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National Center for Transportation Studies
Graduate Scholarship Program
As of 1st Semester, AY 1998-1999

Academic Year	Semester	Entering			Continuing			Graduated at end of Semester			Backed Out		
		TE	TP	Total	TE	TP	Total	TE	TP	Total	TE	TP	Total
1993-94	1st	5	4	9	(4)		(4)	2		2			
	2nd	0	0		5	4	9				(2)*		
1994-95	1st	2	3	9	5	4	9	(2)*					
	2nd	3	1		2	3	5	4	4	8	1**		1
1995-96	1st	2	4	10	4	4	8	2	1	3	1		1
	2nd	3	1		3	5	8	2	3	5	1		1
1996-97	1st	3	6	9	3	5	8	1	0	1	1		1
	2nd				5	7	12	1	3	4	1**		1
1997-98	1st	3	6	11	3	6	9						
	2nd	2	0		5	6	11	3	4	7		1**	1
1998-1999	1st	2	4	11	2	1	3				1		1
	2nd	4	1		8	7							
	Total			59				Total		30	Total		7

Notes: TE - Master's Degree in Transportation Engineering
TP - Master's Degree in Transportation Planning
* - Student under different program (e.g. DOST, REAP)
** - Student did not finish thesis requirement

LIST OF NCTS SCHOLARS
As of November AY 1998-99

Academic Year 1993-1994, 1st Semester

COE (Transportation Engineering)

1. Jose Regin F. Regidor
2. Crispin Emmanuel D. Diaz
3. Noriel Christopher C. Tiglao
4. Alex S. Lagada
5. Frederick G. Mangubat

Other Program

6. Antonio C. Saldon
7. Emer T. Quezon
8. Marlon Aquino
9. Rey C. Bartolome

SURP (Transportation Planning)

1. Josephine M. Bayan
2. Marites E. Tuazon
3. Rebecca T. Garsuta
4. Dante B. Bautista

1994 – 1995, 1st Semester

COE (Transportation Engineering)

1. Gilbert Roland C. Ortiz
2. Rodrigo S. Baid

SURP (Transportation Planning)

1. Rolyn Q. Zambales
2. Dolores J. Molintas
3. Felicisimo C. Pangilinan, Jr.

1994 –1995, 2nd Semester

COE (Transportation Engineering)

1. Rene Val R. Teodoro
2. Ma. Jocelyn A. Jarbadan
3. Fides Suzanne L. Fuentes

SURP (Transportation Planning)

1. Nenita R. Jimenez

1995 –1996, 1st Semester

COE (Transportation Engineering)

1. Rey T. Luna
2. Ariel Humprey P. Tagapolot

SURP (Transportation Planning)

1. Joey H. Felizco
2. Wininfred E. Friaz
3. Alexander-Ernesto F. Estoesta
4. Manuel Q. Hernandez

1995-1996, 2nd Semester

COE (Transportation Engineering)

1. Lilibeth E. Ares
2. Janith A. Chan
3. Michael Oliver M. de Guzman

SURP (Transportation Planning)

1. Deo Leo N. Manalo

1996-1997, 1st Semester

COE (Transportation Engineering)

1. Caesar P. Rubite
2. Fiter Jay C. Santos
3. Valdimar A. Mejia, Jr.

SURP (Transportation Planning)

1. Gilbert E. Buenaventura
2. Daniel L. Mabazza
3. Joel R. Magbanua
4. Jose Teodorico G. Real
5. Jose Romarx C. Salas
6. Ramie B. Doroy

1997-1998, 1st Semester

COE (Transportation Engineering)

1. Ronald John P. Galiza
2. Herminio Naval, Jr.
3. Marvin Somera

SURP(Transportation Planning)

1. Elmo Atillano
2. Belinda Fajardo
3. Brian Gozun
4. Sahid Kamid
5. Girlie Labastilla
6. Rommel Milloria

1997-1998, 2nd Semester

COE(Transportation Engineering)

1. Mark P. de Guzman
2. Hazel Faith DC. Lirios

1998-1999, 1st Semester

COE (Transportation Engineering)

1. Rolando T. Tagaan
2. Jane R. Romero

SURP (Transportation Planning)

1. Jennifer D. Punzalan
2. Marie Danielle V. Guillen
3. Domingo L. Guariño, Jr.
4. Noel A. Dorego

1998-1999, 2nd Semester

COE (Transportation Engineering)

1. Melandre B. Tavanlar
3. Jerome L. Catbagan
4. Marloe B. Sundo
5. Jolly Vir O. Benitez

SURP (Transportation Planning)

1. Robema A. Boligor

National Center for Transportation Studies - Alumni Database

Name	*Degree*	*Date Graduated*	*Title of Master's Thesis*	*Home Address & Tel. No.*	*Office Address Tel. No., Fax, E-mail*	*Office Designation*
Ares, Lilibeth E.	M.S.C. E.	March 1998	Pedestrian Accident Analysis: Measuring Accident Potential at Intersections	Ipil Residence Hall Tel.: 09123865258	DOTC, Railway Transport Planning Division 6 F Unit 67 Columbia Tower Ortigas Ave., Mandaluyong City Tel. 7266648 Fax: 7271703 E-mail: bugsy@NCTS.engg.upd.edu.ph	Transportation Development Officer II
Baid, Rodrigo S.	M.S.C.E.	April 1996	Evaluation of Delay on Unsignalize Intersection	Fisheries Village, MSU, Marawi City	College of Engineering, Mindanao State University, Marawi City Tel.:	Professor
Bautista, Dante B.	M.A.U.R.P.	April 1995	Serious Road Traffic Accidents in the city of Manila for Traffic safety Planning	300 P. Gomez St. Amadeo, Cavite Tel.: 09182500125 09188534954	Parsons Brinkerhoff (Asia) Ltd., 2rd Flr. Alphap I Bldg. 140 Alfaro St., Salcedo Village, Makati City Tel.: 8120857/8120858/8120869 Fax: 8674716 E-mail: pbphils@webquest.com.	Traffic Engineer
Bayan, Josephine M.	M.A.U.R.P.	April 1995	Cost Characteristics fo Bus And Jeepney Transport System in Metro Manila	Blk. 28, Lot 10 Lamar Village, San Mateo, Rizal Tel.: 09188363705	DMJM International Roxas Sulayman Bldg., Binavidez St., Legaspi Village Makati Tel.: 8138531/8138532 Fax: 8182863 E-mail: dmjmmanila@qinet.net	Transportation Planner
Diaz, Crispin Emmanuel D.	M.S.C.E.	April 1995	Effects of Opening Arterial roads in Exclusive Residential Subdivision		Studying for Ph.D. in Japan	
Doroy, Ramie B.	M.A.U.R.P.	April 1998	Willingness to Pay Attitude of Car Users on Toll Charges	Blk.5, Lot 6 Bulusan St., Hacienda Hts. Village, Concepcion II Marikina City Tel.: 9400776	Planning Service, Department of Public Works and Highways, Bonifacio Drive, Port Area, Manila Tel.: 5274817 Fax: E-mail:	Engineer IV Chief, Highways for Visayas & Mindanao Section Programming Division, Planning Service DPWH
Estoesta, Alexander Ernesto F.	M.A.U.R.P.	March 1997	Improved Foot Trails and Farming Practices among Project Beneficiaries in Selected Sites of Ifugao Province.	21 Eagle St., Francis Subd. Pandayan, Bulacan Tel.: 9217941	Department of Agriculture, International Agriculture Affairs Division Tel: 920-4087 Fax: 920-1773 E-mail:	Officer in Charge
Friaz, Winifred E.	M.A.U.R.P.	March 1997	Determinants of Roadside Land Use Conversion: The Case of San Jose City, Nueva Ecija	Sto. Niño First, San Jose City C-3121 Nueva Ecija Tel.: (044) 511-17-48	Office of the City Planning and Development Coordination, City Hall Compound, Maharlika Highway, San Jose City, Nueva Ecija Tel.: (044) 511-17-48 Fax: E-mail:	City Planning and Development Coordinator
Garsuta, Rebecca T.	M.A.U.R.P.	April 1995	Basic Study of Urban Goods Movements in Metro Manila; An Assessment of Physical Distribution Facilities Commodity Flow Pattern	Lot 1, Blk. 31., Sto. Nino Subd., Phase 3D Meycauayan, Bulacan Tel: 6951765	Planning Service, Department of Public Works & Highways, Bonifacio Drive, Port Area, Manila Tel.: 5278921 local 336/ 5274113 Fax: 927-4121 E-mail:	Division Chief Dev't. Planning Division Planning Service DPWH

National Center for Transportation Studies - Alumni Database

Name	*Degree*	*Date Graduated*	*Title of Master's Thesis*	*Home Address & Tel. No.*	*Office Address Tel. No., Fax, E-mail*	*Office Designation*
Hernandez, Manuel Q.	M.A.U.R.P.	March 1997	Patterns of Regional Transportation Infrastructure Investment and Development Indicators in the Philippines (1982-1995)		Baler Aurora Municipal Planning & Dev't. Office **Tel.:** none **Fax:** **E-mail:**	
Jarbadan, Ma. Jocelyn A.	M.S.C.E.	October 1996	Investigating the Suitability of Volcanic Ash Sand as an Alternative Material for Road Subbase Courses and Stabilized Based Courses.	Lot 2, Blk. 2 Opal St., Interville Subd. I Novaliches, Q.C. **Tel.:** 9394326 or 9215241 loc. 245	Philkoey International Incorporated 4th Floor Pacific Star Building Buendia corner Makati Ave., Makati City **Tel.:** 8177141/8176756/8185980/8184729 **Fax:** 8170244 **E-mail:** pkii@skyinet.net	Civil Engineer II
Jimenez, Nenita R.	M.A.U.R.P.	October 1996	Predicting the Impact of EDSA Mass Transit on the Mode Choice Behavior of Car Users for Work Trips	14-C Alley 7 Corner Rd. 9, Project 6, Q.C. **Tel.:** 454-9544; 922-7271 Pager# 1388-14822	Planning Service Department of Public Works & Highways Port Area, Manila **Tel.:** 5278921 **Fax:** **E-mail:** NRJ@info.com.ph	Engineer II
Ladaga, Alex S.	M.S.C.E.		Study on the Effects of Gap Forcing at Two-Way-Stop-Controlled Intersection using Simulation	3934 John Bosco Dist., Mangagoy, Bislig, Surigao del Sur	CE Department, College of Engineering, MSU, Marawi City	
Mabazza, Daniel L.	M.A.U.R.P.	April 1998	The Impact of Public Infrastructure on Regional Income Disparities	22 Silver St. Upper Quezon Hill, 2600, Baguio City **Tel.:** (074) 443-4286	Department of Geography, College of Social Sciences & Philosophy, U.P. Diliman, Q.C. **Tel.:** 9205301 loc. 7462 or 925-2952 **Fax:** **E-mail:** dmabazza@cssp.upd.edu.ph	Instructor V
Magbanua, Joel	M.A.U.R.P.	April 1998	Work Trip Distribution in Large Scale CBD	21 Camiling St., NIA Vill., Tandang Sora, Q.C. **Tel.:** 930-34-99	Department of Transportation and Communications 6th Flr., Columbia Towers, Ortigas Ave., Mandaluyong City **Tel.:** 72-666-43	Supervisor Transportation Development Officer
Manalo, Deo Leo N.	M.S.C.E.	October 1997	Weekend and Holiday Trips in Metro Manila		Department of Transportation and Communications 6th Flr., Columbia Towers, Ortigas Ave., Mandaluyong City **Tel. 727-7948** **Fax: 727-7948**	Senior Communication Development Officer
Mangubat, Frederick G.	M.S.C.E.	April 1995	Speed Flow Relationship and Passenger Car Equivalent for Truck in the Philippines	Corazon Ville 2 San Isidro, Talisay, Cebu **Tel.:** none	Private Company	

