APPENDIX 4

FUTURE DEMAND FORECAST

4.1 Review of MMUTIS Study

The MMUTIS was undertaken from March 1996 to February 1999 under JICA assistance. The final report was submitted in May 2000, including the related transport database and the STRADA forecasting model..

The demand forecast flows from the assumed or synthesized socio-economic characteristics at that future time, vis-a-vis that of the base year. The future conditions, as modeled by MMUTIS, were capsulated under four scenarios, described below:

Scenario I - "History repeats itself"

 The current urban development trends and sluggish transportation network development will continue. High-density urban core and low-density outer areas will co-exist. Population increase will be relatively faster in outer areas, but employment places will intensify in several city centers.

Scenario II - "The future as a child of history, but not a clone"

 Current land use/urban development trends continue, but the transportation network would be developed in a more strategic and systematic fashion. For Example, although most existing transport projects/plans would be concentrated in Metro Manila, these would be modified/restructured to adapt to the fast-growing population in outer areas.

Scenario III - "Planners dream of managing land use and transport simultaneously"

 Land use would be controlled and urban growth managed more efficiently in terms of density control, zoning enforcement, decentralization of urban function, etc. The transportation network would remain basically the same as Scenario II.

Scenario IV - "Urbanization can be tamed"

 On top of scenario 3, this one assumes that the national policy of deconcentration gains headway and the growth is diverted to such growth centers as Subic, Clark, Batangas, etc.. Consequently, in-migration to Metro Manila is mitigated.

The resulting traffic demand forecasts under Scenario III showed a decline in overall congestion levels. More efficient use of the transport network is foreseen, and its cost significantly reduced. Although the planned intervention would be salutary, MMUTIS opted to formulate a Master Plan based on Scenario III. It was deemed that Scenario II was more realistic; Scenario III as more in the realm of blue-sky exercise.

The Standardization for Integration Railway Network in Metro Manila (SIRNMM) took the Scenario II as a take-off point, noting that it might under-estimate demand at the northern and western parts of the Metro Manila urban peripheries.

4.2   Future Socio-Economic Framework

The corresponding socio-economic characteristics synthesized by MMUTIS for Scenario II are depicted in Table 4.2.1.

Table 4.2.1   Future Socio-Economic Profiles

Item		1995	2015	Growth	
				2015/1996	Annual Rate
Population (thousand)		14368	25720	1.79	3.11
Employment at Work Place (thousand)		5149	9443	1.83	3.24
Students at School Place (thousand)		4589	8394	1.83	3.23
GRDP (billion Pesos)	High Growth	856	2846	3.32	6.53
	Medium Growth	856	2706	3.16	6.24
	Low Growth	856	2420	2.83	5.62
Per Capita GRDP (pesos)	Medium Growth	59580	103490	1.74	2.95
Average Household Income (P/month)		12356	20730	1.87	3.35
Car Ownership	No. of Cars	730	2340	3.21	6.32
	(000%) of Households	18.5	28.2	1.52	2.24

4.3 Railway Ridership Demand Forecasts

4.3.1 Difference from MMUTIS

The difference from MMUTIS shows in Table 4.3.1.

Table 4.3.1   The Difference from MMUTIS

Item	MMUTIS	SIRNMM
No. of zones	171	199
Fare system of rail	Flat/Distant-dependent	Distant-dependent
North Rail/MCX	Independent	Connected
Line 6	Baclaran-Dasmarinas	Baclaran-Niog

4.3.2 Methodology

The forecasting model is outlined in Fig. 4.3.1. Basic information and data used in the study were from MMUTIS. These basic data have been adjusted to the specific needs of this study. Other salient features of the modeling exercise are as follows:

(1) The MMUTIS 171-zone system was used. However, the zones located in Pasay City, Paranaque and Las Pinas along the Line 6 or LRT-1 extension corridor and in Quezon City along the Line 4 corridor were decomposed into smaller zones to reflect more realistically the location of stations.

(2) The year 2015 trip table (Scenario 2) of MMUTIS was also used, with divided zone modification on the above zoning details for this study.

