 46	1 to 4	F6_43A
	Change (member 3)	N	1	47 - 47	1 to 5	F6_43C
	Assessment (member 4)	N	1	48 - 48	1 to 4	F6_44A
	Change (member 4)	N	1	49 - 49	1 to 5	F6_44C
	Assessment (member 5)	N	1	50 - 50	1 to 4	F6_45C
	Change (member 5)	N	1	51 - 51	1 to 5	F6_45C
5.	Smell					
	Assessment (member 1)	N	1	52 - 52	1 to 4	F6_51A
	Change (member 1)	N	1	53 - 53	1 to 5	F6_51C
	Assessment (member 2)	N	1	54 - 54	1 to 4	F6_52A
	Change (member 2)	N	1	55 - 55	1 to 5	F6_52C
	Assessment (member 3)	N	1	56 - 56	1 to 4	F6_53A
	Change (member 3)	N	1	57 - 57	1 to 5	F6_53C
	Assessment (member 4)	N	1	58 - 58	1 to 4	F6_54A
	Change (member 4)	N	1	59 - 59	1 to 5	F6_54C
	Assessment (member 5)	N	1	60 - 60	1 to 4	F6_55C
	Change (member 5)	N	1	61 - 61	1 to 5	F6_55C
6.	water quality					
	Assessment (member 1)	N	1	62 - 62	1 to 4	F6_61A
	Change (member 1)	N	1	63 - 63	1 to 5	F6_61C
	Assessment (member 2)	N	1	64 - 64	1 to 4	F6_62A
	Change (member 2)	N	1	65 - 65	1 to 5	F6_62C
	Assessment (member 3)	N	1	66 - 66	1 to 4	F6_63A
	Change (member 3)	N	1	67 - 67	1 to 5	F6_63C
	Assessment (member 4)	N	1	68 - 68	1 to 4	F6_64A
	Change (member 4)	N	1	69 - 69	1 to 5	F6_64C
	Assessment (member 5)	N	1	70 - 70	1 to 4	F6_65C
	Change (member 5)	N	1	71 - 71	1 to 5	F6_65C
7.	Garbage / solid waste					
	Assessment (member 1)	N	1	72 - 72	1 to 4	F6_71A
	Change (member 1)	N	1	73 - 73	1 to 5	F6_71C
	Assessment (member 2)	N	1	74 - 74	1 to 4	F6_72A
	Change (member 2)	N	1	75 - 75	1 to 5	F6_72C
	Assessment (member 3)	N	1	76 - 76	1 to 4	F6_73A
	Change (member 3)	N	1	77 - 77	1 to 5	F6_73C
	Assessment (member 4)	N	1	78 - 78	1 to 4	F6_74A
	Change (member 4)	N	1	79 - 79	1 to 5	F6_74C
	Assessment (member 5)	N	1	80 - 80	1 to 4	F6_75C
	Change (member 5)	N	1	81 - 81	1 to 5	F6_75C
8.	Vibration					
	Assessment (member 1)	N	1	82 - 82	1 to 4	F6_81A
	Change (member 1)	N	1	83 - 83	1 to 5	F6_81C
	Assessment (member 2)	N	1	84 - 84	1 to 4	F6_82A
	Change (member 2)	N	1	85 - 85	1 to 5	F6_82C
	Assessment (member 3)	N	1	86 - 86	1 to 4	F6_83A
	Change (member 3)	N	1	87 - 87	1 to 5	F6_83C
	Assessment (member 4)	N	1	88 - 88	1 to 4	F6_84A
	Change (member 4)	N	1	89 - 89	1 to 5	F6_84C
	Assessment (member 5)	N	1	90 - 90	1 to 4	F6_85A
	Change (member 5)	N	1	91 - 91	1 to 5	F6_85C
9.	Crime / violence					
	Assessment (member 1)	N	1	92 - 92	1 to 4	F6_91A
	Change (member 1)	N	1	93 - 93	1 to 5	F6_91C
	Assessment (member 2)	N	1	94 - 94	1 to 4	F6_92A

Change (member 2)	N	1	95 - 95	1 to 5		F6_92C
Assessment (member 3)	N	1	96 - 96	1 to 4		F6_93A
Change (member 3)	N	1	97 - 97	1 to 5		F6_93C
Assessment (member 4)	N	1	98 - 98	1 to 4		F6_94A
Change (member 4)	N	1	99 - 99	1 to 5		F6_94C
Assessment (member 5)	N	1	100 - 100	1 to 4		F6_95A
Change (member 5)	N	1	101 - 101	1 to 5		F6_95C
10. Flood						
Assessment (member 1)	N	1	102 - 102	1 to 4		F6_101A
Change (member 1)	N	1	103 - 103	1 to 5		F6_101C
Assessment (member 2)	N	1	104 - 104	1 to 4		F6_102A
Change (member 2)	N	1	105 - 105	1 to 5		F6_102C
Assessment (member 3)	N	1	106 - 106	1 to 4		F6_103A
Change (member 3)	N	1	107 - 107	1 to 5		F6_103C
Assessment (member 4)	N	1	108 - 108	1 to 4		F6_104A
Change (member 4)	N	1	109 - 109	1 to 5		F6_104C
Assessment (member 5)	N	1	110 - 110	1 to 4		F6_105A
Change (member 5)	N	1	111 - 111	1 to 5		F6_105C
11. Others						
Specification	C	18	112 - 129			F6_111
Assessment (member 1)	N	1	130 - 130	1 to 4		F6_111A
Change (member 1)	N	1	131 - 131	1 to 5		F6_112C
Assessment (member 2)	N	1	132 - 132	1 to 4		F6_112A
Change (member 2)	N	1	133 - 133	1 to 5		F6_113C
Assessment (member 3)	N	1	134 - 134	1 to 4		F6_113A
Change (member 3)	N	1	135 - 135	1 to 5		F6_114C
Assessment (member 4)	N	1	136 - 136	1 to 4		F6_114A
Change (member 4)	N	1	137 - 137	1 to 5		F6_115C
Assessment (member 5)	N	1	138 - 138	1 to 4		F6_115A
Change (member 5)	N	1	139 - 139	1 to 5		F6_115C

FORM 6 (2. Living Environment(3) & (4))

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(3)	Necessary measures for living environment					
	A. Roads					
	Answer – 1 (member 1)	N	2	12 - 13	1 to 10	F6_331A
	Answer – 2 (member 1)	N	2	14 - 15	1 to 10	F6_332A
	Answer – 3 (member 1)	N	2	16 - 17	1 to 10	F6_333A
	Answer – 4 (member 1)	N	2	18 - 19	1 to 10	F6_3333A
	B. Other infrastructure and services					
	Answer – 1 (member 1)	N	1	20 - 20	1 to 6	F6_335A
	Answer – 2 (member 1)	N	1	21 - 21	1 to 6	F6_336A
	Answer – 3 (member 1)	N	1	22 - 22	1 to 6	F6_337A
	Answer – 4 (member 1)	N	1	23 - 23	1 to 6	F6_338A
	A. Roads					
	Answer – 1 (member 2)	N	2	24 - 25	1 to 10	F6_331B
	Answer – 2 (member 2)	N	2	26 - 27	1 to 10	F6_332B
	Answer – 3 (member 2)	N	2	28 - 29	1 to 10	F6_333B
	Answer – 4 (member 2)	N	2	30 - 31	1 to 10	F6_3333B
	B. Other infrastructure and services					
	Answer – 1 (member 2)	N	1	32 - 32	1 to 6	F6_335B
	Answer – 2 (member 2)	N	1	33 - 33	1 to 6	F6_336B
	Answer – 3 (member 2)	N	1	34 - 34	1 to 6	F6_337B
	Answer – 4 (member 2)	N	1	35 - 35	1 to 6	F6_338B

	A. Roads						
	Answer – 1 (member 3)	N	2	36 - 37		1 to 10	F6_331C
	Answer – 2 (member 3)	N	2	38 - 39		1 to 10	F6_332C
	Answer – 3 (member 3)	N	2	40 - 41		1 to 10	F6_333C
	Answer – 4 (member 3)	N	2	42 - 43		1 to 10	F6_3333C
	B. Other infrastructure and services						
	Answer – 1 (member 3)	N	1	44 - 44		1 to 6	F6_335C
	Answer – 2 (member 3)	N	1	45 - 45		1 to 6	F6_336C
	Answer – 3 (member 3)	N	1	46 - 46		1 to 6	F6_337C
	Answer – 4 (member 3)	N	1	47 - 47		1 to 6	F6_338C
	A. Roads						
	Answer – 1 (member 4)	N	2	48 - 49		1 to 10	F6_331D
	Answer – 2 (member 4)	N	2	50 - 51		1 to 10	F6_332D
	Answer – 3 (member 4)	N	2	52 - 53		1 to 10	F6_333D
	Answer – 4 (member 4)	N	2	54 - 55		1 to 10	F6_3333D
	B. Other infrastructure and services						
	Answer – 1 (member 4)	N	1	56 - 56		1 to 6	F6_335D
	Answer – 2 (member 4)	N	1	57 - 57		1 to 6	F6_336D
	Answer – 3 (member 4)	N	1	58 - 58		1 to 6	F6_337D
	Answer – 4 (member 4)	N	1	59 - 59		1 to 6	F6_338D
	A. Roads						
	Answer – 1 (member 5)	N	2	60 - 61		1 to 10	F6_331E
	Answer – 2 (member 5)	N	2	62 - 63		1 to 10	F6_332E
	Answer – 3 (member 5)	N	2	64 - 65		1 to 10	F6_333E
	Answer – 4 (member 5)	N	2	66 - 67		1 to 10	F6_3333E
	B. Other infrastructure and services						
	Answer – 1 (member 5)	N	1	68 - 68		1 to 6	F6_335E
	Answer – 2 (member 5)	N	1	69 - 69		1 to 6	F6_336E
	Answer – 3 (member 5)	N	1	70 - 70		1 to 6	F6_337E
	Answer – 4 (member 5)	N	1	71 - 71		1 to 6	F6_338E
	A. Roads						
	Others (member 1)	C	20	72 - 91			F6_331
	Others (member 2)	C	20	92 - 111			F6_332
	Others (member 3)	C	20	112 - 131			F6_333
	Others (member 4)	C	20	132 - 151			F6_334
	Others (member 5)	C	20	132 - 171			F6_335
	B. Other infrastructure and services						
	Others (member 1)	C	20	172 - 191			F6_3881
	Others (member 2)	C	20	192 - 211			F6_3882
	Others (member 3)	C	20	212 - 231			F6_3883
	Others (member 4)	C	20	232 - 251			F6_3884
	Others (member 5)	C	20	252 - 271			F6_3885
(4)	Pay additional tax or free						
	Yes/no (member 1)	N	1	272 - 272		1:yes, 2:no	F6_41
	How much (member 1)	N	9	273 - 281			F6_4441
	Yes/no (member 2)	N	1	282 - 282		1:yes, 2:no	F6_42
	How much (member 2)	N	9	283 - 291			F6_4442
	Yes/no (member 3)	N	1	292 - 292		1:yes, 2:no	F6_43
	How much (member 3)	N	9	293 - 301			F6_4443
	Yes/no (member 4)	N	1	302 - 302		1:yes, 2:no	F6_44
	How much (member 4)	N	9	303 - 311			F6_4444
	Yes/no (member 5)	N	1	312 - 312		1:yes, 2:no	F6_45
	How much (member 5)	N	9	313 - 321			F6_4445

FORM 6 (2. Living Environment (2))

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(2)	Effective measures for traffic condition					
	Others (member 1)	C	20	12 - 31		F6_2211
	Others (member 2)	C	20	32 - 51		F6_2212
	Others (member 3)	C	20	52 - 71		F6_2213
	Others (member 4)	C	20	72 - 91		F6_2214
	Others (member 5)	C	20	92 - 111		F6_2215
	Answer – 1 (member 1)	N	2	112 - 113	1 to 11	F6_221A
	Answer – 1 (member 2)	N	2	114 - 115	1 to 11	F6_221B
	Answer – 1 (member 3)	N	2	116 - 117	1 to 11	F6_221C
	Answer – 1 (member 4)	N	2	118 - 119	1 to 11	F6_221D
	Answer – 1 (member 5)	N	2	120 - 121	1 to 11	F6_221E
	Answer – 2 (member 1)	N	2	122 - 123	1 to 11	F6_222A
	Answer – 2 (member 2)	N	2	124 - 125	1 to 11	F6_222B
	Answer – 2 (member 3)	N	2	126 - 127	1 to 11	F6_222C
	Answer – 2 (member 4)	N	2	128 - 129	1 to 11	F6_222D
	Answer – 2 (member 5)	N	2	130 - 131	1 to 11	F6_222E
	Answer – 2 (member 1)	N	2	132 - 133	1 to 11	F6_223A
	Answer – 3 (member 2)	N	2	134 - 135	1 to 11	F6_223B
	Answer – 3 (member 3)	N	2	136 - 137	1 to 11	F6_223C
	Answer – 3 (member 4)	N	2	138 - 139	1 to 11	F6_223D
	Answer – 3 (member 5)	N	2	140 - 141	1 to 11	F6_223E
	Answer – 4 (member 1)	N	2	142 - 143	1 to 11	F6_224A
	Answer – 4 (member 2)	N	2	144 - 145	1 to 11	F6_224B
	Answer – 4 (member 3)	N		146 - 147	1 to 11	F6_224C
	Answer – 4 (member 4)	N		148 - 149	1 to 11	F6_224D
	Answer – 4 (member 5)	N		150 - 151	1 to 11	F6_224E