National Center for Transportation Studies - Alumni Database

Name	*Degree*	*Date Graduated*	*Title of Master's Thesis*	*Home Address & Tel. No.*	*Office Address Tel. No., Fax, E-mail*	*Office Designation*
Molintas, Dolores J.	M.A.U.R.P.	April 1996	A Frame Work for Incorporating-Person-Trip Survey to the Philippine Census of Population and Housing	623 Upper Rock Quarry, 2600 Baguio City Tel.: none	National Economic & Development Authority Cordillera Administration Region (NEDA-CAR) Botanical Garden, Leonard Wood Rd., 2600 Bagui City Tel.: 442-3232 or 442-7757	Senior Economic Dev't. Specialist
Ortiz, Gilbert Roland	M.S.C.E.	April 1996	Exploratory Study on Shopping Center Trip Generation	28 Aramismis St., Veterans Village, Q.C. Tel.: 98-37-84	Private Company	
Pangilinan, Felicisimo C.	M.A.U.R.P.	April 1996	A Study on Airport Prioritization Scheme	26 Steve St., Brgy. Commonwealth, GAO, Q.C. Tel.: 932-1173	Dept. of Transportation & Communication 6/F Unit 67, Columbia Tower, Ortigas Ave., Mandaluyong City Tel.: 7277960 loc. 262 or 7256038 Fax: 7271703	Senior Transport Dev't. Officer
Quezon, Emer T.	M.S.C.E.	October 1994	Study on the Effects & Flyover Construction on Traffic Flow: The Case of Metro Manila		Department of Public Works and Highways	
Real, Jose Teodorico Gonzaga	M.A.U.R.P.	April 1998	An Analysis of Travel Activity Patterns in metro Manila		Planning Service, Department of Public Works and Highways, Bonifacio Drive, Port Area, Manila Tel: 5274817	
Regidor, Jose Regin F.	M.S.C.E.	April 1995	Initial Development of Simulation Program for the Evaluation of Jeepney Stop Configuration with Focus on Single Lane Roadways.		Private Company	
Rubite Caesar P.	M.S.C.E.	April 1998	Modeling Car Ownership & Use in Metro Manila	12-D Ocampo St., Amorsolo, U.P. Dil., Q.C. Tel.: 435-2788; 9291849	DPWH	
Saldon, Antonio C.	M.S.C.E.	October 1994	Evaluation of Signal Parameters at Intersection of Metro Manila.		Private Company in Japan	
Tagapolot, Ariel Humprey P.	M.S.C.E.	March 1997	Effects of Lane Blockage on the Traffic Flow Behavior at Expressway			
Teodoro, Rene Val R.	M.S.C.E.	October 1996	Emperical Analysis of the Relationship Between Air Pollutant Concentration and Road Traffic and Meteorological Parameters	Jacinto St. Hinigaran, Negros Occidental Tel.: none	National Center for Transportation Studies University of the Philippines, Diliman, Q.C. Tel.: 9290496 or 9205301 loc. 5516 Fax: 9290494 E-mail: val@ncts.engg.upd.edu.ph	University Extension Specialist I and Senior Lecturer I (AIT)
Tiglao, Noriel Christopher C.	M.S.C.E.	April 1995	Discrete Choice Model on Locational Choices of Manufacturing Firms in Industrial Estates: The Case of Calabarzon in the Philippines		National Center for Transportation Studies University of the Philippines, Diliman, Q.C. Tel.: 9290495 or 9205301 loc. 5258 Fax: 9290494 E-mail:	University Extension Specialist II and Lecturer, CE Dept., U.P. College of Engineering

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Name	*Degree*	*Date Graduated*	*Title of Master's Thesis*	*Home Address & Tel. No.*	*Office Address Tel. No., Fax, E-mail*	*Office Designation*
Tuazon, Marites E.	M.A.U.R.P.	April 1995	Analyzing Transfer Disutilities in Desegrate Mode Choice Models for Work Trips Using Revelead	529 P. Angeles St., San Jose, Baliwag, Bulacan Tel.:6316239	DOTC	
Zambales, Rolyn Q.	M.A.U.R.P.	April 1996	Exploring the Potentials of Telecommunicating in the Philippines with Emphasis on Employee's Perceptions and Stated-Preferences.	1 Congressional ave., Carmel II Subd., Project 6, Q.C. Tel: none	Department of Interior & Local Government Office of Project Dev't. Services Tel.: 929-9601 or 9250378 Fax: 925-0388 E-mail:	Project Manager Local Government Operations Officer VII

LIST OF GRADUATE THESIS

	NAME	DEGREE	DATE GRADUATED	TITLE OF MASTER'S THESIS
1	Antonio C. Saldon, Jr.	M.S. C.E.	Oct. 1994	Evaluation of Signal Parameters at Intersection of Metro Manila
2	Emer T. Quezon	M.S. C.E.	Oct. 1994	Study on the Effects & Flyover Construction on Traffic Flow : The Case of Metro Manila
3	Noriel Christopher C. Tiglao	M.S. C.E.	Apr. 1995	Discrete Choice Model on Locational Choices of Manufacturing Firms in Industrial Estates
4	Frederick G. Mangubat	M.S. C.E.	Apr. 1995	Speed Flow Relationship and Passenger Car Equivalent for Truck in the Philippines
5	Jose Regin F. Regidor	M.S. C.E.	Apr. 1995	Initial Development of Simulation Program for the Evaluation of Jeepney Stop Configuration with Focus on Single Lane Roadways
6	Crispin Emmanuel D. Diaz	M.S. C.E.	Apr. 1995	Effects of Opening Arterial Roads in Exclusive Residential Subdivision
7	Marites E. Tuazon	M.A. U.R.P.	Apr. 1995	Analyzing Transfer Disutilities in Desegrate Mode Choice Models for Work Trips Using Revealed and Stated Preference Data
8	Josephine M. Bayan	M.A. U.R.P.	Apr. 1995	Cost Characteristics for Bus and Jeepney Transport System in Metro Manila
9	Rebecca T. Garsuta	M.A. U.R.P.	Apr. 1995	Basic Study of Urban Goods Movements in Metro Manila; An Assessment of Physical Distribution Facilities Commodity Flow Pattern
10	Dante B. Bautista	M.A. U.R.P.	Apr. 1995	Serious Road Traffic Accidents in the City of Manila for Traffic Safety Planning
11	Rodrigo S. Baid	M.S. C.E.	Apr. 1996	Evaluation of Delay on Unsignalized Intersection
12	Gilbert Roland C. Ortiz	M.S. C.E.	Apr. 1996	Exploratory Study on Shopping Center Trip Generation
13	Felecisimo C. Pangilinan	M.A. U.R.P.	Apr. 1996	A Study on Airport Prioritization Scheme
14	Dolores J. Molintas	M.A. U.R.P.	Apr. 1996	A Frame Work for Incorporating Person-Trip Survey to the Philippine Census of Population and Housing
15	Rolyn Q. Zambales	M.A. U.R.P.	Apr. 1996	Exploring the Potentials of Telecommunicating in the Philippines with Emphasis on Employee's Perceptions and Stated-Preferences
16	Nenita R. Jimenez	M.A. U.R.P.	Oct. 1996	Predicting the Impact of EDSA mass Transit on the Mode Choice Behavior of Car Users for Work Trips
17	Ma. Jocelyn A. Jarbadan	M.S. C.E.	Oct. 1996	Experimental Investigation on Lahar as an Alternative Material for Road Subbase Courses
18	Rene Val R. Teodoro	M.S. C.E.	Oct. 1996	Empirical Analysis on the Relationship Between Air Pollution and Traffic Flow Parameters

	NAME	DEGREE	DATE GRADUATED	TITLE OF MASTER'S THESIS
19	Ariel Humprey P. Tagapolot	M.S. C.E.	Mar. 1997	Effects of Lane Blockage on the Traffic Flow Behavior at Expressway
20	Manuel Q. Hernandez	M.A. U.R.P.	Mar. 1997	Patterns of Regional Transportation Infrastructure Investment and Development Indicators in the Philippines (1982-1995)
21	Winifred E. Friaz	M.A. U.R.P.	Mar. 1997	Determinants of Roadside Land Use Conversion : The Case of San Jose City, Nueva Ecija
22	Alexander Ernesto F. Estoesta	M.A. U.R.P.	Mar. 1997	Improved Foot Trails and Farming Practices among Project Beneficiaries in Selected Sites of Ifugao Province
23	Deo Leo N. Manalo	M.S. C.E.	Oct. 1997	Weekend and Holiday Trips in Metro Manila
24	Lilibeth E. Ares	M.S. C.E.	Mar. 1998	Pedestrian Accident Analysis: Measuring Accident Potential at Intersections
25	Ramie B. Doroy	M.A. U.R.P.	Apr. 1998	Willingness To Pay Attitude of Car Users on Toll Charges
26	Joel R. Magbanua	M.A. U.R.P.	Apr. 1998	Work Trip Distribution in Large Scale CBD
27	Daniel L. Mabazza	M.A. U.R.P.	Apr. 1998	The Impact of Public Infrastructure on Regional Income Disparities
28	Jose Teodorico G. Real	M.A. U.R.P.	Apr. 1998	An Analysis of Travel Activity Patterns in Metro Manila
29	Jose Romarx C. Salas *	M.A. U.R.P.	Apr. 1998	A Study on the International Air Passenger Demand in the Philippines
30	Caesar P. Rubite	M.S. C.E.	Apr. 1998	Modeling Car Ownership and Use in Metro Manila
31	Alex S. Ladaga	M.S. C.E.	Apr. 1998	Study on the Effects of gap Forcing at Two-Way-Stop Controlled Intersection Using Simulation

* with pending case

THESIS ABSTRACTS

Antonio C. Saldon, Jr.
M.S. C.E., October 1994

EVALUATION OF SIGNAL PARAMETERS AT INTERSECTION OF METRO MANILA

The operation of the Intersection is often the critical factor in determining the over-all capacity and performance of the road network. Traffic engineers are continually faced with the problem of controlling flows at intersections in order to improve the road network performance. The continuing increase of population and car ownership in the Metropolis urgently needs Government action to provide the increasing demand for intersection facilities to facilitate and control traffic movements. Metro Manila adapted the Area Signal Control System starting 1980. Since then, the Government is continually trying to solve this problem of facilitating the flow of traffic at the intersections of major thorougtl fares. Inspite of the poor economic situation in the country the Government is doing its best to ease the road users' discomfort, frustration, loss of travel time and high fuel consumption brought about by the deplorable traffic situation in the Metropolis.

At present, there is now a computerized control system in Metro Manila, as part of the Government's program to solve the traffic congestion problem especially at intersections. The ability of this signalized intersection to move traffic is determined by the roadway, traffic and signalization condition of the intersection. Most of the physical (roadway) improvements of these intersection were done just to cope with the increasing traffic demand. However, traffic signal control is the crucial factor in the ability of the intersection to move traffic. It is an important element in the traffic management of road transportation system since it involves allocation of road space to road users. The signal controller does the allocation of green time for every phase or the cycle time. This form of control can be obtained either through automatic control or by police direction (manual control). In traffic signal control, signal parameters are important to maximize the capacity of the intersection especially when it is oversaturated. In order to maximize the ability of the intersection to move traffic, the allocation of green time in every phase or cycle time should be optimized.

In this study, it was aimed to assess the current situation of signal setting at intersections in Metro Manila, to determine if the signal parameters used are at its optimum. It focused only on signal parameters, namely; phase length, cycle time and phase pattern which the signalization condition of the intersection is greatly dependent on. Through reevaluation of signal parameters, we could determine if these intersections need necessary physical improvement or redesign of intersection to deal with and perhaps improve the deplorable traffic situation in the Metropolis. For this purpose, a field survey of traffic volume and signal setting were conducted for 11 intersections which were selected as typical intersections in the Metropolis.

Emer T. Quezon
M.S. C.E., October 1994

STUDY ON THE EFFECTS AND FLYOVER CONSTRUCTION ON TRAFFIC FLOW : THE CASE OF METRO MANILA

The study seeks to present the effects of the flyover construction on traffic flow within the selected area in Metro Manila adopted the "with" and "without" case at-already completed flyover construction. These two views were categorically differentiated by bringing up several viewpoints that will evaluate the effectiveness of the flyover construction. The said viewpoints are the following, to wit: 1. what will happen if the flyover was not constructed?, 2. what is the current traffic situation?, 3. what are the problems being experienced by the travelers brought about by this set up?, and lastly, 4. is this flyover properly utilized? These are some of the many questions raised by cause-oriented groups which this research attempts to clarify.