(3) The future transport network includes all existing committed projects (both road and rail) and major plans/proposals. By including other major projects, an overestimate of the ridership could be avoided. Specific railway plans/proposals considered in the study are North Rail, MCX, Line 2, Line 3 and Line 4 as well as Line 6. North Rail and MCX are connected and Line 6 passes the different stations, through Asia World to Niog in this study.

(4) The time value of public transportation passengers was used at P1.67/minute for 2015 of MMUTIS. It should be noted that this figure is not the same as the economic time value used in economic evaluation.

(5) Traffic assignment model used in this study as same as MMUTIS is the JICA STRADA.
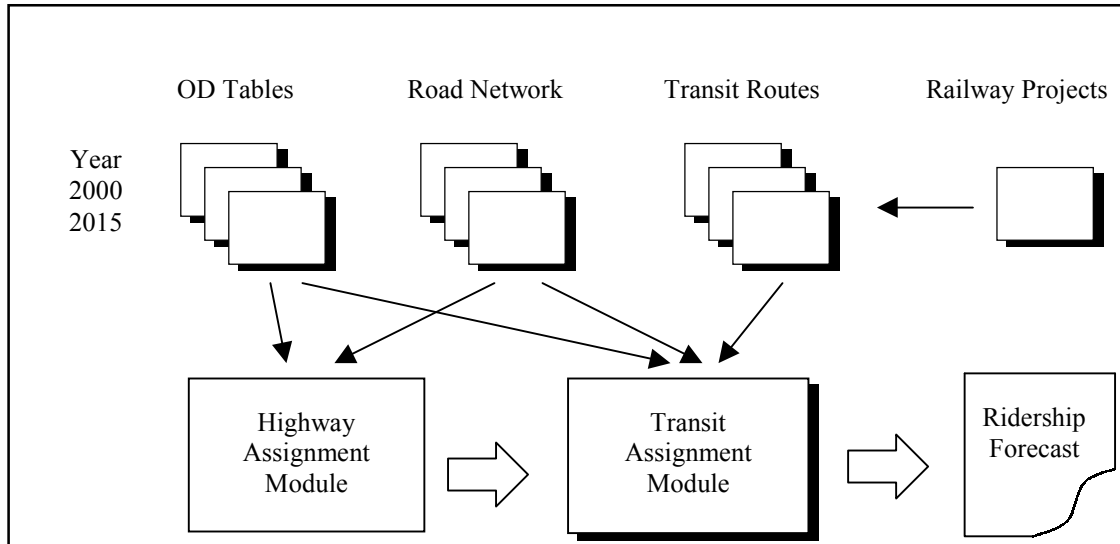

Fig. 4.3.1   Demand Forecast Process for SIRNMM

The forecasting model mimics actual transport conditions.   Ridership is sensitive to fare level and structure.   The higher the fare level, the lower the ridership and vice versa.   A flat fare normally discourages shorter trips, while distance-based fare encourages relatively the shorter trips. Thus, the resulting ridership forecast cannot be divorced from its underlying fare assumptions.

Fig. 4.3.2 shows the volume of railway passengers, Fig 4.3.3 shows the number of transfers at railway station in base case at year 2015.

LEGEND : SR15.TRE
Line:ALL (Both)
scale: 1cm2= 1500000(person)

Alight
Board
Transfer

Fig. 4.3.2   Volume of the Railway Passenger, 2015

LEGEND : SR15.TRE
Line:ALL (Both)
scale: 1mm= 200000(person)

Fig. 4.3.3   Transfer Passenger at the Railway Station, 2015

4.4 The Diverted Railway Passengers

The diverted railway passengers are estimated with JICA STRADA by means of reduction of transfer time through the station plazas. The result by reduction ratio of transfer time shows at Table 4.4.1.

Table 4.4.1   The Diverted Railway Passengers by Station, Year 2015

(Unit : person/day)

Station	Reduction Ratio		
	30%	40%	50%
Monumento	15,055	30,692	39,628
Magallanes (line 3)	23,787	29,633	18,007
Magallaness (MCX)	10,371	45,127	54,923