FORM 6 (3. Public Transportation Service – Bus & Jeepney)

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household member	N	2	10 - 11	1 to 20	NHHMS
(1)	Assess public transportation					
	1. Bus					
	1) Coverage of network (member 1)	C	1	12 - 12	G,N,B,D	F6_B11
	1) Coverage of network (member 2)	C	1	13 - 13	G,N,B,D	F6_B12
	1) Coverage of network (member 3)	C	1	14 - 14	G,N,B,D	F6_B13
	1) Coverage of network (member 4)	C	1	15 - 15	G,N,B,D	F6_B14
	1) Coverage of network (member 5)	C	1	16 - 16	G,N,B,D	F6_B15
	2) Access to bus stop (member 1)	C	1	17 - 17	G,N,B,D	F6_B21
	2) Access to bus stop (member 2)	C	1	18 - 18	G,N,B,D	F6_B22
	2) Access to bus stop (member 3)	C	1	19 - 19	G,N,B,D	F6_B23
	2) Access to bus stop (member 4)	C	1	20 - 20	G,N,B,D	F6_B24
	2) Access to bus stop (member 5)	C	1	21 - 21	G,N,B,D	F6_B25
	3) Waiting condition (member 1)	C	1	22 - 22	G,N,B,D	F6_B31
	3) Waiting condition (member 2)	C	1	23 - 23	G,N,B,D	F6_B32
	3) Waiting condition (member 3)	C	1	24 - 24	G,N,B,D	F6_B33
	3) Waiting condition (member 4)	C	1	25 - 25	G,N,B,D	F6_B34
	3) Waiting condition (member 5)	C	1	26 - 26	G,N,B,D	F6_B35
	4) Loading/unloading (member 1)	C	1	27 - 27	G,N,B,D	F6_B41
	4) Loading/unloading (member 2)	C	1	28 - 28	G,N,B,D	F6_B42
	4) Loading/unloading (member 3)	C	1	29 - 29	G,N,B,D	F6_B43
	4) Loading/unloading (member 4)	C	1	30 - 30	G,N,B,D	F6_B44
	4) Loading/unloading (member 5)	C	1	31 - 31	G,N,B,D	F6_B45

5)	Riding comfort (member 1)	C	1	32	- 32	G,N,B,D	F6_B51
5)	Riding comfort (member 2)	C	1	33	- 33	G,N,B,D	F6_B52
5)	Riding comfort (member 3)	C	1	34	- 34	G,N,B,D	F6_B53
5)	Riding comfort (member 4)	C	1	35	- 35	G,N,B,D	F6_B54
5)	Riding comfort (member 5)	C	1	36	- 36	G,N,B,D	F6_B55
6)	Travel speed (member 1)	C	1	37	- 37	G,N,B,D	F6_B61
6)	Travel speed (member 2)	C	1	38	- 38	G,N,B,D	F6_B62
6)	Travel speed (member 3)	C	1	39	- 39	G,N,B,D	F6_B63
6)	Travel speed (member 4)	C	1	40	- 40	G,N,B,D	F6_B64
6)	Travel speed (member 5)	C	1	41	- 41	G,N,B,D	F6_B65
7)	Driving attitude (member 1)	C	1	42	- 42	G,N,B,D	F6_B71
7)	Driving attitude (member 2)	C	1	43	- 43	G,N,B,D	F6_B72
7)	Driving attitude (member 3)	C	1	44	- 44	G,N,B,D	F6_B73
7)	Driving attitude (member 4)	C	1	45	- 45	G,N,B,D	F6_B74
7)	Driving attitude (member 5)	C	1	46	- 46	G,N,B,D	F6_B75
8)	Fare level (member 1)	C	1	47	- 47	G,N,B,D	F6_B81
8)	Fare level (member 2)	C	1	48	- 48	G,N,B,D	F6_B82
8)	Fare level (member 3)	C	1	49	- 49	G,N,B,D	F6_B83
8)	Fare level (member 4)	C	1	50	- 50	G,N,B,D	F6_B84
8)	Fare level (member 5)	C	1	51	- 51	G,N,B,D	F6_B85
2.	Jeepney						
1)	Coverage of network (member 1)	C	1	52	- 52	G,N,B,D	F6_J11
1)	Coverage of network (member 2)	C	1	53	- 53	G,N,B,D	F6_J12
1)	Coverage of network (member 3)	C	1	54	- 54	G,N,B,D	F6_J13
1)	Coverage of network (member 4)	C	1	55	- 55	G,N,B,D	F6_J14
1)	Coverage of network (member 5)	C	1	56	- 56	G,N,B,D	F6_J15
2)	Access to bus stop (member 1)	C	1	57	- 57	G,N,B,D	F6_J21
2)	Access to bus stop (member 2)	C	1	58	- 58	G,N,B,D	F6_J22
2)	Access to bus stop (member 3)	C	1	59	- 59	G,N,B,D	F6_J23
2)	Access to bus stop (member 4)	C	1	60	- 60	G,N,B,D	F6_J24
2)	Access to bus stop (member 5)	C	1	61	- 61	G,N,B,D	F6_J25
4)	Waiting condition (member 1)	C	1	62	- 62	G,N,B,D	F6_J31
3)	Waiting condition (member 2)	C	1	63	- 63	G,N,B,D	F6_J32
3)	Waiting condition (member 3)	C	1	64	- 64	G,N,B,D	F6_J33
3)	Waiting condition (member 4)	C	1	65	- 65	G,N,B,D	F6_J34
3)	Waiting condition (member 5)	C	1	66	- 66	G,N,B,D	F6_J35
4)	Loading/unloading (member 1)	C	1	67	- 67	G,N,B,D	F6_J41
4)	Loading/unloading (member 2)	C	1	68	- 68	G,N,B,D	F6_J42
4)	Loading/unloading (member 3)	C	1	69	- 69	G,N,B,D	F6_J43
4)	Loading/unloading (member 4)	C	1	70	- 70	G,N,B,D	F6_J44
4)	Loading/unloading (member 5)	C	1	71	- 71	G,N,B,D	F6_J45
5)	Riding comfort (member 1)	C	1	72	- 72	G,N,B,D	F6_J51
5)	Riding comfort (member 2)	C	1	73	- 73	G,N,B,D	F6_J52
5)	Riding comfort (member 3)	C	1	74	- 74	G,N,B,D	F6_J53
5)	Riding comfort (member 4)	C	1	75	- 75	G,N,B,D	F6_J54
5)	Riding comfort (member 5)	C	1	76	- 76	G,N,B,D	F6_J55
6)	Travel speed (member 1)	C	1	77	- 77	G,N,B,D	F6_J61
6)	Travel speed (member 2)	C	1	78	- 78	G,N,B,D	F6_J62
6)	Travel speed (member 3)	C	1	79	- 79	G,N,B,D	F6_J63
6)	Travel speed (member 4)	C	1	80	- 80	G,N,B,D	F6_J64
6)	Travel speed (member 5)	C	1	81	- 81	G,N,B,D	F6_J65
7)	Driving attitude (member 1)	C	1	82	- 82	G,N,B,D	F6_J71
7)	Driving attitude (member 2)	C	1	83	- 83	G,N,B,D	F6_J72
7)	Driving attitude (member 3)	C	1	84	- 84	G,N,B,D	F6_J73
7)	Driving attitude (member 4)	C	1	85	- 85	G,N,B,D	F6_J74
7)	Driving attitude (member 5)	C	1	86	- 86	G,N,B,D	F6_J75
8)	Fare level (member 1)	C	1	87	- 87	G,N,B,D	F6_J81
8)	Fare level (member 2)	C	1	88	- 88	G,N,B,D	F6_J82
8)	Fare level (member 3)	C	1	89	- 89	G,N,B,D	F6_J83
8)	Fare level (member 4)	C	1	90	- 90	G,N,B,D	F6_J84

8)	Fare level (member 5)	C	1	91 - 91	G,N,B,D	F6_J85

FORM 6 (3. Public Transportation Service – PNR & LRT)

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household member	N	2	10 - 11	1 to 20	NHHMS
(1)	Assess public transportation					
	3. PRN					
1)	Coverage of network (member 1)	C	1	12 - 12	G,N,B,D	F6_P11
1)	Coverage of network (member 2)	C	1	13 - 13	G,N,B,D	F6_P12
1)	Coverage of network (member 3)	C	1	14 - 14	G,N,B,D	F6_P13
1)	Coverage of network (member 4)	C	1	15 - 15	G,N,B,D	F6_P14
1)	Coverage of network (member 5)	C	1	16 - 16	G,N,B,D	F6_P15
2)	Access to bus stop (member 1)	C	1	17 - 17	G,N,B,D	F6_P21
2)	Access to bus stop (member 2)	C	1	18 - 18	G,N,B,D	F6_P22
2)	Access to bus stop (member 3)	C	1	19 - 19	G,N,B,D	F6_P23
2)	Access to bus stop (member 4)	C	1	20 - 20	G,N,B,D	F6_P24
2)	Access to bus stop (member 5)	C	1	21 - 21	G,N,B,D	F6_P25
5)	Waiting condition (member 1)	C	1	22 - 22	G,N,B,D	F6_P31
3)	Waiting condition (member 2)	C	1	23 - 23	G,N,B,D	F6_P32
3)	Waiting condition (member 3)	C	1	24 - 24	G,N,B,D	F6_P33
3)	Waiting condition (member 4)	C	1	25 - 25	G,N,B,D	F6_P34
3)	Waiting condition (member 5)	C	1	26 - 26	G,N,B,D	F6_P35
4)	Loading/unloading (member 1)	C	1	27 - 27	G,N,B,D	F6_P41
4)	Loading/unloading (member 2)	C	1	28 - 28	G,N,B,D	F6_P42
4)	Loading/unloading (member 3)	C	1	29 - 29	G,N,B,D	F6_P43
4)	Loading/unloading (member 4)	C	1	30 - 30	G,N,B,D	F6_P44
4)	Loading/unloading (member 5)	C	1	31 - 31	G,N,B,D	F6_P45
5)	Riding comfort (member 1)	C	1	32 - 32	G,N,B,D	F6_P51
5)	Riding comfort (member 2)	C	1	33 - 33	G,N,B,D	F6_P52
5)	Riding comfort (member 3)	C	1	34 - 34	G,N,B,D	F6_P53
5)	Riding comfort (member 4)	C	1	35 - 35	G,N,B,D	F6_P54
5)	Riding comfort (member 5)	C	1	36 - 36	G,N,B,D	F6_P55
6)	Travel speed (member 1)	C	1	37 - 37	G,N,B,D	F6_P61
6)	Travel speed (member 2)	C	1	38 - 38	G,N,B,D	F6_P62
6)	Travel speed (member 3)	C	1	39 - 39	G,N,B,D	F6_P63
6)	Travel speed (member 4)	C	1	40 - 40	G,N,B,D	F6_P64
6)	Travel speed (member 5)	C	1	41 - 41	G,N,B,D	F6_P65
7)	Driving attitude (member 1)	C	1	42 - 42	G,N,B,D	F6_P71
7)	Driving attitude (member 2)	C	1	43 - 43	G,N,B,D	F6_P72
7)	Driving attitude (member 3)	C	1	44 - 44	G,N,B,D	F6_P73
7)	Driving attitude (member 4)	C	1	45 - 45	G,N,B,D	F6_P74
7)	Driving attitude (member 5)	C	1	46 - 46	G,N,B,D	F6_P75
8)	Fare level (member 1)	C	1	47 - 47	G,N,B,D	F6_P81
8)	Fare level (member 2)	C	1	48 - 48	G,N,B,D	F6_P82
8)	Fare level (member 3)	C	1	49 - 49	G,N,B,D	F6_P83
8)	Fare level (member 4)	C	1	50 - 50	G,N,B,D	F6_P84
8)	Fare level (member 5)	C	1	51 - 51	G,N,B,D	F6_P85
	4. LRT					
1)	Coverage of network (member 1)	C	1	52 - 52	G,N,B,D	F6_L11
1)	Coverage of network (member 2)	C	1	53 - 53	G,N,B,D	F6_L12
1)	Coverage of network (member 3)	C	1	54 - 54	G,N,B,D	F6_L13
1)	Coverage of network (member 4)	C	1	55 - 55	G,N,B,D	F6_L14
1)	Coverage of network (member 5)	C	1	56 - 56	G,N,B,D	F6_L15
2)	Access to bus stop (member 1)	C	1	57 - 57	G,N,B,D	F6_L21
2)	Access to bus stop (member 2)	C	1	58 - 58	G,N,B,D	F6_L22
2)	Access to bus stop (member 3)	C	1	59 - 59	G,N,B,D	F6_L23
2)	Access to bus stop (member 4)	C	1	60 - 60	G,N,B,D	F6_L24
2)	Access to bus stop (member 5)	C	1	61 - 61	G,N,B,D	F6_L25