The comparative analysis concerning those viewpoints on "with" and "without" case at-already completed flyover construction was based on a basic concept of the study. This basic concept is the use of the travel time and delay as the measure for evaluation. The evaluation measure is used in applying the mathematical model formulated by DOHERTY and CATLING. This model would be used for "with" case of flyover construction to compare with the observed values by applying statistical analysis to test the model. After the test of the model,

due validation of the results and the same model would be applied for "without" case at-already completed flyover construction to provide for a comparative analysis.

A research paper such as the present work is justified by the need to present a more profound, truthful and understandable presentation of the subject. More so, because there have not been many studies conducted tackling this line of endeavor in the Philippine setting, maybe due to its very recent age and short experience how these flyovers work efficiently.

The research area studied was Nagtahan - R. Magsaysay Boulevard intersection. The traffic flow accentuated along the main corridors, namely, along R. Magsaysay Boulevard - Legarda, a second level overpass and Nagtahan - Gov. Forbes, a third level overpass. The ground level is converged into a five(5)-legged signalized junction of J.P. Laurel - Nagtahan - R. Magsaysay Boulevard - Legarda and Gov. Forbes.

The conceptual framework of the study takes the "with" and "without" case at-already completed flyover construction as the main course of consideration. The "with" case of flyover discusses mainly the views on how it affects the current traffic condition, included are subsequent topics on; 1. the normal growth of traffic, 2. the testing of the mathematical model and, 3. the weaving behavior of traffic flow. While the "without" case of flyover construction discusses the condition if the flyover was not constructed, included are subsequent topics on; 1. the right-of-way (R-()-W) and geometric configuration, 2. the intersection analysis, and, 3. the application of the mathematical model.

To complete the topic on the current traffic situation, a discussion on the possible solutions of the occurring problems based on findings were also presented. There were two issues from which delineation of the current traffic problem had been developed under one scheme, the Traffic Management and Enforcement, to wit: 1. move pedestrian overpass and jeepney stops further away from the separation level, and, 2. exclusive design of flyover for jeepney utilization.

Noriel Christopher C. Tiglao
M.S. C.E., April 1995

DISCRETE CHOICE MODEL ON LOCATIONAL CHOICES OF MANUFACTURING FIRMS IN INDUSTRIAL ESTATES : THE CASE OF CALABARZON IN THE PHILIPPINES

The Philippine government adopts agri-industrial development as one of its strategies in the Medium-Term Philippine Development Plan for the country's attainment of an NIC-status by the turn of the century. One concern that must be addressed is the means by which these industrial developments can be effectively attracted and promoted.

The study is interested in finding out the locational choices of industrial firms in the manufacturing sector. It is also concerned with the application of discrete choice models to describe how manufacturing firms decide among alternative locations as final site for its facility. It provides an understanding about the behavior of firms across varying industry characteristics. The model is structured as a binary choice model incorporating both objective and subjective factors as explanatory variables. The case study uses data from questionnaire surveys on individual firms, interviews with firms, developers and concerned government agencies, and other secondary sources.

The study identifies the underlying factors that influence firm decisions. Furthermore, it presents a general framework on the current locational choices of manufacturing firms in the Philippines.

Frederick G. Mangubat
M.S. C.E., April 1995

SPEED FLOW RELATIONSHIP AND PASSENGER CAR EQUIVALENT FOR TRUCK IN THE PHILIPPINES

This paper presents the results of a research on the capacity determination in the considered segments of North and South Luzon Expressways. This study focuses on the establishment of a speed flow curve The peak of the curve could define the maximum rate of flow or capacity. The capacity being obtained in this study is being compared to the capacity obtained in other studies like the Highway Planning Manual which is prepared by the Ministry of Public Highways and the U.S. Highway Capacity Manual. This study also includes lane utilization analysis of the considered segments and a macroscopic approach in the estimation of passenger car equivalent for truck.

Jose Regin F. Regidor
M.S. C.E., April 1995

INITIAL DEVELOPMENT OF A SIMULATION PROGRAM FOR THE EVALUATION OF JEEPNEY STOP CONFIGURATIONS WITH FOCUS ON SINGLE LANE ROADWAYS

The current practice for public transit vehicles, notably jeepneys, is to perform loading and unloading operations at almost any point along a road section. This behavior leads to congestion as jeepneys effectively block the flow of traffic. There are existing policies for the designation of stops along Metro Manila's thoroughfares. However, these policies are not reliable as they fail to take note of important factors such as traffic flow and road characteristics. The author seeks to initiate the development of a practical and effective stop policy. This paper focuses on the initial development of a computer program for the simulation of traffic flow given various stop configurations. The present form of this program is applicable only to single lane roadways and considers a test section composed of seven meter cells. Vehicles are generated using a shifted exponential distribution. Passenger arrivals were assumed to be normally distributed. The program is able to simulate jeepney stopping behavior as well as boarding and alighting operations. Realistic simulation is limited by assumptions made in this paper and the program was tested under somewhat 'ideal' conditions using real world input data. Results were evaluated to establish trends with respect to the relationship between stop designation and delay. The present form of the program is envisioned to include more aspects of the jeepney stop environment in the future and be extended to include multilane roadways as well as stops at intersections.

Crispin Emmanuel D. Diaz
M.S. C.E., April 1995

EFFECTS OF OPENING ARTERIAL ROADS IN EXCLUSIVE RESIDENTIAL SUBDIVISIONS

Exclusive residential villages are planned residential subdivisions which are comprised of single-detached housing units, and for which access is restricted to residents only. Urbanization leads to an increasing need for additional capacity in the existing road networks. Village size, shape and location are the most important aspects of its interaction with the road system. When villages conflict with the function of the primary road system , opening of these villages is a very visible option for increasing network capacities. Unfortunately, there has been a lack of careful consideration on the effects of such moves on the residents of these villages, and whether or not such action would necessarily abate the decline in performance of the road traffic system.

This paper sought to identify the most important benefits of exclusiveness or conversely to identify the most serious disbenefits of its loss. From the village inventory, around 16.18 percent of all residential villages in Metro Manila are exclusive, affecting a large number of households. The surveys identified security and clean, quiet environment as the most important benefit of exclusiveness.

Marites E. Tuazon
M.A. U.R.P., April 1995

ANALYZING TRANSFER DISUTILITIES IN DISAGGREGATE MODE CHOICE MODELS FOR WORK TRIPS USING REVEALED AND STATED PREFERENCE DATA

Disaggregate mode choice models normally take account of transfers as the number of times the act will have to be carried out for a specific alternative. It was hypothesized that the prevailing transfer conditions and the use and non-use of transfer facilities characterize the quality of transfers which in turn can have substantial effects on travel behaviour.

This research thus investigated the effect of the inclusion of possible measures of transfer inconvenience on disaggregate mode choice models for work trips. This was operationalized through the consideration of the different aspects of transfer such as walking, waiting, security risks, exposure to the elements and the use of stairs, with the latter forming an integral part of the rail based option. Models with and without the transfer variables were then estimated using combined revealed preference and stated preference data.

It was found that adopting the variables for the use of stairs, maximum tolerable walking and waiting times and a generalized attribute for transfer inconvenience improve the specification and add significantly to the explanatory power of the mode-choice models.

Josephine M. Bayan
M.A. U.R.P. , April 1995

COST CHARACTERISTICS OF BUS AND JEEPNEY TRANSPORT SYSTEMS IN METRO MANILA .

A full understanding of the cost structure of public transportation systems is important for proper management and regulation. In this research, the cost structures of bus and jeepney transport systems in Metro Manila were studied and cost functions for bus and jeepney modes were developed in order to identify policy recommendations related to the cost aspect of public transport regulation and management.

The main findings of this research were that: a) economies of scale exist in bus operations; b) there was no conclusive result on economies of scale obtained for jeepney operations. However, the cost structure analysis indicated that there may be no economies of scale in jeepney operations; c) bus-kilometer and average speed significantly affect cost of operations; and, d) fuel consumption is a major component of total operating cost.

Based on the findings of this research, the following recommendations were made: a) encourage the growth of large bus companies; b) improve the turn around time of public utility vehicles because it affects fuel consumption; c) from a cost standpoint, there is no need to regulate the size of jeepney route associations; and, d) the government should require bus and jeepney operators to periodically submit basic financial reports in order to have a better basis for formulating regulatory policies.

Rebecca T. Garsuta
M.A. U.R.P., April 1995

BASIC STUDY OF URBAN GOODS MOVEMENT IN METRO MANILA : AN ASSESSMENT OF PHYSICAL DISTRIBUTION FACILITIES AND COMMODITY FLOW PATTERN

This paper focuses at the urban freight transport industry at present. It presents an overview of the commodity flow as a system in Metro Manila and identification of major problem areas which affect goods movement and assessment of key factors influencing in its physical distribution.

In this research, the emphasis is on the problems of the freight movement because most of the opportunities and research are in this area. It provides information on urban freight characteristics in Metro Manila. It then

describes the physical distribution pattern and the role of the government and the private industries in freight movement.

One of the main findings of the research is that the existing traditional method of distribution channels are complex, more expensive and are uneconomical patterns. The present truck operation are not so efficiently carried out, such as deliveries to sites within CBD where there are no off-street facilities or deliveries to sites where access is difficult or loading/unloading facilities are inadequate. On the certainty of goods vehicles arrival on time is that 83% of delivery trucks failed to arrived on scheduled time, 58% of the truckers do not follow any travel scheduling plan, 89% are empty in their return trip and 64% of the trucking firms and industries are without terminal garage facilities.

Truck or goods movements are hampered by the top five factors, these are: congestion, truck ban, laxity of enforcement, poorly maintained roads and drivers' behavior. Moreover, the physical distribution channel passes through several unnecessary stages of operation.

The research summary includes among others: first, failure on the part of the government to directly address the real causes of problems affecting goods flow; second, failure for the private industries/commercial carriers to determine the optimal distribution channel that will eliminates unnecessary transport transfers from one depot to another.

Dante B. Bautista
M.A. U.R.P., April 1995

SERIOUS ROAD TRAFFIC ACCIDENTS IN THE CITY OF MANILA FOR TRAFFIC SAFETY PLANNING

The City of Manila is characterized by a rapid growth of motorization. One implication of this phenomenon is the increase in the number of traffic accidents. There is a need, therefore to examine accidents so that any safety measure can be based on sound, sensible, and most practical analysis.

This study identified several components that contribute to the increasing number of serious accidents in the City of Manila. It also identified locations where serious accidents were concentrated. Additionally, to come up with best remedial measures, this study reviewed the existing methodologies on accident analysis. After presenting recommendations to improve road safety, this study reformulated accident analysis procedures for future reference.

To identify contributing factors to the increasing number of serious accidents, this study tested severity of nighttime against daytime accidents. This also tested the common belief that most of the accidents happen during Mondays. It also examined and tested hypothesis, that the proportion of accidents involving trucks is higher than any other type of vehicles. Left-turning movements inside the intersection was assumed to be the most critical maneuver. Finally, this study took a closer look at pedestrians who are involved in the most serious traffic accidents.

The following are the major findings of this study:

(a) The proportion of fatal nighttime accidents is higher than the proportion of fatal daytime accidents. A significant number of these accidents involved pedestrians;
(b) The belief that most serious traffic accidents happen during Mondays is not true;
(c) The proportion of accident to vehicle composition is highest for trucks. Public utility vehicles like jeepneys and buses rank second and third respectively;
(d) A significant number of pedestrians involved in serious accidents disregarded traffic rules;
(e) Left-turning maneuvers is most dangerous only on few intersections;
(f) Annual city-wide analysis of accidents alone cannot produce specific recommendations for traffic improvements. Although general recommendations can be derived from accident analysis based from accident patterns, a more specific traffic survey must be conducted to specify remedial measures; and,
(g) There is a need to adopt a different accident analysis methodologies and standards, such as the one presented in this study, that may fit local condition and warrants.

Rodrigo S. Baid
M.S. C.E., April 1996

EVALUATION OF DELAY ON UNSIGNALIZED INTERSECTION

In this study empirical models of capacity and delay have been developed for two-way STOP controlled intersections. The capacity model states that the maximum flow or capacity of the minor street is a function of the total conflicting flow and the basic traffic flow theories regarding capacity was confirmed true. The delay model states that at 100 vph reserved capacity, the average service time tends to remain at a nearly constant level and average service time is a function of total conflicting flow and reserved capacity being fixed. The basic traffic flow theories of delay is also confirmed true in this model. The delay model is in the form of a linear function while the capacity model is in an exponential form.

Warrant for signalization or improvement of the intersection has also been developed on some types of intersections. This is a delay based warrant and states that the intersection can is efficient at a combination below the curve of the capacity minus the threshold value of 100vph reserved capacity. In the comparison made of this established warrant to the MUTCD and the locally used TEC warrant, it was found that the use of either the two existing warrant will overestimate the Philippine situation of unsignalized intersection efficiency.
The above mentioned models and the established warrant are preliminary for reason of limited survey sites and data such that the author understands the necessity for further study to come up with a reliable conclusions regarding the characteristics and efficiency of unsignalized intersections in the country.

Gilbert Roland C. Ortiz
M.S. C.E., April 1996

EXPLORATORY STUDY ON SHOPPING CENTER TRIP GENERATION

The current boom in shopping center construction entails the usage of some shopping center trip factor. The main objective of this research was to determine these rates . The results were that the observed shopping center vehicle trip rates greatly differed from foreign trip rates. This was due to the fact that 69-80 percent of Filipino shoppers use the bus and jeepney while 90 percent of the foreign shoppers use private vehicle Due to the lack of samples, no accurate and stable trip prediction multi-linear model was established As a result thereof, the researcher recommended more samples to be gathered using his formulated survey methodology.

Felicisimo C. Pangilinan
M.A. U.R.P., April 1996

A STUDY ON AIRPORT INVESTMENT PRIORIZATION SCHEME

Prioritization, as used by planners and managers, is a systematic process of allocating the resources that are usually scarce, to achieve an optimum result. However, there are certain conditions to be met in order for it to be an effective tool in decision making process.
This study has identified various parameters and factors that could be used in determining the priority rating of an airport and a project. Selection of parameters was determined from the responses of a perception survey distributed to the different individuals who are involved directly and indirectly in the decision-making process of airport development. A procedure, based on a scoring model approach, was developed utilizing the identified decision variables that could measure the degree of need, urgency and desirability of an airport and project, taking into consideration the multiplicity of transport investment goals.

Airport priority rating is evaluated using projected traffic demand, needs, volume of economic activities, local and national government plans, accessibility, financial, economic and environmental considerations of the area. While for the airport project, it is justified in terms of needs, continuity, convenience, security and economic factors.

It was found by this study that, decision makers come from different groups of agencies, both government and private, may have different and conflicting interest, could still decide harmoniously.

Dolores J. Molintas
M.A. U.R.P., April 1996

A FRAMEWORK FOR INCORPORATING PERSON-TRIP SURVEY INTO THE PHILIPPINE CENSUS OF POPULATION AND HOUSING

Adequate and reliable data is the foundation of sound decision-making. The absence of an efficient person-trip data collection system results to inadequate and unreliable transportation data. The transportation problems we encounter today take root from this constraint.

This study attempted to determine the feasibility of one possible option in establishing an efficient person-trip data collection system -- that of incorporating person-trip survey into the Philippine Census of Population and Housing (CPH). It also attempted to establish a framework from which strategies needed for the efficient incorporation could be drawn. The focus of this study was on evaluating the appropriateness of two survey tools in administering the combined person-trip survey and the CPH instruments. To attain these objectives, the compatibility of the instruments used in traditional person-trip surveys and the CPH were initially investigated. Likewise, the possible legal implication of the said incorporation was also examined. Moreover, the pilot-testing of a questionnaire was also conducted. Said pilot-test questionnaire was developed from the survey instruments of the 1990 CPH, 1995 Population Census (POPCEN) and that of the Metro Manila Transportation Planning Study (JUMSUT). It was administered using .either the personal interview method (PIN1) or the self-administered questionnaire (SAQ). Baguio City was chosen as a representative area for the pilot-test.
The research revealed that incorporating person-trip survey into the CPH was methodologically and legally feasible. Methodologically feasible in a sense that both the traditional person-trip surveys and the CPH share the same target population and that they were compatible in terms of data gathering approach. Likewise, the data obtained in traditional person-trip surveys were comparable in many respects with that of the CPH. In addition, said incorporation was also found to be legally feasible because an enactment of a new law for its operationalization was not necessary. Batas Pambansa Bilang 72 which mandated the conduct of the CPH did not restrict any rider in the taking of the population census, provided, this was approved by the National Economic and Development Authority (NEDA). Further, the relatively high rate of response obtained from the pilot-test also intensified the viability of the proposed incorporation. Furthermore, the study provided some insights as to how the intended incorporation should be undertaken. It bared the need to administer the questionnaire using the PIJ~N as this ensured data quality and was found to be compatible with the method currently employed in conducting the CPH. Moreover, the PIM was found out to be a much more favorable tool as it did not choose its respondents, hence, in terms of suitability, it was more versatile compared to the SAQ. Also, to obtain better data quality, this study highlighted the importance of developing good relations with respondents through the use of a zJser-hiez7dl) survey instrument. Likewise, it also revealed that good qualifications of enumerators played an important role in the success of any data gathering activity. Finally, for cost effectivity, a restructuring and further review of the contents of the questionnaire developed were also deemed necessary.

Rolyn Q. Zambales
M.A. U.R.P., April 1996

EXPLORING THE POTENTIALS OF TELECOMMUTING IN THE PHILIPPINES WITH EMPHASIS ON EMPLOYEES' PERCEPTIONS AND STATED-PREFERENCES

The reduction in the demand for travel has been a long desired objective of transport planners and policy-makers who have long hoped for the reduction in congestion, energy consumption and traffic-related pollution. In most developed countries, telecommuting has already been considered as one possible strategy that can reduce the demand for travel. The experiences, however, in developing countries are different considering that measures being adopted are still limited to traditional approaches which, apparently, are only effective up to a certain extent. With this, at the broader context, the study investigated the possible adoption of telecommuting in the Philippines, a developing country.

One basic element in determining the potentials of this kind of working arrangement is the extent to which it can be adopted by the employees. For this purpose, the study focused on employees' perceptions on the various aspects of telecommuting as well as on their stated-preferences on several hypothetical scenarios. In addition, a preliminary investigation on employers' perceptions and stated preferences was included in this study.

Two levels of analysis were carried out. The first level focused on the determination of factors that significantly affect employees' perceptions. The second dealt with the estimation of models that describe how employees decide among alternative telecommuting programs.

The study provides an understanding about the behavior of employees across varying socio-economic characteristics. It concluded that even though socio-economic and attitudinal characteristics may be important to individuals in considering telecommuting as an option, they do not immediately determine adoption because of some trade-offs made in considering the attributes of the proposed working arrangement.

More specifically, the models developed showed that the willingness of individuals to telecommute is a function of both socio-economic characteristics and the attributes of the working arrangement proposed. They exhibited that telecommuting is more acceptable to professionals, particularly to Engineers, Architects, Researchers and those working in computers for longer periods. Likewise, they indicated that female and married employees are more inclined to telecommute since they tend to put more value to home and family than career goals. Private car users were found to show more interest in telecommuting. From the transportation perspective, this finding is, obviously, very significant. The models further showed that employees do not seem to value telecommuting if they are to incur costs. As indicated, they are more willing to trade-off benefit privileges with the convenience offered by the program.

The over-all results suggest that telecommuting has potentials for adoption in the Philippines. It must be emphasized, however, that the research has some sampling limitations and focused only on stated-preferences. Thus, in order to generate more substantial conclusions, a study that will cover diversified samples with both revealed preference and stated-preference data is strongly suggested.

Nenita R. Jimenez
M.A. U.R.P., October 1996

PREDICTING THE IMPACT OF THE EDSA MASS RAIL TRANSIT ON THE MODE CHOICE BEHAVIOR OF CAR USERS FOR WORK TRIPS

In recent years, the increasing number of private cars has been identified as the main cause of the deteriorating traffic condition along major roads in Metro Manila, particularly along EDSA. However, the government appears to have no significant program to restrain the increasing rate of car ownership. The government policies are geared more towards the promotion of the car industry rather than the control of car ownership growth to a sustainable level. In response to the worsening traffic congestion problem, transport policies are focused only on the provision of mass transit systems and the implementation of traffic restraint measures. These policies, however, will effectively alleviate traffic congestion along EDSA only if car users will actually switch to using mass transit. Hence, the objective of the study was to investigate the factors that will promote the mode shift of car users to mass transit. The study focused on work commute trips along the EDSA corridor where the MRT3 is proposed to be constructed. Models were calibrated to verify the hypothesis that the following factors affect the mode switching behavior of car users to MRT3, namely: a) the basic features and improved level of service of the MRT3; b) the park and ride scheme; and c) the traffic restraint measures such as the odd-even scheme and increased parking charges at work destination. The research findings indicate that these factors significantly affect the decisions of car users to switch to MRT3. Therefore, the adoption of a comprehensive package approach dealing with policy measures geared towards improving public transport services coupled with restricting car usage could become effective tools in encouraging car users to switch to the mass transit system.

Ma. Jocelyn A. Jarbadan
M.S. C.E., October 1996

EXPERIMENTAL INVESTIGATION ON LAHAR AS AN ALTERNATIVE MATERIAL FOR ROAD SUBBASE COURSES

After six centuries of inactivity, Mt. Pinatubo in Zambales erupted in June 1991, spewing million cubic meters of lahar and burying the nearby towns of Pampanga, Tarlac and Zambales. Lahar, as it is popularly called, is a

form of pyroclastic material, which on close inspection, exhibit certain properties as that of fine river sand. It is composed of about 60 % silicon dioxide (SiO_2) and predominantly composed of feldspar.

Numerous research has already been conducted utilizing lahar as an alternative construction material. While most of the research dealt on lahar for industrial purposes, this study focused on lahar as an alternative pavement material, specifically as a subbase course material. To determine the suitability of lahar as a subbase course material, various laboratory tests were performed on lahar samples collected from Porac, Pampanga, one of the towns worst hit by the eruption of Mt. Pinatubo. The specific gravity, grain size distribution, moisture-density relation and soundness of lahar were determined. Considering these physical properties of lahar and given its chemical and mineralogical composition, a suitable stabilizer or treating agent for lahar was chosen. Stabilization of lahar was done because it needs waterproofing and lacks the cohesion needed to perform its function as a pavement material.

Stabilization of lahar consisted of mixing lahar with varying percentages of Portland cement (0-2 %), emulsified asphalt (CSS-1) (4%-7%) and moisture contents (12.85 % -17.11%). The stabilized mixes were tested for its California Bearing Ratio (CBR) value and compared to the CBR value of raw lahar.

Results showed that although raw lahar (CBR = 56.32 %) passed the 25 % CBR requirement set by the Department of Public Works and Highways (DPWH) for road subbase courses, it cannot be recommended as an alternative pavement material because of its tendency to deform with the application of high loads. However, lahar stabilized with 2 % Portland cement and 5 % emulsified asphalt can be one option for road subbase courses, with a CBR value of 84.91 %. This mix was observed to be much stronger and more stable than raw lahar.

This study has shown that the properties of a substandard material like lahar can be enhanced so that it can be used as a substitute to the conventional material used for subbase courses of low-volume type of roads. In so doing, high quality construction materials can be reserved for higher type of roads.