6)	Waiting condition (member 1)	C	1	62 - 62	G,N,B,D	F6_L31
3)	Waiting condition (member 2)	C	1	63 - 63	G,N,B,D	F6_L32
3)	Waiting condition (member 3)	C	1	64 - 64	G,N,B,D	F6_L33
3)	Waiting condition (member 4)	C	1	65 - 65	G,N,B,D	F6_L34
3)	Waiting condition (member 5)	C	1	66 - 66	G,N,B,D	F6_L35
4)	Loading/unloading (member 1)	C	1	67 - 67	G,N,B,D	F6_L41
4)	Loading/unloading (member 2)	C	1	68 - 68	G,N,B,D	F6_L42
4)	Loading/unloading (member 3)	C	1	69 - 69	G,N,B,D	F6_L43
4)	Loading/unloading (member 4)	C	1	70 - 70	G,N,B,D	F6_L44
4)	Loading/unloading (member 5)	C	1	71 - 71	G,N,B,D	F6_L45
5)	Riding comfort (member 1)	C	1	72 - 72	G,N,B,D	F6_L51
5)	Riding comfort (member 2)	C	1	73 - 73	G,N,B,D	F6_L52
5)	Riding comfort (member 3)	C	1	74 - 74	G,N,B,D	F6_L53
5)	Riding comfort (member 4)	C	1	75 - 75	G,N,B,D	F6_L54
5)	Riding comfort (member 5)	C	1	76 - 76	G,N,B,D	F6_L55
6)	Travel speed (member 1)	C	1	77 - 77	G,N,B,D	F6_L61
6)	Travel speed (member 2)	C	1	78 - 78	G,N,B,D	F6_L62
6)	Travel speed (member 3)	C	1	79 - 79	G,N,B,D	F6_L63
6)	Travel speed (member 4)	C	1	80 - 80	G,N,B,D	F6_L64
6)	Travel speed (member 5)	C	1	81 - 81	G,N,B,D	F6_L65
7)	Driving attitude (member 1)	C	1	82 - 82	G,N,B,D	F6_L71
7)	Driving attitude (member 2)	C	1	83 - 83	G,N,B,D	F6_L72
7)	Driving attitude (member 3)	C	1	84 - 84	G,N,B,D	F6_L73
7)	Driving attitude (member 4)	C	1	85 - 85	G,N,B,D	F6_L74
7)	Driving attitude (member 5)	C	1	86 - 86	G,N,B,D	F6_L75
8)	Fare level (member 1)	C	1	87 - 87	G,N,B,D	F6_L81
8)	Fare level (member 2)	C	1	88 - 88	G,N,B,D	F6_L82
8)	Fare level (member 3)	C	1	89 - 89	G,N,B,D	F6_L83
8)	Fare level (member 4)	C	1	90 - 90	G,N,B,D	F6_L84
8)	Fare level (member 5)	C	1	91 - 91	G,N,B,D	F6_L85

FORM 6 (3. Public Transportation Service – Taxi & (2))

No.	Item	Type	Length	Column	Answer	Var
ID	HIS zone number	N	3	1 - 3		HZONOS
ID	Household number	N	6	4 - 9		HHNOS
ID	No. of household members	N	2	10 - 11	1 to 20	NHHMS
(1)	Assess public transportation					
	5. Taxi					
	1) Availability (member 1)	C	1	12 - 12	G,N,B,D	F6_T11
	1) Availability (member 2)	C	1	13 - 13	G,N,B,D	F6_T12
	1) Availability (member 3)	C	1	14 - 14	G,N,B,D	F6_T13
	1) Availability (member 4)	C	1	15 - 15	G,N,B,D	F6_T14
	1) Availability (member 5)	C	1	16 - 16	G,N,B,D	F6_T15
	2) Riding comfort (member 1)	C	1	17 - 17	G,N,B,D	F6_T21
	2) Riding comfort (member 2)	C	1	18 - 18	G,N,B,D	F6_T22
	2) Riding comfort (member 3)	C	1	19 - 19	G,N,B,D	F6_T23
	2) Riding comfort (member 4)	C	1	20 - 20	G,N,B,D	F6_T24
	2) Riding comfort (member 5)	C	1	21 - 21	G,N,B,D	F6_T25
	3) Fare level (member 1)	C	1	22 - 22	G,N,B,D	F6_T31
	3) Fare level (member 2)	C	1	23 - 23	G,N,B,D	F6_T32
	3) Fare level (member 3)	C	1	24 - 24	G,N,B,D	F6_T33
	3) Fare level (member 4)	C	1	25 - 25	G,N,B,D	F6_T34
	3) Fare level (member 5)	C	1	26 - 26	G,N,B,D	F6_T35
	4) Drivers attitude (member 1)	C	1	27 - 27	G,N,B,D	F6_T41
	4) Drivers attitude (member 2)	C	1	28 - 28	G,N,B,D	F6_T42
	4) Drivers attitude (member 3)	C	1	29 - 29	G,N,B,D	F6_T43
	4) Drivers attitude (member 4)	C	1	30 - 30	G,N,B,D	F6_T44
	4) Drivers attitude (member 5)	C	1	31 - 31	G,N,B,D	F6_T45
(2)	Effectiveness/needed public transportation					

1st choice (member 1)	N	2	32 - 33	G,N,B,D	F6_3211
1st choice (member 2)	N	2	34 - 35	G,N,B,D	F6_3212
1st choice (member 3)	N	2	36 - 37	G,N,B,D	F6_3213
1st choice (member 4)	N	2	38 - 39	G,N,B,D	F6_3214
1st choice (member 5)	N	2	40 - 41	G,N,B,D	F6_3215
2nd choice (member 1)	N	2	42 - 43	G,N,B,D	F6_3221
2nd choice (member 2)	N	2	44 - 45	G,N,B,D	F6_3222
2nd choice (member 3)	N	2	46 - 47	G,N,B,D	F6_3223
2nd choice (member 4)	N	2	48 - 49	G,N,B,D	F6_3224
2nd choice (member 5)	N	2	50 - 51	G,N,B,D	F6_3225
3rdchoice (member 1)	N	2	52 - 53	G,N,B,D	F6_3231
3rdchoice (member 2)	N	2	54 - 55	G,N,B,D	F6_3232
3rdchoice (member 3)	N	2	56 - 57	G,N,B,D	F6_3233
3rdchoice (member 4)	N	2	58 - 59	G,N,B,D	F6_3234
3rdchoice (member 5)	N	2	60 - 61	G,N,B,D	F6_3235
Others (member 1)	N	10	62 - 71	G,N,B,D	F6_1111
Others (member 2)	N	10	72 - 81	G,N,B,D	F6_2222
Others (member 3)	N	10	82 - 91	G,N,B,D	F6_3333
Others (member 4)	N	10	92 - 101	G,N,B,D	F6_4444
Others (member 5)	N	10	102 - 111	G,N,B,D	F6_5555

(refer to Annex B,p.B-20 & p.B-1 for Zoning System)

A. **Socio-Economy**

1. Population
2. Employment
3. Student
4. Income
5. Car Ownership
6. Others

B. **Land Use**

1. Land Use Map
2. Land Use Data

Zone	Total	110	120	130	140	150	155	160	170	180	190	200
1	104.46	44.1	14.26	1.47	0.68	1.9	0.31	1.2	0	0.67	2.85	0
2	103.53	66.29	3.67	1.02	0.55	5.51	0.13	0.24	0.09	1.14	0.29	0
3	84.03	39.67	1.36	13.49	5.77	2.65	0	0.55	0	0.28	0.42	0
4	108.11	50375	4.37	6.36	0	1.81	0	2.01	0	0.61	15.19	0
5	159.04	82.11	9.27	12.49	0.02	5.82	0	0.07	0.21	0.76	5.07	0

(Refer to Annex B, p.B-1)

C. Road and Traffic

1. Road Inventory
2. Subdivision Road Inventory

SUBDIVISION ROAD INVENTORY SURVEY

Subdivision Operational Information

Subdivision Name	No. of Gate/s	Position	Time		Other Operational Information		
			Open	Close	I.D/Pass	Fee/s	Vehicle/s Entry
Commonwealth Hobart	1	Zuzuraregui St.	6:00 a.m	9:00 p.m	not required	₱200-250	all types of vehicles
Homes			For non-residents/deliveries		for visitors	for deliveries	except 10 wheelers

Road Information

Code No.	Road Name	No.	Road Section Name	Total Length (m)	Section Length (m)	Road Width		Side Walk (m)		Median Strip (m)	Pavement Condition					Parking Condition		Obstalces	
						No. of Lanes	Carriage -way(m)	Right	Left		Type	Crack	Pothole	Patch-work	Others	On-Road Parking	Sidewalk Parking	No. of Humps	Others
1	Times	1.1	West 6th	1300	100	2	7.4	.75	.75	0	1					C2		1	
		1.2	West 4th		300	2	7.4	.75	.75	0	1					C2		1	
		1.3	Examiner		350	2	7.4	.75	.75	0	1					C2		1	
		1.4	Dalisay Gate		100	2	7.4	.75	.75	0	1					C2		1	
		1.5	Masaya		100	2	7.4	.75	.75	0	1					C2		1	
		1.6	Bohol Ave.		100	2	7.4	.75	.75	0	1					C2		1	
		1.7	Bayanihan Taliba		50	2	7.4	.75	.75	0	1					C2		1	
		1.8	Bayanihan Gate		100	2	7.4	.75	.75	0	1					C2		1	
		1.9	EDSA		100	2	7.4	.75	.75	0	1					C2		1	

(Refer to Annex B,p.B-7)

3. Traffic

3.1 Traffic Volume
3.2 Truck Traffic

Sheet 1: Port

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
MP01A 1	Unprocessed	0	0	0	0	0	0	0	0	0	0
MP01A 2	Agriculture	0	0	0	0	0	0	0	0	0	0
MP01A 3	Agriculture	0	0	0	0	0	0	0	0	0	0
MP01A 4	Processed	0	0	0	0	0	0	0	0	0	0
MP01A 5	Processed	492	0	0	915	0	1,500	0	0	0	2,907

Sheet 2: Cordon

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
CH04A 1	Unprocessed	0	0	147	0	0	0	0	0	0	147
CH04A 2	Agriculture	0	0	0	0	0	0	0	0	0	0
CH04A 3	Agriculture	0	21	385	600	0	0	0	0	0	1,006
CH04A 4	Processed	0	12	0	0	0	0	0	0	0	12
CH04A 5	Processed	0	36	450	0	0	0	0	0	0	486

Sheet 3: Tcom

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
CH04A 1	Unprocessed	0	0	147	0	0	0	0	0	0	147
CH04A 2	Agriculture	0	0	0	0	0	0	0	0	0	0
CH04A 3	Agriculture	0	21	385	600	0	0	0	0	0	1,006
CH04A 4	Processed	0	12	0	0	0	0	0	0	0	12
CH04A 5	Processed	0	36	450	0	0	0	0	0	0	486

Sheet 1: Port

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
MP01A 1	Unprocessed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP01A 2	Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP01A 3	Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP01A 4	Processed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP01A 5	Processed	6.0	0.0	0.0	101.7	0.0	300.0	0.0	0.0	0.0	30.3

Sheet 2: Cordon

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
MP01A 1	Unprocessed	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
MP01A 2	Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP01A 3	Agriculture	0.0	7.0	20.3	30.0	0.0	0.0	0.0	0.0	0.0	24.0
MP01A 4	Processed	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
MP01A 5	Processed	0.0	6.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7

Sheet 1: Tcom

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
CH04A 1	Unprocessed	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
CH04A 2	Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CH04A 3	Agriculture	0.0	7.0	20.3	30.0	0.0	0.0	0.0	0.0	0.0	24.0
CH04A 4	Processed	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
CH04A 5	Processed	0.0	6.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
CH04A 1	Dry	0	0	0	0	0	0	0	0	0	0
CH04A 2	Reefer	0	0	0	0	0	0	0	0	0	0
CH04A 3	Others	0	0	0	0	0	0	0	0	0	0
CH04A 4	Total	0	0	0	0	0	0	0	0	0	0

ZONE C	ITEM	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	TOTAL
CH04A 1	20 feet	0	0	0	0	0	0	0	0	0	0
CH04A 2	40 feet	0	0	0	0	0	0	0	0	0	0
CH04A 3	Others	0	0	0	0	0	0	0	0	0	0
CH04A 4	Total	0	0	0	0	0	0	0	0	0	0

(Refer to Annex B, p.B-7)

Sheet 1:

CEv: Vehicle	DD							
00	1	2	3	4	5	8	12	CEv
1	0	0	0	0	0	0	103	103
2	0	0	0	0	0	103	65	168
3	0	0	0	0	0	28	104	132
5	0	0	0	0	0	66	0	66
8	18	18	0	14	28	0	0	78
12	0	0	17	14	0	0	0	31
CEv	18	18	17	28	28	197	272	578

					Total	North
From MM	18	18	17	28	28	109
	16.5	16.5	15.6	25.7	25.7	100.0
To MM	103	168	132	0	66	469
	22.0	35.8	28.1	0.0	14.1	100.0
From/To MM	121	186	149	28	94	578
	20.9	32.2	25.8	4.8	16.3	100.0

Sheet 1:

CEv: Vehicle	DD						
00	1	6	8	9	10	12	CEv
1	0	0	15	424	212	0	651
3	0	0	0	14	0	0	14
6	0	26	0	0	18	0	44
7	0	0	0	0	18	0	18
9	47	0	0	18	0	12	77
10	0	14	0	0	0	0	14

Mode	Vehicles		Station	O	D	OO	DD	Mode	Vehicles
14	1	South	CH12	280	2	9	1	14	6
14	26		CH12	280	55	9	1	14	6

Sheet 1:

CEv: Vehicle	DD					
00	1	2	5	6	11	CEv
1	0	0	35	0	58	93
2	0	2	0	0	0	2
5	0	0	0	0	2	2
11	2	0	0	36	0	38
CEv	2	2	35	36	60	135

MMZone 1 2 5 6

From MM	2	0	0	36	38
	5.3	0.0	0.0	94.7	100.0
To MM	58	0	2	0	60
	96.7	0.0	3.3	0.0	100.0
From/To MM	60	0	2	36	98
	61.2	0.0	2.0	36.7	100.