Rene Val R. Teodoro
M.S. C.E., October 1996

EMPIRICAL ANALYSIS ON THE RELATIONSHIP BETWEEN AIR POLLUTION AND TRAFFIC FLOW PARAMETERS

Increasing motorization trend, aging vehicle fleet, and worsening traffic congestion are among the most significant factors contributing to the severe degradation of air quality in Metro-Manila. With motor vehicles contributing about 78% of the total air pollution load, it is necessary for transportation planners and air quality analysts to work more closely than ever in providing mobility while improving air quality at the same time. However, the current status of knowledge demonstrates a need for information and tools to bridge the gap between local transportation and air quality issues. This paper seeks to initiate a step to what will be a ladder of empirically based, vehicle-attributed, air pollution investigation and estimation tool development. It presents the formulation of an empirical model that estimates the ambient concentrations of air pollutant in a roadside environment. The present form of the model applies only to mid-block of a straight road section. The model is expressed in terms of traffic flow parameters such as traffic volume and traffic speed and a simple meteorological parameter, wind speed at a particular direction. Calibration and validation were done using separate carbon monoxide measurements from two different sites. Results of the performance test hinted at the possibility of the model's applicability to other sites of different road type and traffic composition. Factors to be considered to further enhance the suitability of the model to other sites and seasons were also determined. The conduct of sensitivity analysis identified traffic volume, followed by wind speed, as the most significant parameters affecting pollutant concentration. Combinations of traffic level and meteorological conditions that will bring about critical levels of CO were also established. In addition, the study made an assessment of the ambient air quality of the study area, identified general air pollution problems and their causes, and cited workable abatement strategies based on the observed conditions. The model is also envisioned to include pollution source and receptor locational parameters and may be extended to cover different road layouts in the near future.

Ariel Humprey P. Tagapolot
M.S. C.E., March 1997

EFFECTS OF LANE BLOCKAGE ON THE TRAFFIC FLOW BEHAVIOR AT EXPRESSWAY

South Expressway serves as the main gateway of Metro Manila to the southern corridor of Luzon. With the country's favorable economic growth and the emergence of industrial zones in the south, the expressway system has experienced an increase of travel demand of about 25% in just a span of two years. With no corresponding improvements in road infrastructure, the expressway system becomes overloaded and experiences several operational problems that eventually lead to system breakdown and result in user dissatisfaction. As such, the effective management of the system becomes increasingly important, and this requires reliable information on traffic flow pattern and behavior from which to base appropriate actions. The most obvious manifestation of the various problems besetting the expressway is the frequent occurrence of lane blockage that is caused by the overflowing of exiting vehicles in the main-lane roadway especially during peak hours. This research study mainly tries to investigate the effects of lane blockage on the traffic flow behavior at the bottleneck section and to the volume pattern of the upstream section. It also tries to quantify the reduction of discharge as a function of the number of lanes blocked.

Secondary as well as primary data obtained from a video survey were used in establishing the expressway's traffic characteristics. Calibration of the various established traffic stream models was done using on-site data to reflect current operating characteristics. Origin-destination pattern shows that interchanges located near the urban core have experience the highest demand of exiting traffic, particularly in the southbound direction which captures about 47.8 % of the total exiting southbound traffic. The frequent occurrence of lane blockage at these interchanges significantly reduces the capacity and influences much the traffic flow behavior of the expressway.

It was found out that lane blockage causes a reduction of capacity of as hi8h as 49.88 %. This results to the deterioration of the level of service which is evidently manifested by excessive delay, instability of travel time and erratic stop-and-go operation. Model calibration showed that

Underwood's model outperforms the other models in terms of predicting capability. The shockwave associated with the alternating trend of lane blockage and opening produced an oscillating behavior of density and speed about their optimum values. Such phenomenon clearly indicated that the occurrence of lane blockage has prevented the facility to sustain its operation at its optimum or near-optimum condition for a relatively long period of time. Results and findings of this research are deemed to be relevant in the formulation of possible measures in solving current problems that beset the country's expressway systems and can be taken into consideration for future traffic management schemes and possibly construction.

Manuel Q. Hernandez
M.A. U.R.P., March 1997

PATTERNS OF REGIONAL TRANSPORTATION INFRASTRUCTURE INVESTMENT AND DEVELOPMENT INDICATORS IN THE PHILIPPINES

The growing concern on the widening gap among regions gave impetus to the adoption of regional development approach as key strategy towards a balanced distribution of welfare to different parts of the country. At present, one of the major strategies in promoting the country's efforts towards industrialization and sustainable growth is to hasten the transmission of development from center to other regions of the country. The distribution of large-scale investments in transportation infrastructure, along with power and communication sectors, is aimed to accelerate the growth and development in different regions of the country. Transportation had always been considered as one of the most important factors influencing the pattern of economic activity. It functions as an input requirement which facilitates the transmission of goods and services between production and consumption centers, thus optimizing the economy of the regions. However, even a strong necessity for transportation was urged, there is still a question how patterns of transportation infrastructure investment influence the trends of regional development. Studies assessing the impact of transportation investment in regional development were just recently given attention and thus related literature on the subject is still limited. This paper sought to contribute insights how patterns of transportation investment affect the pace of development in the regions.

This study basically investigated the patterns of regional investment in transportation infrastructure vis-a-vis trends of various regional development indicators in the country for the last fifteen years. It assessed the influence of regional transport infrastructure investment to growth and development of the regions. It also explored empirical relationships between patterns of regional transportation infrastructure investments and regional growth and development indices. Generally, the study found no significant change to regional distribution of investment in transportation infrastructure. Metro Manila dominated all regions with its largest share of transport infrastructure which consistently increased through the years. However, intent for dispersal of transportation investment was evident in developing regions outside Metro Manila. Region IV achieved a considerable increase in highway and port investments while Region VII gained a remarkable increase in airport investment starting 1993. Trends of economic indices displayed no significant regional shift. NCR and its periphery, Regions IV and III, were expectedly among the fast developing regions in the country. The study revealed that there is a strong positive relationship between patterns of regional investment in transportation infrastructure and trends in regional economic performance. Furthermore, it suggested that the promotion of transport infrastructure investment among regions, specifically highways and ports will help enhance regional economy. Airport investment was also expected to influence the trends of regional economic performance considering the rapid technological progress associated to this transport mode. It was also found that investment in transport directly influenced the generation of employment in major industries and interregional flow of commodity.

Winifred E. Frias
M.A. U.R.P., March 1997

DETERMINANTS OF ROADSIDE LAND USE CONVERSION: THE CASE OF SAN JOSE CITY, NUEVA ECIJA

The economic miracle and the steady growth in the country's population have brought about an increased in the demand for non-agricultural lands. Land use conversion have been proceeding in site-specific areas in selected regions of the country. These sites are the surrounding areas of highly urbanized regions, industrial sites, and economic zones which are identified as instrumental to the country's phenomenal economic growth. A similar situation is also happening in San Jose City where increasing rate of land use conversion is occurring on specific locations . Specifically, "linear development" pervades the city and increasing rate of land use conversion is happening along the major road networks of the city outside the zoning coverage area. It appears however, that the city government lacks the effective land use conversion policy to regulate or direct and guide these land conversion. The absence of these policies could promote land use conversion and its consequences on food security and traffic congestion. The concern of the study was premised within the context that it is only through an effective land use policy intervention focused on the individual land owners that the local government can eventually provide a lasting solution to the challenges of unregulated land use conversions. The study focused on individual land owners and the factors that influence their land use conversion intention. A factor model with three factors representing the variables affecting the land owner's land use conversion intention was calibrated. Results indicate that the land owners consider the following principal component factors in descending rate of importance, namely: 1) economic factors, 2) location factors, and 3) physical and biological factors. The research findings further attest that of the three principal component factors, only the economic consideration proved to be a good indicator of the land owner's land use conversion intention. Therefore, the promotion of a comprehensive land use conversion regulation in the form of a rational land use plan which is focused and in consideration with the factors influencing the land owner's land use conversion intention, the introduction of real property holidays for land owner's who will retain the agricultural use of their lands, adoption of a strong policy support for the agricultural sector, and the restructuring of the present infrastructure investment prioritization program of the government could provide and effective tool in solving the issues of unregulated land use conversion.

Alexander Ernesto F. Estoesta
M.A. U.R.P., March 1997

IMPROVED FOOT TRAILS AND FARMING PRACTICES AMONG PROJECT BENEFICIARIES IN SELECTED SITES OF IFUGAO PROVINCE

The paucity of literature that deal specifically with foot trails and tracks emphasized to a great degree the scant attention given by development planners to infrastructures that affect upland communities which represent almost a quarter of the entire Philippine population. For this study, we focused on foot trails that connect a farming community to a motorized road. Specifically, this research determined the changes that occur in the farming behavior of project beneficiaries in upland barangays where improved main access routes (trail) made travel safer, faster and with least effort. Farming households from Ifugao's Hingyon and Mayoyao municipalities were interviewed with regards to their production and marketing practices before and after the foot trail improvements. Key informants were also interviewed to validate responses as well as to provide additional information not necessarily captured by the interview schedule. Among the more important findings of this survey were as follows: (a) Existence of relationship between production performance and farmer's responses to changes in state of the rural infrastructure such as farm expansion, yield intensification and crop diversification; (b) Tendency for farmer-beneficiaries to increase the volume of their farm inputs use due to its year - round accessibility; (c) Tendency for subsistence farmers to shift to commercial type of production; td) Introduction of large animals for transport use which provided extra income for carabao owners and the (e) consequent shift of transport mode by travelers from walking to riding carabaos. Use of carabaos for transport was most evident where improvements entailed widening of trails. There were also entrepreneurs who opened up *sari-sari* stores which made some trips outside the barangay unnecessary. Some drawbacks attributed to these improvements include: (a) Deprivation of porters of their means of livelihood and (b) Breakdown of peace and order. The latter problem was brought about by consumption of intoxicating drinks sold by *sari-sari* stores and petty thievery by strangers who could now infiltrate these areas. The expected reduction in fare rates also did not materialize. Overall however, the benefits from these projects seem to outweigh iits inherent disadvantages, as respondents attributed their household's better quality of life now to these upgraded facilities.

Other than trail improvements, the study recommended the following to address site-specific mobility constraints: (a) Siting facilities and services to places where it is accessible to more users; (b) Establishing cooperatives to provide more transport-related options, as well as (c) Encouraging and promoting alternative transport modes. To build a strong case for LGUs to invest in low-cost foot trail improvements, it is recommended that further studies be made on the types and nature of these trails. Studies could be focused on (a) exploring the potentials of these trails in governments' delivery of services in hard to reach places; and in (b) determining eco-socio-cultural variations in community reactions to the different types of trail improvement. This latter study could assist LGUs and the national government in maximizing benefits from these investments.

Deo Leo N. Manalo
M.S. C.E., October 1997

WEEKEND AND HOLIDAY TRIP DEMAND IN METRO MANILA BUILDING TRIP PARTICIPATION MODELS

Transportation demand analysis and surveys in Metro Manila are focusing on 'to work' trips and none so far have studied non-work trips, specifically weekend and holiday trips. Foreign studies focus more on quantifying the demand than trying to analyze the behavior, which in turn, is not suitable for the trip demand recommendation for cities like Metro Manila.

Weekend and holiday trips are unique in nature, in terms of their demand generation and demand distribution. Unlike work trips which have pre-planned destination and follows certain trip time pattern, weekend trips are unpredictable because they are highly discretionary or optional. The development of models for the forecasting of recreational weekend travel choices has been hindered by the lack of methodological and theoretical framework suitable to the highly discretory nature of the choice process involved.'

The information gathered are individual's socio-economic and trip information from the database of Metro Manila Urban Transportation Integration Study (MMUTIS). There are 6,988 sample respondents representing the whole of Metro Manila and its surrounding regions: parts of Bulacan, Rizal, Cavite and Laguna.

The trips selected for this study are the trips for non-work activities during holidays or weekend. Trip purposes such as visitation of family and friends, sightseeing, sports, relaxation, shopping, and other private activities are primarily selected. Primary analysis gives details on data descriptions. Trip purpose, travel mode, and other variables are analyzed according to frequencies, percentages, correlation and cross-tabulations. Comparison of data of the weekend demand with the weekday demand is also undertaken. This comparison will serve as the comparison of the modal share of the demand, parking volumes, and other aspects of the weekend and weekday daily traffic.

The study will also determine the factors that affect trip behavior generation. All socioeconomic, trip characteristics and origin variables are specified into the model and fitting iterations are performed to eliminate insignificant variables. The models are represented by explanatory variables for trip participation. The probabilities of shopping, visitation of family or friends, sightseeing, and other trip purposes through the models are also computed.