MMZone 1 2 5 6 7

From MM	47	14	0	0	61
	77.0	23.0	0.0	0.0	100.0
To MM	636	18	14	18	686
	92.7	2.6	2.0	2.6	100.0
From/To MM	683	32	14	18	747
	91.4	4.3	1.9	2.4	100.0

Sheet 5: Tod _cordon

Station	O	D	Mode	Vehicles
CH04	186	262	13	6
CH04	186	352	13	3
CH04	186	261	13	6
CH04	186	186	13	6
CH04	186	386	13	3

Sheet 1: Trailer OD

South	ƒf [ƒ^, Ī ŒÄ “:Vehicles	12	9	12	5	15	8	4	4	14	2	0	17	1	17	18	138
	‡Œv: Vehicles	58	44	48	26	73	36	24	26	79	28	0	59	2	115	41	659
‘S’ Ī,Ī ƒf [ƒ^, Ī ŒÄ “:Vehicles		134	81	73	30	69	54	12	32	38	42	13	129	27	243	303	1280
‘S’ Ī,Ī ‡Œv: Vehicles		172	306	236	134	264	217	107	321	153	195	45	493	323	2037	746	6299

							MM Total	
From MP	566	129	145	57	125	111	97	1230
	46.0	10.5	11.8	4.6	10.2	9.0	7.9	100
To MP	829	327	249	43	127	80	148	1803
	46.0	18.1	13.8	2.4	7.0	4.4	8.2	100
From/To MP	1395	456	394	100	252	191	245	3033
	46.0	15.0	13.0	3.3	3.3	6.3	8.1	100

Sheet 2: Trailer

Station	O	D	OO	DD	Mode	Vehicles
MP13	10	1	1	1	14	2
MP02	11	1	1	1	14	9
MP13	10	2	1	1	14	3
MP06	4	4	1	1	14	7

Sheet 3: Truck OD

Station	O	D	Mode	Vehicles
MP01	25	55	12	82
MP01	114	55	12	83
MP01	156	10	12	108

Sheet 1: Cordon

CH04			JVPW	L. Cargo	2 Axle	3 Axle	Dump Truck	Cont. Truck	Head Truck	T. Lorry	Mixer
Outbound	6:00	7:00	3	2	9	0	2	0	0	0	0
	7:00	8:00	5	7	9	1	1	0	0	0	0
	8:00	9:00	2	11	6	0	2	1	0	0	0
	9:00	10:00	3	10	26	3	2	1	0	0	0

Sheet 2: Port

MP01			JVPW	L. Cargo	2 Axle	3 Axle	Dump Truck	Cont. Truck	Head Truck	T. Lorry	Mixer
Inbound	6:00	7:00	14	0	0	0	8	3	2	0	0
	7:00	8:00	7	0	4	0	9	1	0	0	0
	8:00	9:00	14	1	0	6	17	5	1	1	0
	9:00	10:00	13	0	0	2	15	6	0	0	0

Sheet 4: Cordon Survey

	CH04	CH05	EX01	CH08	CH09	CH12	EX12
7:00	1063	837	4151	1040	1869	4449	5725
8:00	1262	787	4610	1545	2341	3979	4888
9:00	1195	892	4578	1652	2097	2978	4273
10:00	1157	750	4256	1439	2105	2668	4387

(Refer to Annex B, p.B-7)

3.3 Travel Speed

Appendix 2 Summary of Travel Speed Survey by Section 1996 (1.26)

Route Name	Direction		Length (m)	No. of Samples				Ave. Travel Speed (km/h)				No. of stops (Times/km)				Ration Of Stopping Time (%)			
	To	From		AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
Aurora Blvd. (Part I)	Katipunan	J.P Rizal	580	4	9	7	20	16.6	23.2	23.5	21.6	2.2	1.4	1.6	1.6	31.5	17.1	20.3	21.1
	J.P Rizal	F.Castillo	330	4	9	7	20	16.5	8.8	7.8	9.2	1.5	5.8	6.1	5.0	8.4	56.9	43.3	42.4
	F. Castillo	Anonas	330	4	9	7	20	8.9	4.9	8.9	4.9	5.5	8.2	7.0	7.2	50.2	69.8	75.6	67.9
	Anonas`	20th Ave.	270	4	9	7	20	9.3	14.6	5.0	8.2	3.7	1.1	6.3	3.4	36.9	10.9	56.5	32.1

Table 4.2.1 Summary of Travel Speed Survey by Route, 1996

Route Name	Section		Length (m)	No. of Samples				Ave. Travel Speed (km/h)				No. of stops (Times/km)				Ration Of Stopping Time (%)			
	To	From		AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
Aurora Blvd. Part I	Katipunan	E. Rodriguez	2970	4	9	7	20	10.5	10.8	6.0	8.4	3.8	3.6	5.1	4.2	44.8	49.5	64.0	53.6
	E. Rodrigues	Katipunan	2790	4	9	5	18	12.2	7.1	10.1	8.6	2.8	5.1	3.8	4.2	40.2	53.5	53.8	50.6
Aurora Blvd. Part 2	Nagtahan	E. Rodriguez	3840	6	6	5	17	9.1	8.6	6.9	8.2	3.5	3.5	4.2	3.7	39.1	37.2	50.8	41.9
	E. Rodriguez	Nagtahan	3840	6	6	6	18	9.3	9.2	7.4	8.5	3.2	2.8	4.2	3.4	41.6	33.7	43.1	39.5
Ayala Blvd.	Mendiola	P.Burgos	2590	9	8	8	25	13.6	10.9	11.4	11.9	2.6	3.4	2.8	2.9	36.5	45.5	41.0	40.8
	P.Burgos	Mendiola	2590	9	8	8	25	16.4	12.8	11.9	13.5	2.0	2.0	2.1	2.0	38.6	35.7	46.8	40.3

Appendix 2 Summary of Travel Speed Survey by Section 1996 (1.26)

Route Name	Section		Length (m)	No. of Samples				Ave. Travel Speed (km/h)				No. of stops (Times/km)				Ration Of Stopping Time (%)			
	To	From		AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
Aurora Blvd. Part I	Katipunan	J.P Rizal	580	4	9	7	20	16.6	23.2	23.5	21.6	2.2	1.4	1.6	1.6	31.5	17.1	20.3	21.1
	J.P Rizal	F. Castillo	330	4	9	7	20	16.5	8.8	7.8	9.2	1.5	5.8	6.1	5.0	8.4	56.9	43.3	42.4
Aurora Blvd. Part 2	F. Castillo	Anonas	330	4	9	7	20	8.9	4.9	3.9	4.9	5.5	8.2	7.0	7.2	50.2	69.8	75.6	67.9
	Anonans	20th Ave.	270	4	9	7	20	9.3	14.6	5.0	8.2	3.7	1.1	6.3	3.4	36.9	10.9	56.5	32.1
Aurora Blvd. (Part I)	20th Ave.	15th Ave.	430	4	9	7	20	10.4	19.3	4.6	8.4	3.5	2.1	5.6	3.6	5.6	31.0	68.4	44.5
	15th Ave.	Gen. Romulo	230	4	9	7	20	6.3	11.9	3.3	5.7	8.7	5.2	8.7	7.1	71.7	47.3	75.7	62.1

Appendix 4.8 Summary of Delay Cause (BP: Bus Loading/Unloading) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.11 Summary of Delay Cause (DP: Double Parking) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.4 Summary of Delay Cause (T: General Congestion) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	0.3	0.1	0.1	0.2	0.4	0.2	0.2	0.3	1.5	0.7	0.6	0.9	1.2	0.7	0.6	0.8
	J.P Rizal	F. Castillo	330	-	1.1	1.3	0.8	-	3.4	3.9	2.4	-	32.2	43.4	25.2	-	23.9	28.4	17.4
	F. Castillo	Anonas	330	0.8	1.7	1.1	1.2	2.3	5.1	3.5	3.6	36.0	82.6	81.7	66.8	27.0	33.8	26.9	29.2
	Anonans	20th Ave.	270	0.5	0.1	1.1	0.6	1.9	0.4	4.2	2.2	14.0	1.7	68.3	28.0	13.4	2.5	35.3	17.1
Aurora Blvd.	20th Ave.	15th Ave.	430	0.8	-	1.4	0.7	1.7	-	3.3	1.7	23.5	-	116.4	46.6	15.8	-	34.3	16.7
(Part I)	15th Ave.	Gen. Romulo	230	0.8	0.1	1.1	0.7	3.3	0.5	5.0	2.9	31.8	0.4	78.3	36.8	24.1	0.6	31.2	18.6

Appendix 4.9 Summary of Delay Cause (JP: Jeepney Loading/Unloading) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	0.3	-	-	0.1	0.4	-	-	0.1	21.0	-	-	7.0	16.7	-	-	5.6
	J.P Rizal	F. Castillo	330	-	-	0.1	0.0	-	-	0.4	0.1	-	-	0.6	0.2	-	-	0.4	0.1
	F. Castillo	Anonas	330	0.3	0.2	0.1	0.2	0.8	0.7	0.4	0.6	0.8	2.0	2.1	1.6	0.6	0.8	0.7	0.7
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	0.1	-	0.0	-	0.3	-	0.1	-	0.7	-	0.2	-	0.8	-	0.3
(Part I)	15th Ave.	Gen. Romulo	230	0.3	0.1	-	0.1	1.1	0.5	-	0.5	1.0	0.7	-	0.6	0.8	1.0	-	0.6

Appendix 4.5 Summary of Delay Cause (LT: Left Turns) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	0.1	0.1	0.1	-	0.2	0.2	-	0.7	0.6	0.4	0.4	-	0.7	0.6	0.4
	J.P Rizal	F. Castillo	330	-	0.4	0.3	0.2	-	1.3	0.9	-	10.8	9.1	6.6	6.6	-	8.0	6.0	4.7
	F. Castillo	Anonas	330	-	0.2	0.1	0.1	-	0.7	0.4	-	2.2	2.1	1.4	1.4	-	0.9	0.7	0.5
	Anonans	20th Ave.	270	0.3	0.1	0.3	0.2	0.9	0.4	0.8	3.5	1.7	20.3	8.5	8.5	3.4	2.5	10.5	5.5
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	0.3	-	0.3	0.2	1.1	-	0.8	6.0	-	42.7	16.2	16.2	4.6	-	17.0	7.2

Appendix 4.12 Summary of Delay Cause (LT: Mid Block) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.13 Summary of Delay Cause (OT: Others) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.10 Summary of Delay Cause (PC: Parked Cars) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.7 Summary of Delay Cause (PED: Pedestrians) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	-	-	0.1	0.0	-	-	0.4	0.1	-	-	2.0	0.7	-	-	0.7	0.2
	Anonans	20th Ave.	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3.1 Summary of Delay Cause (S1: Traffic Signal by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
Aurora Blvd.	Katipunan	E. Rodriguez	2970	5.0	3.8	3.9	4.2	1.7	1.3	1.3	1.4	226.0	195.7	328.9	250.2	22.3	19.8	18.6	20.2
Part I	E. Rodrigues	Katipunan	2790	4.5	4.7	3.6	4.3	1.5	1.6	1.2	1.4	246.8	271.0	297.4	271.7	28.2	18.1	28.0	24.8
Aurora Blvd.	Nagtahan	E. Rodriguez	3840	4.2	6.5	4.6	5.1	1.1	1.7	1.2	1.3	215.3	262.5	256.8	244.9	14.2	16.3	12.9	14.5
Part 2	E. Rodriguez	Nagtahan	3840	5.7	5.2	4.3	5.1	1.5	1.3	1.1	1.3	278.8	239.0	249.8	255.9	18.7	15.9	13.3	16.0
Aurora Blvd. (Part I)	Mendiola	P. Burgos	2590	5.8	6.5	5.3	5.9	2.2	2.5	2.0	2.2	224.2	293.1	226.6	248.0	32.7	34.3	27.6	31.5

Appendix 4.6 Summary of Delay Cause (RT: Right Turns) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	J.P Rizal	F. Castillo	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F. Castillo	Anonas	330	0.3	-	-	0.1	0.8	-	-	0.3	3.8	-	-	1.3	-	-	-	0.9
	Anonans	20th Ave.	270	0.3	-	-	0.1	0.9	-	-	0.3	10.5	-	-	3.5	-	-	-	3.4
Aurora Blvd.	20th Ave.	15th Ave.	430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Part I)	15th Ave.	Gen. Romulo	230	-	-	0.1	0.0	-	-	0.6	0.2	-	-	3.0	1.0	-	-	1.2	0.4

Appendix 4.1 Summary of Delay Cause (S1: Traffic Signal) by Section, 1996 (1/26)

Route Name	Section		Length	No. of Stops (times)				No. of Stops (times/km)				Stopping Time (Sec.)				Stopping Time Ratio (%)			
	To	From	(m)	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total	AM	Off	PM	Total
	Katipunan	J.P Rizal	580	0.8	0.6	0.4	0.6	1.3	1.0	0.7	1.0	17.0	11.3	11.3	13.2	13.5	12.6	12.7	12.9
	J.P Rizal	F. Castillo	330	0.5	0.7	0.4	0.5	1.5	2.0	1.3	1.6	6.0	39.4	17.7	21.0	8.4	29.2	11.6	16.4
	F. Castillo	Anonas	330	0.8	0.4	0.6	0.6	2.3	1.3	1.7	1.8	30.3	52.3	86.0	56.2	22.7	21.4	28.4	24.2
	Anonans	20th Ave.	270	0.5	0.1	0.4	0.3	1.9	0.4	1.6	1.3	24.5	2.1	32.3	19.6	23.5	3.2	16.7	14.5
Aurora Blvd.	20th Ave.	15th Ave.	430	0.8	0.6	0.6	0.7	1.7	1.3	1.3	1.4	26.0	20.1	72.9	39.7	17.4	25.0	21.5	21.3
(Part I)	15th Ave.	Gen. Romulo	230	0.8	0.4	0.3	0.5	3.3	1.9	1.2	2.1	58.3	15.0	37.9	37.1	44.3	21.5	15.1	27.0

(Refer to Annex B, p.B-10)

D. Person Trip

1. PT Master Plan

ZONE	HHNO	MEMBER	SP	MAU4	MAA4	MHH	FEU4	FEA4	FHH	TU4	TA4	THH	INCOME
1	350180	5		0	2	0	0	3	0	0	5	0	4
1	350179	5		0	3	0	0	2	0	0	5	0	3
1	350178	4		0	2	0	0	2	0	0	4	0	3

ZONE	HHNO	MEMBER	SP	MCODE	TRIPS	AGE	SEX	WORK	SCHOOL	OCCP	EMPLOY	INCOME	LICENSE	EXPF	HINCOM
1	350180	5		01	2	37	1	1	0	8	7	4	3	44	4
1	350179	5		02	0	37	2	1	0	12	0	0	4	37	4
1	350178	4		03	2	12	1	0	2	10	0	0	4	47	4

ZONE	HHNO	SP	MCODE	TNO	ORIG_INST	ORIG	S_TIME	DEST_INST	DEST	A_TIME	P_FORM	PURPOSE	MODE1	TRANSZ
1	350180		01	1	1	1	04:00	9	1	04:15	1	2	1	0
1	350179		01	2	9	1	08:00	1	1	08:20	2	1	1	0
1	350178		03	1	1		08:30	5	2	08:50	1	3	1	1

(Refer to Annex B, p. B-20 & B-1 for zoning system)
Philippine Standard Occupation & Industrial Classification for coding & Occupation & Employment Sector

E. Public Transport

1. Route Data

Sheet 1: PT routes (bus)

Surveyed T.A	Type of	Route Name	VIA (1)	VIA (2)	VIA (3)	Code	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	ST	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	ST	Total
Within Metro Manila																									
Alabang	Arcn	Alabang - B.Silang				MBB1A	3	6	7	3	1	5	8	2	35	12	9	6	3	5	5	1	1	42	77
Alabang	Ord	Alabang - B.Silang				MBB1B	2	1	11	10	7	6	1	7	45	5	3	8	10	3	2	2	1	34	79
Alabang	Arcn	Alabang - Cubao				MBB2A	4	4	3	3	5	4	3	2	28	2	2	1	1	1	2	3	4	16	44
Alabang	Ord	Alabang - Cubao				MBB2B	9	7	4	3	6	13	7	8	57	8	2	0	1	2	3	5	1	22	79
Fairview	Arcn	Alabang - Fairview	Cubao	Crossing	Bicutan	MBB3A	22	18	11	14	12	21	16	14	128	18	19	18	17	16	14	10	7	119	247
Fairview	Ord	Alabang - Fairview	Cubao	Crossing	Bicutan	MBB3B	15	17	13	6	8	15	7	8	89	13	13	13	12	11	10	7	5	84	173

Sheet 1: List A

Route Code	Bus Type	Route Name	Via (1)	Via (2)	Via (3)	Frequency (First Shift)								
						6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	ST
BIG BUS /W ITHIN METRO MANILA														
MBB01A	Aircon	Alabang	-	Bagong Silang	South Superhighway			3	6	7	3	1	5	8	2	35
MBB01B	Ordinary	Alabang	-	Bagong Silang				2	1	11	10	7	6	1	7	45

Sheet 2: List B

Route Code	Bus Type	Route Name	Via (1)	Via (2)	Via (3)	Frequency (First Shift)								
						6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	ST
BIG BUS /W ITHIN METRO MANILA														
MBB01A	Aircon	Alabang	-	Bagong Silang	South Superhighway			3	6	7	3	1	5	8	2	35
MBB01B	Ordinary	Alabang	-	Bagong Silang				2	1	11	10	7	6	1	7	45

Sheet 1: List A

Code No.	Route Name	Via (1)	Via (2)	Via (3)	Frequency (First Shift)								
					6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	ST
Jeepney Within Metro Manila														
MBB01	A.Bonifacio	-	A. Mabini	10th Ave.				20	23	27	22	29	21	20	26	188
MBB02	A.Bonifacio/Tagaytay	-	E. Rodriguez	D. Tuazon				15	21	24	19	12	10	9	11	121
MBB03	A. Rivera	-	Binondo	Plaza dela Balara				3	2	2	1	1	1	2	1	13

Sheet 1: List B

Code No.	Route Name	Via (1)	Via (2)	Via (3)	Frequency (First Shift)								
					6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	ST
Jeepney Within Metro Manila														
MBB01	A.Bonifacio	-	A. Mabini	10th Ave.				20	23	27	22	29	21	20	26	188
MBB02	A.Bonifacio/Tagaytay	-	E. Rodriguez	D. Tuazon				15	21	24	19	12	10	9	11	121
MBB03	A. Rivera	-	Binondo	Plaza dela Balara				3	2	2	1	1	1	2	1	13

(Refer to Annex B,p. B-31 to B-44)

3. Terminal Data

Sheet 1: Term List

Terminal List of Adjoining Area				
Terminal Name	Code No.	No. On Maps	Node. No.	Remarks
AFP Housing	J5301	8301	2164	
Angono	M7301	8501	2134	
Antipolo	M7302	8502	2140	
Antipolo (Sumulong)	J5302	8302	2142	
Bacoor	J5303	8303	2098	

Sheet 1: List

Terminal List of Adjoining Area				
Terminal Name	Code No.	No. On Maps	Node. No.	Remarks
A. Bonifacio	J5002	5002	0379	
A. Bonifacio/Tagaytay	J5003	5003	0384	
A. Mabini	J5004	5004	0419	
A. Rivera	J5005	5005	0537	
Alabang	M7001	7001	1010	

4. Interview

4.1 Passenger

Mode of Terminal	Terminal Name	No.	Survey Date	Survey Time	Weather	Q.1 1. Male 2. Female	Q.2 Age	Q3 Occupation	Q4 Residence
Bus	Alabang	1-1	12/18/96	11:15 am	Fair	1	15	11	287
Bus	Alabang	1-10	12/19/96	6:30 am	999	2	24	11	243
Bus	Alabang	1-11	12/19/96	6:35 am	999	2	22	11	243

Work Place	Q6 Car (1-3)	Q7 Final Dest	Q8 Origin	Q9 Trip Purpose	Q10 Previous Mode	Q11 Next Mode	Q12 Transfer Time (min)		Q13 Reasons (1-8)	
							walking	waiting	1	2
243	3	255	287	3	1,5	1,5	2	2	1	4
43	3	43	243	3	6	10	10	35	1	6
43	3	43	243	3	6	10	10	35	1	8

Q14 Problems (1-8)		Q16 Assessment (1-very good, 2-good, 3-fair, 4-bad, 5-very bad					Q 17 Willingness to pay (pesos)			
1	2	Availability	Frequency	Comfort	Safety	Punctuality	30 min.	20 min.	10 min.	5 min.
6	7	3	3	4	4	3	1	75	50	0.25
2	6	1	1	2	1	1	9	2	2	2
2	6	1	2	1	2	1	9	2	2	999

((refer to Annex B, p. B-45)

4.2 Operator
4.3 Driver

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6 Income		Q7 Expenses		Others	Total Expenses	Q8	Q9	Q10
							weekday	weekend	Boundary	fuel & oil					
1	Alabang	3	16	6	1	6	5000	4000					350	2	2
2	Alabang	3	16	6	2	6	7000	5000					550	1	1
3	Alabang	3	17	6	2	6	6000	4000					420	1	1

Q11	Q12	Q13	Q14	Q15 Plate No.	Route Name
1	HS	8		NVU406	Monumento Alabang
2	HS	4		NXL601	Monumento Alabang
3	HS	3		PYA433	Letre Alabang

Sheet No.	Sample No.	Terminal Name	Q8	Q14	Date
37	1	Alabang	350		12/26
37	2	Alabang	550		12/26
37	3	Alabang	420		12/26

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6 Income		Q7 Expenses				Net Income calculated	Q8	Q9	Q10
							weekday	weekend	Boundary	fuel & oil	Others	Total				
1	Alabang	4	15	5	1	5	932	700	350	200	32	582	350	350	7.0	5.0
2	Alabang	4	15	5	1	3	678	400	250	200	28	478	200	200	35.0	12.0
3	Alabang	2	10	5	2	4	507	900	200	100	32	332	175	175	1.5	1.5

Q11	Q12	Q13	Q14	Q15 Plate No.	Route Name
41	Coll.	2	7000	CBC412	Sta. Rosa
46	Elem.	1	9500	DEX586	Sta. Rosa
39	HS	2	3500	DMA381	Sta. Rosa

Terminal Name	Sheet No.	No.	Q14	Date	Time
Alabang	70	1	350	12/12/96	8/5pm.
Alabang	70	2	9500	12/12/96	8/5pm.
Alabang	70	3	175	12/12/96	8/5pm.

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6 Income		Q7 Expenses		Others	Total Expenses	Q8	Q9	Q10
							weekday	weekend	Boundary	fuel & oil					
1	Alabang	3	16	6	1	6	5000	4000					350	2	2
2	Alabang	3	16	6	2	6	7000	5000					550	1	1
3	Alabang	3	17	6	2	6	6000	4000					420	1	1

Q11	Q12	Q13	Q14	Q15 Plate No.	Route Name
1	HS	8		NVU406	Monumento Alabang
2	HS	4		NXL601	Monumento Alabang
3	HS	3		PYA433	Letre Alabang

Sheet No.	Sample No.	Terminal Name	Q8	Q14	Date
37	1	Alabang	350		12/26
37	2	Alabang	550		12/26
37	3	Alabang	420		12/26

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6 Income		Q7 Expenses				Net Income calculated	Q8	Q9	Q10
							weekday	weekend	Boundary	fuel & oil	Others	Total				
1	Alabang	4	15	5	1	5	932	700	350	200	32	582	350	350	7.0	5.0
2	Alabang	4	15	5	1	3	678	400	250	200	28	478	200	200	35.0	12.0
3	Alabang	2	10	5	2	4	507	900	200	100	32	332	175	175	1.5	1.5

Q11	Q12	Q13	Q14	Q15 Plate No.	Route Name
41	Coll.	2	7000	CBC412	Sta. Rosa
46	Elem.	1	9500	DEX586	Sta. Rosa
39	HS	2	3500	DMA381	Sta. Rosa

Terminal Name	Sheet No.	No.	Q14	Date	Time
Alabang	70	1	350	12/12/96	8/5pm.
Alabang	70	2	9500	12/12/96	8/5pm.
Alabang	70	3	175	12/12/96	8/5pm.

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8 Income		Q9 Expenses				Net Income Calculated	Q10
									weekday	weekend	boundary	fuel &oil	others	Total		
1	Alabang CC	10	250	190	24	3	2	6	1650	1500	400	200	200	1,300	350	350
2	Alabang CC	30	320	305	24	3	2	6	1930	1730	400	120	120	1,280	650	650
3	Alabang CC	15	200	140	12	4	1	4	1170	1070	300	70	70	970	200	200

Q11	Q12	Q13	Q14	Q15	Q16	Q17 Plate No.
0.3	0.2	41	HS	2	4000	NYV480
7	1	31	HS	3	6500	PVN349
1.5	1.5	52	HS	3	2500	UBS326

Terminal Name	Sheet No.	No.	Q16	Date	Time
Alabang	70	1	350	12/12/96	8/5pm.
Alabang	70	2	9500	12/12/96	8/5pm.
Alabang	70	3	175	12/12/96	8/5pm.