As it is the first attempt to analyze these non-work trips, the analysis will be exploratory in nature. The study presents the descriptive analysis of the demand and determines the factors affecting the trip demand. The paper also presents a comparative description on the behaviors for weekend and holiday trips and that of the usual 'work' trips or weekday trips.

The information made available from this study can be used for many transportation planning exercises. Origin-destination matrix is made for infrastructure planning for inter-urban and provincial transportation networks. Some recommendations for traffic management regarding vehicular reduction programs are also discussed.

Lilibeth E. Ares
M.S. C.E., March 1998

PEDESTRIAN ACCIDENT ANALYSIS MEASURING ACCIDENT POTENTIAL AT INTERSECTIONS

Road safety researches have been, for the most part, neglected in the Philippines. This, in spite of the fact that road traffic accident statistics show that accident frequencies have been following an increasing trend. In particular, pedestrian safety should be given focus since pedestrian-vehicle accidents account for most of the total fatal and injury accidents that occur. Current methods of studying accident causation are limited to the analysis of the attendant circumstances accompanying traffic accidents. However, this method, although yielding relevant results, is much too dependent on the existence of a comprehensive accident database. As such, the development of alternative methods of analysis is recommended especially for the Philippines where the collection and storage of traffic accident data is in disorder. This study seeks to initiate an application of a technique called the Traffic Conflict Technique in the identification of factors contributing to pedestrian traffic accidents. This technique was developed primarily as an aid in analyzing causes of accidents by observing conflicts between two road users (vehicle-vehicle or vehicle-pedestrian) with the basic assumption that conflicts are actually accidents minus the final component (collision). In the study, two high accident intersections were observed for pedestrian-vehicle conflicts in an attempt to describe the existing hazardous conditions at the intersections. For purposes of simplifying this initial investigation, only conflicts between pedestrians and through vehicle movements were observed. Results of the surveys conducted reveal that the leading causes of pedestrian-vehicle conflicts are: (a) presence of pedestrians at roadsides, and (b) pedestrian crossing violations. Generally, the situation seems to be induced by the lack of proper and adequate pedestrian facilities at the intersection, as well as the negligence of the concerned authorities in implementing rules and regulations. To this end, the study recommends countermeasures that revolve around the three Es of transportation: engineering, education, and enforcement. In addition, the study also made an effort to start a traffic accident database for Quezon City using GIS technology. It is expected that this would serve as an impetus to starting a nationwide comprehensive accident database.

Ramie B. Doroy
M.A. U.R.P., April 1998

WILLINGNESS-TO-PAY ATTITUDE OF CAR USERS ON TOLL CHARGES

Rapid urbanization has induced an enormous strain on the ability of government to fund road infrastructure construction and maintenance projects. It has become common to consider financing from other sources such as foreign loans and private sector investments under the Build-Operate-Transfer (BOT) scheme. These sources require the generation of revenues through the imposition of tolls on the road-users. Therefore, it is important to understand the factors affecting the road-users' willingness and ability to pay road tolls

This research investigated the willingness-to-pay attitude of car-users in Metro Manila. Stated-Preference Field Surveys and Focus Group Sessions were undertaken to collect data on car-users current travel characteristic, socio-economic profiles, mode choice attitudes and perceptions, and willingness-to-pay road charges. The primary data collected were statistically analyzed and discrete choice models were developed to test various hypotheses.

The research findings indicated that travel time and cost, work trip purpose and the socio-economic characteristics greatly affect the willingness-to-pay attitude of car users. For example, it was found that a car user would be willing to pay an additional P5.00 to P8.00 for a travel time reduction in the range of 11 to 27 minutes when choosing to use toll roads to reach his destination on time. An analysis of willingness-to-pay attitudes as part of transportation planning studies is very vital in formulating appropriate policies for effective implementation of toll road pricing.

It was also found that there are many other factors, which may affect the willingness to pay attitude of road-users. These factors include awareness of environmental problems, level of road traffic congestion, safety and convenience of alternative travel modes, etc. Further studies should be undertaken to explore said factors.

Joel R. Magbanua
M.A. U.R.P., April 1998

WORK TRIP DISTRIBUTION IN LARGE SCALE CBD

Work trips in Metro Manila is estimated at 4.15 million person trips (17.3% of total daily person trips) daily. In terms of frequency it is the second most important trip purpose. Due to its obligatory nature, trips to work is a major contributor to traffic congestion. Local literature however on the subject matter is rarely encountered, thus there is limited understanding of the basic characteristics of workers and the trips itself. Understanding the nature of work trips will assist in th6~formulation of policies geared towards alleviation of congestion of roads leading to Central Business Districts (CBD).

This study analysed work trips to selected CBD zones in order to gain a basic understanding of the nature and characteristics of work trips and to add to the limited local literature on the subject. Data analysed was extracted from the Metro Manila Urban Transportation Integration Study (MMUTIS) Home Interview Survey (HIS). The extracted data consist of details of trips undertaken by workers to selected CBD zones plus information about the workers and worker's household. Three zones represented the Binondo CBD, five zones represented the Makati CBD, and Ortigas Center is represented by a single zone.

On the profile of workers, frequency of categories pertaining to age, sex, household income, household size, employment sector, occupational type and car ownership were tabulated which led to the determination of most dominant categories in each of the socioeconomic variables.

On trip attributes, they were classified into three. The first class refers to those attributes not related to the dimension of time and space. In addition, discussion on the characteristics of trips after work are included in this class. Trip attributes related to dimension of time were lumped together in the second class. The third class composed of attributes that are related to the dimension of space. Specific trip attributes analysed include: a) hourly distribution of departure times; b) hourly distribution of arrival times; c) work trip travel time by car and

other modes; d) distribution of worker's departure times after work; e) distribution of workers by distance from CBD; f) household income and distance from CBD; and, g) car ownership and distance from CBD.

The result of the analysis describe a typical worker in a CBD as a male, between twenty to thirty years old, living in a household with three to four members, the household income is six to ten thousand pesos, working in the wholesale and retail business and type of occupation is service/shop/market worker.

Key findings on time related trip attributes include: a) the peak hour departure time is 6 to 8 am.; b) the peak hour arrival time at workplace is from 7 to 9 am.; c) compared to arrival times, departure times at workplace is more spread; and, d) work trips to Makati and Ortigas Center by car is only 6 minutes shorter than average of other modes, while in Binondo, average travel time by car is longer.

On distance related trip attributes, key findings include: a) workers tend to locate their residence near the workplace; b) the average travel speed to Binondo is 12.63 kph, to Makati is 16.55 kph and to Ortigas Center is 13.84 kph; and, c) arrival times of workers at workplace is concentrated, 61% of workers in Binondo arrived within 20 minutes of each other,. 70% of workers in Makati arrived within 30 minutes of each other while 98% of Ortigas Center based workers arrived in higher concentration within 14 minutes.

The major recommendations include: a) promotion of telecommuting; b) encouragement of car pooling; c) implementation of counter flow traffic scheme; d) provision of traffic information service; e) imposition of high parking fee; f) further promotion of vehicle restraint programs; g) institution of staggered working hours; and, h) control of car ownership.

Daniel L. Mabazza
M.A. U.R.P., April 1998

THE IMPACT OF PUBLIC INFRASTRUCTURE ON REGIONAL INCOME DISPARITIES

For the past years, there were renewed interest in studying the interrelations between economic activities, growth potential, and existing public capital facilities. This has been brought about by the negative consequence of the often eagerness to achieve growth, that is, areas that are already developed or at the margin of becoming developed are the concentration of efforts and resources. For a number of years, the Philippines has adopted policies in an effort to rectify the unbalanced interregional development. In the past, planning in the country was heavily sectoral in character. That is, adopted plans were able to identify sectoral requirements in their degree or magnitude of investments but often unable to identify geographically where they should be located. The unevenness of infrastructure prioritization and development in the past is manifested in the failure to divert economic activity away from the primate urban region (i.e. Metro Manila) and its frontiers from the outlying regions of the country. The preponderance of primate urban regions like Metro Manila, in terms of infrastructure allocation has been a subject of a lot of discussions on the thesis of the so-called "urban bias" as one of the prevailing characteristic of developing countries. Hence, the objective of the study was to determine the impact of public infrastructure on the regional income disparities on a time-series data for the period 1981 to 1995. The research findings indicate that there is a wide disparity of performance between the National Capital Region and the rest of the region in terms of their Per Capita Gross Regional Domestic Product, that infrastructure is an explanatory factor in accounting regional income difference, that there are considerable disparities in infrastructure at an aggregate level, or in the different categories for the thirteen regions within the fifteen year period, and that the more pronounced of these differences are public investment in economic infrastructures while access to social services and facilities on the other hand is fairly dispersed throughout the country. It also indicates that regions with higher economic infrastructure indicator were also those with the highest income. Therefore, investments on economic infrastructure should be increased in different degrees and in all regions. That the dilemma whether to prioritize growth or equity can be solved by policies of public investment that is aimed towards stimulating growth and lessening spatial disparities. Also, consideration is essential on the part of the regional development planning in terms of equitable growth and resource allocation to separate the National Capital Region form the rest of the regions in the evaluation measures for investment priorities.

Jose Teodorico G. Real
M.A. U.R.P., April 1998

AN ANALYSIS OF TRAVEL-ACTIVITY PATTERNS IN METRO MANILA

Understanding the basic nature of urban travel behavior is a prerequisite to effective transportation planning and policy formulation. This study investigates the hypothesis that urban travel behavior can be grouped into a small number of representative patterns. The Metro Manila Urban Transportation Integration Study (MMUTIS) found that there are 21.9 million daily trips in Metro Manila. A sample of 5945 individuals were extracted from the MMUTIS Household Information Survey (HIS) data and used in this research.

Cluster analysis technique was used to identify the typical travel patterns. The variables used for clustering include Time Started from Home, Time Ended at Home, Number of Fixed Trips, Travel Time, and the time spent at Home, Work, School, Private Business, Employer's Business, Medical and Social, Eating and Shopping, Church and Others. The analysis revealed that the samples can be grouped into five (5) clusters and fifteen (15) sub-clusters. These clusters are: *work* trips composed mostly of the employed, *non-fixed* trips composed mostly of housewives and jobless, no *trips* composed mostly of housewives, jobless and others, *school trips* composed mostly of students, and *multiple trips* characterized by employer's business composed mostly of the transport sector and retail trade sector. These five (5) clusters represents the five (5) major groupings for the daily-activity patterns of the 21.9 million daily trips in Metro Manila.

Linear logit model was used to determine the factors that affect cluster membership. A model was fitted on these five (5) clusters utilizing thirteen hypothesized determinants of travel-activity behavior which can be divided into two (2) groups, namely: (a) socio-economic characteristics; and (b) physical constraints. The first group of variables were further subdivided into household (3 variables) and individual (8 variables) characteristics. Physical constraints were represented by *Length of Travel* and *Number of Mode Transfers.* These variables account for the spatial, temporal or transportation constraints faced by individual travelers when they undertake urban activities. The study revealed that Household Income, Age, Employment, Length of Travel and Number of Mode Transfers are important determinants of travel-activity patterns.

Jose Romarx C. Salas
M.A. U.R.P., April 1998

A STUDY ON THE INTERNATIONAL AIR PASSENGER DEMAND IN THE PHILIPPINES

Civil aviation in Asia-Pacific region is increasing at a rapid rate, faster than any other world region. This phenomenon poses as an opportunity as well as a threat for the civil aviation sector of the Philippines. Ninoy Aquino International Airport (NAIA), however, has a number of airside and landside limitations that make it an inferior entry port to Asia-Pacific. To wit, Philippines has to accelerate development of its aviation sector to be able to take advantage of the increasing demand.

This study presents some scenarios for aviation infrastructure development. Clark International Airport (CLARK) is included in the scope of the study. It is identified as an alternative gateway in the long ,term due to its colossal runways and vast vacant lands. NAIA and CLARK are compared and contrasted to show alternative development options.

The study investigates the performance of the Philippines on international air passenger movement. A survey entitled "International Passenger Survey at NAIA" is conducted to established some travelers' trip-making patterns. More importantly, passengers' airport choice through ranking is measured in this research.

Results show that passengers prefer shorter access time to the airport even if this would mean lower frequency of flights. Thus, utility of the landside component is perceived to be higher than airside component. Relevant findings are used to firm up the scenario-building component of this study and in offering policy recommendations. Policy recommendations include bilateral planning and market identification.

Caesar P. Rubite
M.S. C.E., April 1998

MODELING CAR OWNERSHIP AND USE IN METRO MANILA

The rapid pace of motorization is presently being felt in the Metro Manila region. With the increasing trend in the households' standard of living, the demand for private cars is expected to increase also. However, the limited supply of road space cannot keep pace with increasing demand. Therefore, it is necessary to manage the growth of car ownership and use in metropolitan areas. A basic understanding of individual and household attitudes towards car ownership and patterns of car usage would enable the formulation of effective policies and plans for managing car ownership and use. Knowledge of car ownership and car use paves the way for a better understanding of the people's behavior which will greatly affect policy formulation and analysis in the future.

The research is concerned with determining the various household characteristics which influence the household's decision to own a car. The decision is modeled as a binary choice incorporating the different household and individual characteristics as explanatory variables. It also sought to describe and explore qualitatively the nature and factors influencing car use. The study used data taken from the Metro Manila Urban Transportation Integration Study (MMUTIS) Home Interview Survey (HIS) database; and, a Focus Group Session undertaken specially for this research.

The research revealed that the major factors affecting household decision to own a car are household income, and age, gender, and occupational type of the household head. Car use is generally limited to serve activities of the household head and traffic congestion and the quality of service of alternative modes of travel influence car usage patterns.

Alex S. Ladaga
M.S. C.E., April 1998

STUDY ON THE EFFECTS OF GAP FACING AT TWO-WAY-STOP-CONTROLLED INTERSECTIONS USING SIMULATION

Most methods involving estimation of capacities and delays of unsignalized intersections are based on Simple Gap Acceptance methods which assumes that major streams are not affected by the minor streams. This means that in a simple two stream case the major stream cannot experience any delay while the minor stream have to evaluate first the gaps available in the major stream before it can depart.

In this study, a simulation program is used to eliminate the usual problems encountered while doing actual surveys on capacities and delays of unsignalized intersection. The program takes into account the gap forcing that is common among drivers and examines its effects not only on the minor stream but the on major stream as well. A comparison between simulated data and the observed data using t-test shows that the actual data can be predicted using the simulation program. The program is then used to examine the behaviors of delays and capacities by varying the inputs of the following parameters; follow-on-time, and the number of left turns both from the minor and major legs. The author found out that capacities and delays are highly affected by these parameters that led to some important discussions on issues relating to delay and capacity estimation methods and warrants used for signalization.

NCTS DISCUSSION PAPER SERIES

Discussion Paper No.	Date	Title	Author/s
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Discussion Paper No.	Date	Title	Author/s
16	Mar. 1996	Jeepney Business in Metro Manila : What Are The Conditions For its Sustainability	Jiro Ebata Manuel T. Apuan Jun T. Castro Dr. Toshinori Nemoto
17	Apr. 1996	Studies for Traffic Environments in Metro Manila - Air Pollution Along EDSA	Kenji Oshima, Tadayoshi Nakamura, Dennis Paulo C. Jugueta, Aileen U. Mappala Rene Val R. Teodoro, Mauel T. Apuan

OTHER INTERNAL PUBLICATIONS

Pulication No.	Date	Title	Author/s
1	Mar. 1994	NCTS Transportation Science Series Vol. 1 : Fundamentals of Traffic Engineering (Parts I and II)	Dr. Ricardo G. Sigua
2		NCTS Environmental Text Series - General Compilation on Road Environment - Road Traffic Noise - Air Pollution From Automotive Exhaust Gases - Road Traffic Vibration	
3		Course Notes on Transportation & Traffic Technology - Road Facilities - Pavement Design - Transportation System Management - Traffic Characteristics - Traffic Law Enforcement Actions and Techniques - Traffic Education and Safety Program - Traffic Administration and Filipino Values - Introduction to Business Logistics & Physical Distribution - Introduction to Computer Application	

DISCUSSION PAPER ABSTRACTS

Discussion Paper No. 1

FINANCIAL REFORMS TOWARD SUSTAINING A HEALTHY TRANSPORTATION INFRASTRUCTURE

Dr. Toshinori Nemoto and Dr. Olegario G. Villoria, Jr.

Discussion Paper No. 2

AN OVERVIEW OF TRAVEL DEMAND MANAGEMENT

Dr. Ricardo G. Sigua and Dr. Hirohito Kuse

A complete list of Travel Demand Management (TDM) measures which have been tried and proven to be effective in major cities of the world are presented in the light of possible applications to Metro Manila setting. Since most of the TDM measures are geared towards commute travel, it is the opinion of the authors that TDM for goods movement be given equal importance. A survey of TDM measures as applied in Metro Manila is also presented.

Discussion Paper No. 3

TRICYCLES, KULIGLIGS AND PEDICABS : BANE OR BOON ON THE HIGHWAYS?

Samuel Julius Garcia

Discussion Paper No. 4

BASIC STUDY OF URBAN GOODS MOVEMENT IN METRO MANILA: AN ASSESSMENT OF PHYSICAL DISTRIBUTION FACILITIES AND COMMODITY FLOW PATTERNS

Rebecca Garsuta and Dr. Hirohito Kuse

This paper focuses at the urban freight transport industry at present. It presents an overview of the commodity flow as a system in Metro Manila, identification of major problem areas which affect goods movement and assessment of key factors influencing in its physical distribution. One of the main findings of the research is that the existing traditional method of distribution channels are complex, more expensive and uneconomical patterns. The research summary includes among others : first failure on the part of the government to directly address the real causes of problems affecting goods flow: second, failure for the private industries/commercial carriers to determine the optimal distribution channel that will eliminate unnecessary trasnport transfers.

Discussion Paper No. 5

THE ROLE OF INFORMATION SYSTEMS IN ESTABLISHING THE JUST-IN-TIME (JIT) TYPE TRANSPORTATION

Dr. Hirohito Kuse, Jun T. Castro, Yoji Takahashi

The use of information systems increasingly play an important role in establishing Just-In-Time (JIT) by shortening the lead-time thereby achieving higher efficiency. This paper introduces the basic concepts of advanced logistics, marketing and transportation as related to logistics, and more particularly, the relationship of information systems and JIT. This is done by conducting a survey of 26 companies and their use of information systems for JIT. It presents the effects of the information systems on the four elements of marketing: product,

price, promotion and physical distribution. However, the utilization of information systems concentrate on the physical distribution element of marketing alone

Discussion Paper No. 6

COST CHARACTERISTICS OF BUS AND JEEPNEY TRANSPORT SYSTEMS IN METRO MANILA

Josephine M. Bayan, Dr. Olegario G. Villoria, Jr., Dr. Hitoshi Ieda

This paper focuses on the cost structures of bus and jeepney transport systems in Metro Manila. Cost functions for this modes were developed in order to identify policy recommendations related to the cost aspect of public transport regulation and management. The main findings were that economies of scale exists in bus operations but there was no conclusive result on economies of scale for jeepneys . Another was that bus-kilometer and average speed significantly affects operations. The significance of fuel consumption to these particular systems was also proven. Based on these findings, this paper recommends the encouragement of the growth of large companies and the improvement of the turn around time.

Discussion Paper No. 7

DEVELOPMENT OF A SIMULATION PROGRAM FOR THE EVALUATION OF JEEPNEY STOP CONFIGURATIONS WITH FOCUS ON SINGLE LANE ROADWAYS

Jose Regin F. Regidor and Dr. Ricardo G. Sigua

The author presents a general methodology for the examination of various jeepney stop configurations to initiate the development of a practical and effective stop policy. This paper focuses on the initial development of a computer program for the simulation of traffic flow given various stop configurations. The present form of this program is applicable only to single lane roadways and considers a test section composed of seven meter cells. It is envisioned to include more aspects of the jeepney stop environment in the future and be extended to include multilane roadways as well as stops at intersections.

Discussion Paper No. 8

ECONOMIC APPRAISAL OF POLICY ALTERNATIVES OF TRANSPORTATION MANAGEMENT : A CASE STUDY IN FUKUOKA CITY

This study aims firstly to propose models to evaluate economic effects of a number of policy alternatives of Transportation Demand Management (TDM). The models are developed by extending so-called Four-step Aggregate Demand Prediction Method commonly used in many local governments in Japan. The effects are calculated based on the saved travel time resulting from a certain alternative of TDM. Secondly, they are applied in the transportation planning process in Fukuoka City, in order to provide evaluative information and to facilitate the discussion among the participants interested in the introduction of TDM.

Discussion Paper No. 9

ANALYZING TRANSFER DISUTILITIES IN DISAGGREGATE MODE CHOICE MODELS FOR WORK TRIPS USING REVEALED AND STATED PREFERENCE DATA

Marites E. Tuazon and Dr. Olegario G. Villoria, Jr.

This paper contains the highlights of the research which investigated the effect of the inclusion of possible measures of transfer inconvenience on disaggregate mode choice models for work trips. This was operationalized through the consideration of the different aspects of transfer such as walking, waiting, security risks, exposure to the elements and the use of stairs, with the latter forming an integral part of the rail based option. Models with and without the transfer variables were then estimated using combined revealed and stated

preference data. It was found that adopting the variables for the use of stairs, maximum tolerable walking and waiting times and a generalized attribute for transfer inconvenience improved the specification and added significantly to the explanatory power of the mode choice models.

Discussion Paper No. 10

DEFINING CONDUCTIVITY OF PANEL SURVEY IN THE CONTEXT OF DEVELOPNG COUNTRIES

Dr. Hussein S. Lidasan, Dr. Haruo Ishida
Dr. Takeshi Kurokawa and Dr. Tohru Tamura

Panel survey has been tried in analyzing socioeconomic changes and travel behavior over time. It is perceived that with the theoretical advantages of panel data, their use in developing countries becomes attractive. None thus far has been done on the conductivity of panel survey and accuracy of panel data. The paper concluded that panel survey is plausible at the household level than at the individual level. It was found that the performance and conduct of the survey are likely to affect the quality of panel data. Hence, feasible countermeasures on improving the conductivity of panel survey were proposed.

Discussion Paper No. 11

DISCRETE CHOICE MODEL ON LOCATION CHOICES OF MANUFACTURING FIRMS IN INDUSTRIAL ESTATES: THE CASE OF CALABARZON IN THE PHILIPPINES

Noriel Christopher C. Tiglao and Dr. Asaichi Miyakawa

The study is interested in finding out the locational choices of industrial firms in the manufacturing sector, as well as, the application of discrete choice modeling in describing how firms decide among alternative locations as final sites for their facility. The decision model is structured as a binary choice model incorporating both objective and subjective locational factors as explanatory variables. The case study uses data from a questionnaire survey conducted on several industrial estates with individual locator firms as respondents.

Discussion Paper No. 12

EFFECTS OF UNCONTROLLED LOADING AND UNLOADING OF JEEPNEYS AND BUSES ON THE CAPACITY OF SIGNALIZED INTERSECTIONS

Dr. Ricardo G. Sigua

The effects of uncontrolled loading and unloading of passengers by jeepneys (PUJs) and buses (PUBs) in the vicinity of signalized intersections were studied. A guideline for locating jeepney/bus stop with respect to the intersection was proposed. Some recommendations were given to minimize the effects of stopping/waiting of public utility vehicles (PUVs) on the traffic flow near the intersection.

Discussion Paper No. 13

INSTITUTIONAL STUDY FOR TRAFFIC MANAGEMENT IN METRO MANILA

Engr. Esteban Q. Cases and Dr. Haruo Ishida

This document discusses two of the most important aspects of traffic management, namely traffic engineering and traffic law enforcement. This discusses past institutional arrangements in Metro Manila, including the experiences and problems associated with such setups. This document also discusses some provisions of the law creating the Metropolitan Manila Development Authority (MMDA) which was passed early this year. The said law gave the MMDA the lead responsibility in traffic management , among others. Some suggestions are presented for consideration of MMDA on workable institutional set-up for the performance of its traffic engineering and traffic law enforcement functions.