No.	Terminal Name	Q1	Q2	Q3	Q4	Q5	Q6 Income		boundary	fuel & oil	others	Total	Net income calculated	Q8	Q9	Q10
							weekday	weekend								
1	15th Ave.	80	12	6	2	5	500	300	100	60	30	190	310	300	2	3
2	15th Ave.	70	16	6	1	6	450	300	owned	60	0	60	390	400	0.7	0.7
3	15th Ave.	60	12	5	1	6	400	300	owned	60	0	60	340	400	1	3

(Refer to Annex B, p. B-46)

F. Parking

1. HIS

Sheet 1: Form 4m

Zone	HHNo.	No.	UVVRP	Color	Odd Even	Affect	Work1	Work2	Work3	Work4	Others1	Others2	Others3	Others4	Work3md
1	350179	1	1	1	1	3	1	0	0	0	0	0	0	0	10
1	350184	1	0	1	1	2	1	0	0	0	0	0	0	0	10
1	350289	1	1	1	1	3	1	0	0	0	0	0	0	0	10

MMWork5	Other 3Md	Buy	Support	M_T1	M_R1	M_T2	M_R2	M_T3	M_R3	Suggest	At Home1	At Home2	At Home3	At Home4
		4	1	1		1		1			1	2	1	0
		4	1								1	2	0	3
		4	2	1		1		1			1	2	1	0

At Work1	At Work2	At Work3	At Work 4	Business1	Business2	Business2	Business2
0	0	0	0	0	0	0	0
2	2	0	3	3	2	0	3
0	0	0	0	0	0	0	0

Private1	Private2	Private3	Private4	Age	Sex	OCCP	Employ	Income	Car
0	0	0	0	45	1	5	12	3	0
4	2	0	3	58	1	1	7	4	0
0	0	0	0	64	1	13	0	2	0

(Refer to Annex B, p. B-24; HIS Form 4)

Sheet 1: Accumulation
Parking Accumulation

Station No. 1
Location: Makati City Hall

Date of Survey: Fri 24 January 1997
Time of Survey: 6:00 - 22:00

Time Period	On-Road Slots							
	A1	A2	A3	A4	A5	A6	A7	A8
Total slots	16	21						
6:00 - 615	0	0						
6:15 - 6:30	0	0						
6:30 - 6:45	0	0						
6:45 - 7:00	2	0						

Off-Road Slots								
B1	B2	B3	B4	B5	B6	B7	B8	B9
12	12	26	171					
3	0	0	48					
3	0	1	53					
4	0	6	58					
4	0	6	58					

Sheet 2: Summary
Parking Accumulation

Station No. 1
Location: Makati City Hall

Date of Survey: Fri 24 January 1997
Time of Survey: 6:00 - 22:00

Time Period	On-Road	Off-Road	All Slots
6:00 - 615	0	51	51
6:15 - 6:30	0	57	57
6:30 - 6:45	0	68	68
6:45 - 7:00	2	68	70

Time Period	On-Road	Off-Road	All Slots
14:00 - 14:15	26	156	182
14:15 - 14:30	29	158	187
14:30 - 14:45	28	148	176
14:45 - 15:00	32	155	187

Sheet 3: Graph Data

Station No. 1
Location: Makati City Hall

Date of Survey: Fri 24 January 1997
Time of Survey: 6:00 - 22:00

Time Period	Accumulation		
	On-Road	Off-Road	All slots
6:00 - 615	0	51	51
6:15 - 6:30	0	57	57
6:30 - 6:45	0	68	68
6:45 - 7:00	2	68	70

Total slots		
On-Road	Off-Road	All slots
37	221	258
37	221	258
37	221	258
37	221	258

Other Stations:
Ayala Tower 1 Basement Parking, Ayala Ave., Makati
Park Square One Glorietta, Makati
Valero St., Salcedo Village, Makati
Soliman St. Makati
Medical City, Ortigas CBD
Robinson's Galleria Basement Parking
Ortigas Building, Ortigas CBD
Topaz St., Ortigas CBD
Lyceum of the Phils. Ermita Manila
Puso ng Maynila, Ermita Manila
Manila Midtown Hotel, Ermita Manila
Emerald garden Restaurant, Ermita Manila
Adriatico St., Ermita Manila
Araneta Center Postal Office, Cubao Quezon City
Gen. Mac Arthur Ave., Cubao Quezon City
Mandaluyong City hall
United Laboratories, Mandaluyong City
SM Megamall Bldg. A
SM Megamall Bldg. B
Shangri-la's EDSA Plaza Hotel
St. Francis St. Mandaluyong City
Binondo Police Station, Manila
Philippine National Bank, Binondo Manila
Plaza Ruiz. Binondo Manila
Juan Luna st. Binondo Manila
Padilla St. binondo Manila

2.2 Parking Duration

Sheet I: Input
Histogram Base Table

Parking Duration	On-Road	Off-Road
0:15		188
0:30		42
0:45		19
1:00		20

Sheet 2: Summary
Parking Duration Surveys

Station No. 1
Location: Makati City Hall

Date of Survey: Fri 24 January 1997
Time of Survey: 6:00 - 22:00

Parking Duration (h:mm)	Parking Area Block						On-Road	Off-Road
	A1	A2	B1	B2	B3	B4		
Total Slots	16	21	12	12	26	171	37	221
0:15	47	46	4	12	4	73	95	93
0:30	14	22	1	5	2	49	36	57
0:45	6	8	2	3	2	36	14	43
1:00	8	11	1	0	2	27	19	30

2.3 Parking Turnover

Sheet 1: Summary
Parking Turnover Summary

	Total Slots	Observed Total Turnover Vehicles	Observed Hourly Turnover Rate (veh./slot/hour)	Total Daily Turnover (veh./slot/hour)
On-Road				
A1	16	103	0.40	6.44
A2	21	122	0.36	5.81

2.4 Parking User Interview

Sheet 1: Summary
Parking User Interviews: Summary of Responses

Station No. 1
Location: Makati City Hall

Date of Survey: Fri 24 January 1997
Time of Survey: 6:00 - 22:00

Parking Type: Off-Road

Total Samples	Gender			User Type		
158		Responses	%		Responses	%
	Male	137	86.7%	Regular	93	58.9%
	Female	21	13.3%	Visitor	65	41.1%
	Total	158	100.0%	Total	158	100.0%

3. On Street Parking
"The same data with Off Street Parking

Refer to Parking Survey Result:

G. Environment

1. Noise

1.1 Volume

NCTS

MMUTIS April 16,1997 (Wed)

Sheet 1: All

Time	Lmax	Leq	L5	L10	L50	L90	L95
	0 meter	0 meter	0 meter	0 meter	0 meter	0 meter	0 meter
6:00	106.90	85.59	90.86	88.87	82.13	78.16	77.21
7:00	105.80	82.25	87.40	85.32	78.21	72.72	71.82

NCTS Sound Pressure Level Survey Comment Date: April 16, 1997
MMUTIS Location: EDSA (in front of Camp Crame

Sheet 2: 0 Meter

Sound	0 meter from the Cariegeway						
Time	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 6:10	99.8	85.8	91.7	89.2	82.4	78.6	77.6
6:10 - 6:20	104.1	85.2	90.1	88.6	82.6	78.4	77.6

Sheet 3: 5 Meter

Sound Time	5 meter from the Carriage way						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 6:10	82	7.13	76.3	74.5	69.3	66	65.1

Sheet 4: 15 Meter

NCTS Sound Pressure Level Survey Comment Date: April 16, 1997
MMUTIS Location: EDSA (in front of Camp Crame

Sound Time	15 meter from the Carriage way						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 6:10							
6:10 - 6:20	74.5	66.9	70.6	69.5	65.8	63.2	62.5

Sheet 3: 35 Meter

NCTS Sound Pressure Level Survey Comment Date: April 16, 1997
MMUTIS Location: EDSA (in front of Camp Crame

Sound Time	35 meter from the Carriage way						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 6:10	83.3	66.1	68.9	68.2	65.3	63.2	62.6
6:10 - 6:20	82	66	68.9	67.8	65.1	62.7	62

Sheet 6: DO

Table 5.2.2a Average Hourly Sound Pressure Level at the boundary of the sidewalk And carriageway at EDSA

Sound Time	Sound Pressure Level (dBA)						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 7:00	106.90	85.59	90.86	88.87	82.13	78.16	77.21
7:00 - 8:00	105.80	82.25	87.40	85.32	78.21	72.72	71.82
8:00 - 9:00	107.40	81.86	86.64	84.49	78.13	72.83	71.66

Division of Time	Mean Average (dBA)			
	Leq	L5	L50	L95
Morning	83.64	88.67	80.25	74.12

Sheet 7: D5

Table 5.2.2b Average Hourly Sound Pressure Level at the boundary of the sidewalk And carriageway at EDSA

Sound Time	Sound Pressure Level (dBA)						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 7:00	89.20	71.11	75.44	74.01	69.12	65.66	64.91
7:00 - 8:00	89.00	67.37	71.66	70.06	65.20	61.37	60.62
8:00 - 9:00	91.90	66.92	71.06	69.54	64.87	61.47	60.75

Division of Time	Mean Average (dBA)			
	Leq	L5	L50	L95
Morning	69.22	73.45	67.82	62.73

Sheet 8: D15

Table 5.2.2c Average Hourly Sound Pressure Level at the boundary of the sidewalk And carriageway at EDSA

Sound Time	Sound Pressure Level (dBA)						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 7:00	88.60	66.97	70.47	69.25	65.74	62.93	62.31
7:00 - 8:00	82.20	63.86	67.53	66.25	62.59	59.56	58.90
8:00 - 9:00	87.10	63.09	66.59	65.25	61.80	59.39	58.83

Division of Time	Mean Average (dBA)			
	Leq	L5	L50	L95
Morning	69.22	73.45	67.28	62.73

Sheet 9: D35

Table 5.2.2d Average Hourly Sound Pressure Level at the boundary of the sidewalk And carriageway at EDSA

Sound Time	Sound Pressure Level (dBA)						
	Lmax	Leq	L5	L10	L50	L90	L95
6:00 - 7:00	92.60	66.03	69.04	68.01	64.93	62.52	61.97
7:00 - 8:00	8.50	63.31	66.54	65.32	62.52	59.67	59.03
8:00 - 9:00	86.90	63.11	66.17	65.10	62.19	59.99	59.51

Division of Time	Mean Average (dBA)			
	Leq	L5	L50	L95
Morning	64.57	67.66	63.69	60.54

Sheet 1: Cubao & Ortigas

Type / Time	Vehicle				
	Cars, fierra, taxi, Hi-Ace, L-300, FX, Pick-up	Passenger Jeepney	Bus	Trucks	Orthers
6:00 - 7:00	4251	0	605	18	72
7:00 - 8:00	4,619	0	757	13	65
8:00 - 9:00	3,943	0	646	15	31

Sheets with the same contents:
Roxas Blvd.
South Superhighway
Quezon Ave.
Taft & Malvar
Quirino

2. Air Pollution

"The same data with Noise pollution"

(Refer to Road Environmental Survey Result)

H. Modal Choice

1. Willingness to pay

1.1 Original data

Sheet 1: Aircon Bus

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e1	2-e2	2-e3
		Date	Time	Mode Type	Pass Type	Route/ Station	Trip Purp. Q1	Trip Purp. Q2	No. of Transfers	Tot. Trav Time	Mode Used	Mode Used	Mode Used
1001	1	9/17/97	12:10	2	1	Bac./ Mon.	7		3	999	5	4	7
1002	1	9/17/97	12:15	2	1	Bac./Mon.	1	7	2	180	5	4	
1003	1	9/17/97	12:05	2	1	Bac./Mon.	1	7	2	180	4	5	

Sheet 1:

Area.	Form Type No.	Response No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e	2-f
			Date	Vehicle Type	Survey Station Zone No.	Time	Weather	Trip Purpose 1	Trip Purpose 2	Trip Origin	Trip Destination	Trip Length	Frequency
Mandaluyong	1	1	09/19/97	1	96	17:20		1	7	96	294	120	1
Mandaluyong	1	2	09/21/97	1	96	16:30		1	2	96	81	30	3
Mandaluyong	1	3	09/16/97	1	96	14:20		2		139	35	90	1

Sheet 1:

Area.	Form Type No.	Response No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e	2-f
			Date	Vehicle Type	Survey Station Zone No.	Time	Weather	Trip Purpose 1	Trip Purpose 2	Trip Origin	Trip Destination	Trip Length	Frequency
Valenzuela	1	1	09/16/97	1	180	16:10		11		184	389	20	2
Valenzuela	1	2	09/16/97	1	180	17:20		11		183	389	60	4
Valenzuela	1	3	09/16/97	1	180	18:00		5		183	389	60	5

Sheet 1:

Area.	Form Type No.	Response No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e	2-f
			Date	Vehicle Type	Survey Station Zone No.	Time	Weather	Trip Purpose 1	Trip Purpose 2	Trip Origin	Trip Destination	Trip Length	Frequency
Muntinlupa	1	1	09/18/97	1	242	15:00		11		251	250	30	
Muntinlupa	1	2	09/19/97	1	242	15:30		1	4	242	234	30	
Muntinlupa	1	3	09/19/97	1	242	16:15		9		242	255	45	

Sheet 1: FX (4 routes)

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	1-f	2-a	2-b	2-c	2-d
		Date	Time	Mode Type	Pass Type	Route/ Station	Surveyor	Trip ur.Q1	Trip ur.Q2	No. of Transfers	Tot. Travel Time
1001	2	09/19/97	7:10	5	1	Cubao/Div.	C. Marquez	7		2	45
1002	1	09/19/97	8:30	5	1	Cubao/Div.	C. Marquez	4		2	120
1003	1	09/19/97	9:05	5	1	Cubao/Div.	C. Marquez	2		2	100

Sheet 1: Jeepney (4 routes)

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	1-f	2-a	2-b	2-c	2-d	2-e1
		Date	Time	Mode Type	Pass Type	Route/ Station	Surveyor	Trip ur.Q1	Trip ur.Q2	No. of Transfers	Tot. Travel Time	Mode Used
1001	2	09/24/97	10:30	3	1	Cubao/Cogeo	V. Tom	3		3	50	5
1002	1	09/24/97	10:35	2	1	Cubao/Cogeo	V. Tom	2		3	180	5
1003	1	09/24/97	10:38	3	1	Cubao/Cogeo	V. Tom	1	3	2	45	5

Sheet 1: Jeepney

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e1	2-e2
		Date	Time	Mode Type	Pass Type	Route/ Station	Trip Pup.Q1	Trip Purp.Q2	No. of Transfers	Tot. Travel Time	Mode Used	Mode Used
1	1	9/24/97	10:30	3	1	Cubao/Cogeo	3		2	50	5	6
2	1	09/24/97	10:35	3	1	Cubao/Cogeo	2		2	180	5	4
3	1	09/24/97	10:38	3	1	Cubao/Cogeo	1	3	1	45	5	6

Sheet 1: LRT (4 sations)

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	1-f	2-a	2-b	2-c	2-d	2-e1
		Date	Time	Mode Type	Pass Type	Route/ Station	Surveyor	Trip purp. Q1	Trip purp. Q2	No. of Transfers	Tot. Travel Time	Mode Used
1001		09/17/97	7:15	4	2	Monumento	Michael	7		3	60	6
1002		09/17/97	7:35	4	2	Monumento	Michael	3		2	50	5
1003		09/17/97	7:50	4	2	Monumento	Michael	1	2	3	50	6

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e1	2-e2
		Date	Time	Mode Type	Pass Type	Route/ Station	Trip purp. Q1	Trip purp. Q2	No. of Transfers	Tot. Travel Time	Mode Used	Mode Used
1		09/17/97	7:15	4	2	Monumento	7		2	60	6	2
2		09/17/97	7:35	4	2	Monumento	3		1	50	5	2
3		09/17/97	7:50	4	2	Monumento	1	2	3	50	6	5

Sheet 1: Ordinary Bus (4 routes)

Form No.	Form Type No.	1-a Date	1-b Time	1-c Mode Type	1-d Pass Type	1-e Route/ Station	1-f Surveyor	2-a Trip purp. Q1	2-b Trip purp. Q2	2-c No. of Transfers	2-d Tot. Travel Time	2-e1 Mode Used
1001	1	09/17/97	8:10	1	1	Mon. / Bac.	T. Dumasig	2		2	105	
1002	1	09/17/97	8:15	1	1	Mon. / Bac.	T. Dumasig	2		1	180	

Sheet 1:

Form No.	Form Type No.	1-a Date	1-b Time	1-c Mode Type	1-d Pass Type	1-e Route/ Station	2-a Trip purp. Q1	2-b Trip purp. Q2	2-c No. of Transfers	2-d Tot. Travel Time	2-e1 Mode Used	2-e2 Mode Used
1	1	09/17/97	8:10	1	1	Mon. / Bac.	2		2	105	3	5
2	1	09/17/97	8:15	1	1	Mon. / Bac.	2		1	180	3	
3	1	09/17/97	8:35	1	1	Mon. / Bac.	4		2	60	6	5

Sheet 1:

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	2-a	2-b	2-c	2-d	2-e1	2-e2
		Date	Time	Mode Type	Pass Type	Route/ Station	Trip purp. Q1	Trip purp. Q2	Trip Origin	Trip Dest.	Mode Used	Mode Used
1	5	09/29/97	10:00	6	3	SM North	9		161	161	10	3
2	5	09/29/97	10:05	6	3	SM North	9		144	161	25	
3	5	09/29/97	10:10	6	3	SM North	9		25	161	30	3

Sheet 1: Taxi (4 routes)

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e		2-a	2-b	2-c	2-d
		Date	Time	Mode Type	Pass Type	Route/ Station	Surveyor	Trip purp. Q1	Trip purp. Q2	Trip Origin	Trip Desitination
1001	5	09/29/97	10:00	6	3	SM North	J. Anonuevo	9		161	161
1002	5	09/29/97	10:05	6	3	SM North	J. Anunuevo	9		144	161
1003	5	09/29/97	10:10	6	3	SM North	J. Anunuevo	9		25	161

Sheet 1: Muñoz Ayala

Form No.	Form Type No.	1-a	1-b	1-c	1-d	1-e	1-f	2-a	2-b	2-c	2-d
		Date	Time	Mode Type	Pass Type	Route/ Station	Surveyor	Trip purp. Q1	Trip purp. Q2	No. of Transfers	Tot. Travel Time
755	1	09/25/97	7:00	5	1	Muñoz/Ayala	R. Matibag	2		1	230
755	4	09/25/97	7:35	5	1	Muñoz/Ayala	R. Matibag	2		0	210
755	4	09/25/97	7:45	5	1	Muñoz/Ayala	R. Matibag	2		1	190

Sheet 2: Ayala Fairview

Form No.	Form Type No.	1-a Date	1-b Time	1-c Mode Type	1-d Pass Type	1-e Route/ Station	2-a Trip purp. Q1	2-b Trip purp. Q2	2-c No. of Transfers	2-d Tot. Travel Time	2-e1 Mode Used	2-e2 Mode Used
1	1	09/17/97	7:00	5		Fairview/Ayala	2			120	10	
2	1	09/17/97	7:15	5		Fairview/Ayala	2		0	150	10	
3	1	09/17/97	7:20	5		Fairview/Ayala	2		1	180	10	

Sheet 1: 6a, b, c, d, e, f,
(6 Personal Attribute)

			Rate (%)
1	-20	64	25%
2	21 – 40	131	52%
3	41 – 60	57	23%
4	61 –	0	0%
Sub-Total		252	100%
No Answer		0	
Total		252	

Sheet 2: 5 a.b
(5) Conversion to MRT
5a Case A

			Rate (%)
1	Current Mode	15	6%
2	MRT	237	94%
Sub-Total		252	100%
No Answer		0	
Total		252	

6c, d Car Ownership

		Yes	No	Subtotal	No Ans.	Total
Q1	Own by myself or my family	53	192	245	7	252
Q2	If yes, mostly use by myself	4	50	54	198	252

6e, f Income

		Personal	Family	Rate%	
				Personal	Family

Sheet 3:4 b
(4) Willingness-to-pay for travel time reduction
4b. Waiting Time Reduction

Pesos	By 20%				By 50%			
		Rate %	Average	St. Dev		Rate %	Average	St. Dev
-1.00	2	1.0%	1.00	-	0	0.0%	-	-
-2.00	19	9.8%	2.00	-	5	2.2%	2.00	-
-3.00	19	9.8%	3.00	-	9	4.0%	3.00	-

Sheet 4:4 a
(4) Willingness-to-pay for travel time reduction

4a. Travel Time Reduction

Pesos	By 20%				By 50%				Availability of seats				Aircon
		Rate %	Average	St. Dev		Rate %	Average	St. Dev		Rate %	Average	St. Dev	
-1.00	1	0.5%	1.00	-	0	0.0%	-	-	2	1.5%	1.00	-	0
-2.00	15	7.7%	2.00	-	2	0.9%	2.00	-	20	14.9%	2.00	-	4
-3.00	19	9.7%	3.00	-	0	0.0%	-	-	16	11.9%	3.00	-	5

Sheet 5:3
(3) Alternative Mode

		A1	A2	A3	A4	A5	A6	Total	Rate(%)
1	PNR	0	0	0	0			0	0.0%
2	LRT	1	1	0	0			2	0.6%
3	Bus	4	5	0	0			9	2.5%

Sheet 6: 2 h, I, j, k
(2) Trip information – Trip by Current Mode
2h. Travel Time

Pesos	By 20%			
		Rate %	Average	St. Dev
1 – 10	6	2.4%	8.3	2.6
- 20	50	19.8%	16.9	2.5
- 30	31	12.3%	28.5	2.3

2I. Trip Cost

Pesos	By 20%			
		Rate %	Average	St. Dev
- 5.00	2	0.8%	3.00	2.83
- 10.00	124	49.2%	10.00	-
- 15.00	9	3.6%	15.00	-

2k. Frequency

1
2
3

Sheet 7:2 c, d, e

		e1	e2	e3	e4	e5	e6	Total	Rate%
1	PNR	0	0	0				0	0.0%
2	LRT	1	0	0				1	0.2%
3	Bus ord)	5	1	0				6	1.4%

Sheet 8: 2 a, b

(2) Trip Information – Trip Purpose

2a, Trip Purpose – 1

			Rate
1	To Home	20	7.9%
2	To Work	73	29.0%
3	To School	52	20.6%

			Rate
1	To Home	0	0.0%
2	To Work	4	20.0%
3	To School	5	25.0%

Sheet 1:
MMUTIS Survey on willingness to pay attitude of car users
SP-Car Survey Raw Data form East Side

Area.	Form Type No.	Response No.	1-a Date	1-b Vehicle Type	1-c Survey Station Zone No.	1-d Time	1-e Weather	2-a Trip Purpose 1	2-b Trip Purpose 2	2-c Trip Origin	2-d Trip Destination	2-e Trip Length
Mandaluyong	1	1	09/19/97	1	96	17:20		1	7	96	294	120
Mandaluyong	1	2	09/21/97	1	96	16.30		1	2	96	81	30
Mandaluyong	1	3	09/16/97	1	96	14:20		2		139	35	90

Sheet 1: Tab_5e-5f
Car User Stated Preference Survey-Analysis of Personal and Family Income
Table 5e&F: Personal Income vs. Family Income (Pesos/Month)

Count of Personal	Family Income										
Personal Income	3	4	5	6	7	8	9	10	19	Grand Total	% of Total
2 = < 3,000	20	8	8	5	2	1	2	1	2	49	4.0
3 = (3,000 – 5,999)	7	32	37	7	7	5	1	2	14	112	9.1
4 = (6,000 – 9,999)		21	33	32	18	14	7	4	49	178	4.5

Sheet 2: Tab_5a-5d
Car User Stated Preference Survey-Analysis by Age And Sex
Table 5a&D Age and Sex Classification of the Drivers - Car SP - Surveys

	Sex			
Age (Years)	1 = Male	2 = Female	Grand Total	% of Total
1 = Under 20	30	17	47	3.8
2 = 21 - 40	493	202	695	56.7

Sheet 3: Tab_2g
Car User Stated Preference Survey-Analysis of Toll Payment
Table 2g Number of Trips for which Toll was Paid

Count of Toll Paid				
Toll Paid (Pesos)	Total	% - Obs	% - Paid	Cum % - Paid
0.50	1	0.1	0.2	0.2
1.00	262	21.4	45.0	45.2
1.50	7	0.6	1.2	46.4

Sheet 4: Tab_2e&f
Car User Stated Preference Survey - Analysis of Trip Frequency and Travel Time
Table 2e: Travel Time and Frequency of Travel

Count of Frequency	Frequency							
Travel Time (minutes)	1 - (>90%)	2 - (70-90%)	3 - (50-70%)	4 - (30-50%)	5 - (<30%)	Grand Total	% Obs	% Cum
5	7	9	4	9	4	33	2.7	2.7
10	8	16	11	2	14	51	4.2	6.9
15	17	12	18	13	19	76	6.4	13.3

Sheet 5: Tab_2a-2b
Car User Stated Preference Survey - Analysis of Trips by Purpose
Table 2a-b: Trip Purpose at Origin vs. Trip Purpose at DestinationTravel Time and Frequency of Travel

Count of Purpose at Destination	Purpose at Destination													
Trip Purpose at Origin	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total	% of Total
2	87												87	7.1
3	22												22	1.8
4	65												65	5.3

Sheet 6: Tab_1a-1d
Table 1a Form Type

Count of Form Type	Form Type						
Survey Area	1	2	3	4	5	Grand Total	% of Total
EDSA	79	69	70	62	53	33	27.2
North	81	84	81	81	82	409	33.4
South	162	106	60	88	67	483	39.4
Grand Total	322	259	211	231	202	1225	100.0
% of Total	26.3	21.1	17.2	18.9	16.5	100.0	

Sheet 7: V001
SP - Car User Survey Validated Data File

Respond No By Area Ref No	1b Date	1b Survey Time	1c Survey Area	1c Survey-Loc New Zone Survey Zone	1a Form Type	1c 1 = Car 2 = Van Veh. Type	2a Trip Purpose 1 Purp. Dest.	2b Trip Purpose 2 Purp. Orig.	2d New Zone Trip Origin	2d New Zone Trip Destin.	2e Trip (Mins) Travel Tme	2f This Trip Frequency
1001	09/16/97	16:10	North	186	1	1	11	19	191	188	999	2
1002	09/16/97	17:20	North	186	1	1	11	19	190	188	60	4
1003	09/16/97	18:00	North	186	1	1	5	19	190	188	60	5

Sheet 8:Zone – inx

2c Trip Origin (Old)	2c Trip Origin (New)	2d Trip Destin. (Old)	2d Trip Destin. (New)	1c Survey Station Zone No.	1c Survey Station Zone No.
184	191	389	188	180	186
183	190	389	188	180	186
183	190	389	188	180	186

Old Zone	New Zone
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Sheet 2: Spcar_3a&4a

Respond No. By Area Ref-no	1a Form_Type	3'a Ord. Rd. 1 Toll Rd. 2 Case_3A	3'b Ord. Rd. 1 Toll Rd. 2 Case_3B	4'a Car 1 MRT2 Case_4A	4'b Car 1 MRT2 Case_4B
1001	1	2	2	2	2
1002	1	2	2	1	1
1003	1	2	2	1	1

Sheet 1: 4a,b,c,d 4'a,b
4c,d. Reason why not

				Rate (%)	
		Reason 1	Reason 2	Reason 1	Reason 2
1	Hate walking and waiting	53	0	84%	0%
2	Baggage	8	2	13%	3%
3	Uncomfortable in train	2	20	3%	26%

Sheet ?
3) Willingness - to - Pay Travel Time Reduction
3a,b

Pesos	By 20%				By 50%			
	Frequency	Rate (%)	Average	St. Dev.	Frequency	Rate (%)	Average	St. Dev.
~ 1.00	1	0.3%	1.00	-	0	0.0%	-	-
~ 2.00	32	9.6%	2.00	-	6	1.8%	2.00	-
~ 3.00	29	8.7%	3.00	-	19	5.7%	3.00	-

Sheet 3: 2e,f,g
(2) Trip Information
2e. Travel Time

(min)		Rate (%)	Average	St. Dev.
1 ~ 10	32	9.6%	7.4	2.9
~ 20	71	21.3%	17.5	2.5

2f. Frequency

			Rate (%)
1	More than 90%	4	1.2%
2	70 - 90%	32	9.6%

Sheet 4: 2a,b
(2) Trip Information
2e. Travel time

			Rate (%)
1	To Home	136	40.8%
2	To Work	107	32.1%
3	To School	28	8.4%

			Rate (%)
1	To Home	0	0.0%
2	To Work	73	52.9%
3	To School	14	10.1%

heet 3: Vot-Dat
Car User Stated Preference Survey - Analysis of Value of Time
Table 3-(1) Calculation of Value of Time from Car User Stated Values

VOT	VOT(Pesos/Hr)	Freq.	Cum.-Freq.	% Freq.	Cum %
2	2	15	15	0.8	0.8
2	3	8	23	0.4	1.2
2	4	32	55	1.7	2.9

Count of VOT	
VOT	Total
2	15

Sheet 4: Summary
Car User Stated Preference Survey - Analysis of Value of Time
Table 3-(2) Calculation of Value of Time from Car User Stated Values

Data Source (Q - 3)	Statistic	VOT / Peso / Hour
Value of Time from 20% Time Saving	Min	2.0
	Max	300.0
	Average	47.3
	Std-Dev	54.4

Sheet 5: Dat-VOT

Respond No By -Area Ref-No	3a/2e*.2 Time Save 20% Pesos/min	3a/2e*.5 Time Save 20% Pesos/min	3a/2e*.2 Time Save 20% Pesos/hr	3a/2e*.5 Time Save 20% Pesos/hr
1127	0.03	0.03	2	2
1352	0.01	0.03	2	2
2001	0.04	0.03	2	2

Sheet 6: Tab_2e-3b

Respond No By -Area Ref-No	3a/2e*.2 Time Save 20% Pesos/min	3a/2e*.5 Time Save 20% Pesos/min	3a/2e*.2 Time Save 20% Pesos/hr	3a/2e*.5 Time Save 20% Pesos/hr
1001	999.00	999.00	999	999
1002	0.25	0.17	15	10
1003	0.17	0.17	10	10

Sheet 4: Plot-Data

Inc-Group	Personal Income Range	VOT
2	< 3,000	64.4
3	3,000 - 5,999	38.0
4	6,000 - 9,999	43.7

Sheet 5: Vot_Purp3inx

Inc_Group	2	3	4	5	6	7	8	9	Average
Income	< 3,000	3,000 - 5,999	6,000 - 9,999	10,000 - 14,999	15,000 - 19,999	20,000 - 29,999	30,000 - 39,999	40,000 - 49,999	
To Work	92.6	38.9	49.8	32.5	43.3	52.0	27.7	23.9	43.9
Priv-Business	77.4	36.1	49.1	21.9	34.2	39.9	23.8	13.4	37.6
Emp-Business	46.2	42.9	37.6	18.2	19.4	19.5	12.5	7.5	32.8

Inc_Group	Income	To Work	Priv-Business	Emp-Business
2	< 3,000	93	77	46
3	3,000-5,999	39	36	43
4	6,000-9,999	50	49	38

Sheet 6: Sum-Data

Purp-Dest	Vot
2	180
2	300
2	75

Prsn-Incm	Purp-Dest	20 Pesos/hr	50 Pesos/hr	Ref. No.	Personal	Purp-Dest	20 Pesos/hr	50 Pesos/hr
2	2	180	120	1007	2	5	125	100
2	2	300	240	1034	2	2	180	120
2	2	75	60	1047	2	9	30	36

Sheet &: Data-V1

By Area Ref. No.	P/Month Personal	P/Month Family	Purpose 1 Purp-Dest	20% @o Pesos/hr	50% %0 Pesos/hr
1001	6	9	11	999	999
1002	3	7	11	15	10
1003	6	7	5	10	10

Sheet 2: Vot_Dat

Car User Stated Preference Survey

Pesos/hr	Count of Pesos/hr	
	Pesos/hr	Total
2	2	3
2	3	3

Table 4-(1)a&b Conversion to MRT Value of Time Estimation

Freq.	Cum-Freq.	VOT (Pesos/hr)	%	Cum_%
3	3	2	0.4	0.4
3	6	3	0.4	0.8

Sheet 3: Vot_MRT

Car User Stated Preference Survey - Analysis of VOT Data from Choosing MRT

	4a	$b	
	To MRT	To MRT	
	Time Save	Max Fare	
Ref. No.	Mins.	Peso	Pesos/hr
1130	60	2	2
3101	60	2	2

Count of Peso															
Mins	2	3	4	5	6	7	8	10	12	15	20	25	30	999	Grand Total
3	2	4		1											7
5	9	12	1	6				9							37
10	10	12	3	16	6	2		21	11	12					93

Sheet 4: Tab_4-(2)

Car User Stated Preference Survey - Analysis of Not Choosing MRT

Table 4-(2) Analysis of Reasons for Not Choosing the MRT

Reason 1	Reason 2						Sub-Total 1-5	Grand Total	% of Total
	1	2	3	4	5	9			
1. Walk and Wait		66	46	30	4	36	146	182	14.9
2. Baggage	15		43	23	3	9	84	93	7.6
3. Uncomfortable	2	2		23	1	7	28	35	2.9

Sheet 5: Dat_4a-,4d

Ref. No. By Area	2e Trip Length (mins)	4a To MRT Time Save (mins)	4b To MRT Max Fare Peso	4c No Convert Reason 1	4d No Convert Reason 2
1001	999	45	10	9	9
1002	60	999	999	1	2
1003	60	999	999	1	2

Sheet 3: Plot-data

	Purpose	VoT
1	To home	37.0
2	To Work	46.9
3	To School	34.2
4	Private Business	37.8

Sheet 5: Sum-tab

Ref-No.	Purp12-Dest.	Pesos/hr	Purp5-Dest	Purp2-Dest.
1127	3	2	3	
1352	2	2	2	
2001	1	2	1	

Sheet 6: Data-V1

Respond No. By-Area Ref.No	2a Trip Purpose 1 Purp-Dest	3a/2e*.2 Time Save 20% 20-Pesos/h	3a/2e*.5 Time Save 50% 50-Pesos/h
1001	11	99	999
1002	11	15	10
1003	5	10	10

Sheet 4: Vot-purp

Count of Peso/hr	Purp-Dest												
Pesos/hr	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total
2	2	3	2		4				2		2		15
3		3		2	2				1				8
4	3	10	2	3	9	1	1	1	2				32

(Refer to Technical Report No 1;p. A-60 to A-76)

I. Opinion

1. Color coding

1.1 Private

Zone	HHNO	No.	UVVRP	Color	Odd/even	Affect	Work1	Work2	Work3	Work4	Others1	Others2
1	350179	1	1	1	1	3	1	0	0	0	0	0
1	350184	1	0	1	1	2	1	0	0	0	0	0
1	350289	1	1	1	1	3	1	0	0	0	0	0

(Refer to Annex B, p. B-24)

1.1 Public

2. Environment

Zone	HHNO	M2	Dest	Purpose	Mode	S_Time	A_Time	CNO	Ctype	E1A	E1C	E2A	E2C	E3A	E3C	E4A	EAC	E5A
1	350276	1	161	4.5	6.0	10:00	11:00	1	1	1	1	1	1	1	1	1	1	2
1	350276	2	161	4.5	6.0	10:00	11:00	1	1	2	2	2	2	1	1	2	2	1
1	350315	1	2	4.6	6.0	6:00	08:00	1	1	1	1	2	2	2	2	2	2	1

J. Others

1. Holiday
2. Handicapped

Sheet 1: Form5

Zone	HHNO	No.	Cond	Type	Own_Wheel	Go-Out	Reason	Reason_Com	How_Many
1	350185	2	2	10	0	0	1		0
1	350290	1	2	0	2	2	1		0
1	350193	6	2	10	2	2	4		0
1	350271	4	2	10	2	2	2		0

(Refer to Annex B, p. B-26: HIS Form 5)

K. Airport

Agency/Establishment Interview

Code	Station Name	Name of Establishment	Address	Type of Business	Years of Operation	Off. Hrs A	Off. Hrs B	Shifts	No. of Emp.	Location A	Location B	Location C	Location D	Total	No.of Vehicles	Passen S/J A
1001	NAIA	MIAA, Equipment/Maintenance Eng'g Dept.	Pasay, Parañaque, Metro Manila	Airport	14	08:00	17:00	3	254	254	0	0	0	0	0	0	0	254	0	0
1002	NAIA	Medical Division & Rescue Emergency Dept.							40	40	0	0	0	0	0	0	0	40		
1003	NAIA	Collection Division							60	18	42	0	0	0	0	0	0	60		
1004	NAIA	Philippine Aviation Security Service Corp. (PASSCOR)							100	15	85	0	0	0	0	0	0	100		
1005	NAIA	MIAA, Ramp Operational Int'l							42	40	2	0	0	0	0	0	0	42		
1006	NAIA	MIAA, Electrical Division	MIAA Electrical	Planning & Maintenance	33	08:00	17:00	3	30	28	2	0	0	0	0	0	0	30	1	0
1007	NAIA	MIAA, Civil Works Division	Pasay City	Engineering Technical	NO IDEA	08:00	17:00	1	27	0	0	0	0	0	7	20	27	2	0	
1008	NAIA	MIAA, Passenger Control Office							21	17	4	0	0	0	0	0	0	21		
1009	NAIA	MIAA, Airport Operation Department							41	30	11	0	0	0	0	0	0	41		
1010	NAIA	MIAA, Personnel							17	15	2	0	0	0	0	0	0	17		

Agency/Establishment Interview

Code	ger Car S/J B	Van A	Van B	Bus A	Bus B	Utility Vehicle L. Truck A	L. Truck B	Truck A	Truck B	M. Cycle A	M. Cycle B	Others A	Others B	Total A	Total B	NOV at the Port	Traffic Movement TM A	TM B	TM C	Major Traffic Probl MTP1	MTP2	MTP3
1001	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	IPT	Cargo	Eng'r Fort Bonifacio	1	1	1
1002																						
1003																						
1004																						
1005																						
1006	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1		0	0	0	1	1	2
1007	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	Aircraft Movement Areas	IPT	DPT		2	2	2
1008																						
1009																						
1010																						

Agency/Establishment Interview

Code	em (affection your operation) MTP4	MTP5	MTP6	MTP7	MTP8	MTP9	MTP10	Inter-terminal Traffic Movement 1A	1B	1C	2	3	4
1001	1	1	1	1	1	1	1	1	1	2	0	0	0
1002													
1003													
1004													
1005													
1006	2	2	2	1	2	2	2	1	2	2	0	0	0
1007	2	2	2	2	2	1	2	2	2	1	0	0	0
1008													
1009													
1010													

(Refer to Annex B, p. B-47 to B-48)