Discussion Paper No . 14

UNCERTAINTY IN TRANSPORTATION DEMAND FORECASTING

Dr. Olegario G. Villoria, Jr., Nenita R. Jimenez and Felicisimo C. Pangilinan, Jr.

The study of travel demand is of major interest to both researchers and practitioners in the field of transportation. It is concerned with forecasting the demand for travel and predicting traveler responses to transportation policy and management options. Such estimates and predictions are among the most important considerations that form the basis of transportation plans and policy decisions. The main objective of this paper is to establish the need to improve current practice of transportation demand forecasting through the enhancement of data availability and quality, and development of forecasting models which are more appropriate to the local context. The paper first describes the various uses of transportation demand forecasts undertaken in the Philippines. This was done by comparing previous forecasts with actual traffic data in land, air, and water transportation. It was found that the magnitudes of the errors are very high, demonstrating the need to improve current forecasting practices. The sources of errors in demand forecasting were then identified together with some recommendations on how to address them. Finally, a review of the various approaches to travel demand forecasting and identification of the determinants of travel demand are presented to serve as take-off point for moving forward the recommendations.

Discussion Paper No. 15

THE IMPACT OF TRANSPORTATION INFRASTRUCTURE ON THE ECONOMIC DEVELOPMENT OF SUBIC BAY FREEPORT ZONE

Lilibeth Ares, Janith Chan, Michael Oliver de Guzman, Alexander Ernesto Estoesta,
Jose Felizco, Winifred Frias, Manuel Hernandez, Ma. Jocelyn Jarbadan, Nenita Jimenez,
Deo Leo Manalo, Ariel Tagapolot, Rene Val Teodoro

The aim of the study was to determine the impact of the existing infrastructure facilities of Subic Freeport Zone to its economic development. Being a former American military base, the Subic Freeport Zone boasts of its excellent infrastructure facilities. To ascertain how the existing infrastructure facilities influenced the foreign investors in locating at Subic and to find out what other factors contributed to the attractiveness of SBF Zone, companies which invested in Subic were selected for the conduct of the perception survey. Likewise, freight and person trip surveys were undertaken to check the adequacy of the existing transport services within the area.

While Subic's main attractiveness lies in its potential for economic growth and its strategic location, survey results showed that transport infrastructure plays a major role in the company's decision to invest in Subic. This confirmed the initial assumption that the existing infrastructure facilities contribute to the development of SBF Zone. However, while the existing facilities in Subic are in excellent condition, investors also disclosed the need to improve land-based access to and from Subic. With the improvement of the existing airport/seaport services and the external roads leading to and from Subic, more foreign investments could be expected, thus, prompt economic growth not only within the zone but in the sorrounding areas as well.

Discussion Paper No. 16

JEEPNEY BUSINESS IN METRO MANILA: WHAT ARE THE CONDITIONS FOR ITS SUSTAINABILITY

Mr. Jiro Ebata, Mr. Manuel T. Apuan
Engr. Jun T. Castro and Dr. Toshinori Nemoto

Discussion Paper No. 17

STUDIES FOR TRAFFIC ENVIRONMENTS IN METRO MANILA -- AIR POLLUTION ALONG THE EDSA AVENUE

Mr. Kenji Oshima, Mr. Tadayoshi Nakamura, Mr. Dennis Paulo Jugueta
Ms. Aileen U. Mappala, Mr. Rene Val R. Teodoro, Mr. Manuel T. Apuan

This paper focuses on air pollution in Metro Manila. In recent years, many environmental researchers put their fingers on the deterioration of air pollution in Metro Manila. Most of the environmental researchers for Metro Manila point out vehicle exhaust gas presumes as one of the biggest source of the air pollution matter. Environmental research group in National Center for Transportation Studies (NCTS) is researching about the traffic environmental pollution and is measuring air pollution in Metro Manila. From the actual measured results at the Epifanio De Los Santos Avenue (EDSA avenue) which is a principal road in Metro Manila, main findings are Suspended Particle Matter (SPM) is at its gravest condition among air pollutants because the ambient air quality standards value of SPM exceeds more than the maximum allowable value at frequent intervals. And, concentration and fluctuation of air pollutants at the measuring point in Quezon City is affected by wind speed more than traffic volume. Based on these findings, this paper recommends necessary cuntermeasures for SPM and Diesel Exhaust Particle (DEP) at an earliest possible time. Furthermore, appropriate road planning and urban transportation planning should be planned and implemented for the improvement of air quality in Metro Manila.

JOURNALS

TSSP JOURNAL VOL. 1 NO. 1
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No.	Title	Author/s
1	Development of Public Transportation in Metro Manila	Shizuo Iwata
2	Vehicular Air Pollution Abatement Strategies for Metro Manila	Olegario G. Villoria, Jr. Rene Val R. Teodoro Nenita R. Jimenez
3	International Comparison Study on Road Traffic Flow	Shigeru Morichi Karl B. Vergel Shigeru Tonaki
4	Traffic Problems at Jeepney Stops and Proposals for the Development of a Better Jeepney Stop Policy	Jose Regin F. Regidor Hitoshi Ieda Ricardo G. Sigua
5	A Framework for Incorporating Person-Trip Survey into the Philippine Census of Population and Housing	Dolores J. Molintas Hussein S. Lidasan Yoji Kawakami
6	Raison d' Etre of the Exclusive Habitation System - A Comparative Analysis	Seiji Nishioka Salome R. Manahan Samuel Julius B. Garcia

TSSP JOURNAL VOL. 2
July 1998

No.	Title	Author/s
1	Traffic Noise Levels at Selected Points in Metro Manila	TRD Staff of NCTS
2	Initial Development of an Estimation Tool for Vehicle-Attributed Air Pollution	Rene Val R. Teodoro Olegario G. Villoria, Jr.
3	Analysis of Locational and Functional Characteristics of Terminal Areas in Metro Manila	Akira Hosomi Yoji Kawakami Hussein S. Lidasan
4	Macroscopic Modelling of the Jeepney System and Its Application in Metro Manila	Crispin Emmanuel D. Diaz

PAPERS PRESENTED IN FORUMS AND SEMINARS

Transportation Science Society of the Philippines

TSSP 1st Annual Conference
Manila Hotel
July 30-31 1993

No.	Title	Author/s
1	Urban Transportation Modelling: The Activity Based Travel Analysis Approach	Dr. Olegario G. Villoria, Jr.
2	A PC-Based Digital Road Map System (DRMS) for Metro Manila	Mr. Herculano A. Felias, Jr.
3	Traffic Characteristics of Some Arterial Roads in Metro Manila	Dr. Ricardo G. Sigua
4	The Village System and Transportation in the Philippines	Mr. Seiji Nishioka Ms. Salome R. Manahan. Mr. Samuel Julius B. Garcia

TSSP 2nd Annual Conference
UP-NCTS
July 29-30 1994

No.	Title	Author/s
1	A Study Regarding the development and Improvement of a Traffic Flow Simulation Model for a Signalized Intersection	Dr. Hisao Uchiyama Mr. Yuichi Mouri Mr. Herculano Felias, Jr.
2	Re-Evaluation of Signal Parameters in Metro Manila	Mr. Antonio C. Saldon, Jr. Dr. Minoru Yamada
3	Intersection Advisor: An Expert System Application	Dr. Ricardo G. Sigua
4	Analysis of Road Traffic Accidents in the City of Manila for the Period 1983 to 1993	Mr. Dante B. Bautista Dr. Minoru Yamada Dr. Olegario G. Villoria, Jr.
5	Effects of Heavy Vehicles on the Traffic Flow of a Multi-Lane Highway	Mr. Frederick Mangubat Dr. Ricardo G. Sigua Mr. Kenji Oshima
6	Internal Comparison Study on Road Traffic Flow	Dr. Shigeru Morichi Mr. Shigeru Tonaki Karl Vergel
7	Computer-Aided Truck Fleet Management for Goods Distribution in Metro Manila	Dr. Olegario G. Villoria, Jr.
8	Supply System Analysis of Commercial Passenger Transport in Metro Manila	Ms. Josephine M. Bayan Dr. Hitoshi Ieda Ms. Marites Tuazon Mr. Jun Castro Mr. Noriel Christopher Tiglao
9	Traffic Problems at Jeepney Stops and Proposals for the Development of a Better Jeepney Stop Policy	Mr. Jose Regin Regidor Dr. Hitoshi Ieda Dr. Ricardo G. Sigua

TSSP 3rd Annual Conference
UP-NCTS
July 14, 1995

No.	Title	Author/s
1	Urban Goods Movement in Metro Manila	Ms. Rebecca Garsuta
2	Effects of Opening Arterial Roads in Exclusive Residential Subdivision	Mr. Crispin Diaz
3	Analyzing Transfer Disutilities in Disaggregate Mode Choice Models for Work Trips Using Revealed Preference (RP) and Stated Preference (SP) Data	Marites Tuazon

TSSP 4th Annual Conference
UP-NCTS
July 19, 1996

No.	Title	Author/s
1	Driving Pattern in Metro Manila	Ricardo G. Sigua
2	Evaluation of Delay on Unsignalized Intersections	Rodrigo S. Baid Ricardo G. Sigua
3	Exploring the Potentials of Telecomputing in the Philippines with Emphasis on Employees' Perceptions and Stated-Preferences	Rolyn Q. Zambales Hussein S. Lidasan Yoji Kawakami
4	Impacts of Transportation Infrastructure on Economic Development: Subic-A Case Study	Hussein S. Lidasan Toshinori Nemoto
5	Basic Analysis of Demand and Cost Structure of Public Road Transport System in Japan-Case of Suburban Bus Transport	Hitoshi Ieda Ryoichi Watanabe Crispin Diaz Shuko Kaminishi Suppiah Jeyandran
6	A Framework for Incorporating Person-Trip Survey into Philippine Census of Population and Housing	Dolores J. Molintas Hussein S. Lidasan Yoji Kawakami
7	A Study on Airport Investment Prioritization Scheme	Felicisimo C. Pangilinan, Jr. Toshinori Nemoto Olegario G. Villoria, Jr.
8	Vehicular Air Pollution Abatement Strategies for Metro Manila	Olegario G. Villoria, Jr. Rene Val R. Teodoro Nenita R. Jimenez

TSSP 5th Annual Conference
UP-NCTS
July 18, 1997

No.	Title	Author/s
1	Traffic Noise Levels at Selected Points in Metro Manila	TRD Staff of NCTS
2	Initial Development of an Estimation Tool for Vehicle-Attributed Air Pollution	Mr. Rene Val R. Teodoro Dr. Olegario G. Villoria
3	Analysis of Locational and Functional Characteristics of Terminal Areas in Metro Manila	Mr. Akira Hosomi Dr. Yoji Kawakami Dr. Hussein Lidasan
4	Assessment of Costs of Bus Transit Operations in Metro Manila	Engr. Cresencio M. Montalbo Dr. Haruo Ishida
5	Macroscopic Modelling of the Jeepney Transport System and Its Application to the Assessment of Urban Services	Mr. Crispin Emmanuel D. Diaz
6	Predicting the Impact of the EDSA Mass Rail Transit on the Mode Choice Behaviour of Car Users for Work Trips	Engr. Nenita R. Jimenez Dr. Olegario G. Villoria, Jr.

TSSP 6th Annual Conference
Holiday Inn Resort, Clark Field Pampanga
August 21, 1998

No.	Title	Author/s
1	The Impact of Public Infrastructure on Regional Income Disparities	Daniel L. Mabazza
2	Willingness-to-Pay Attitude of Car Users on Toll Charges	Ramie Boysillo-Doroy
3	Improved Foot Trails and Farming Practices Among Project Beneficiaries in Selected Upland Communities in Ifugao	Alexander Ernesto Estoesta
4	An Analysis of Travel-Activity Patterns in Metro Manila	Jose Teodorico G. Real
5	A Study on the International Air Passenger Demand in the Philippines: Focus on Future Infrastructure Development Scenarios	Jose Romarx C. Salas
6	Development of a Traffic Accident Information System Using Geographic Information System (GIS)	Noriel Christopher C. Tiglao Sherrie Gay M. Cruz Ma. Remedios L. Angeles Cecilia M. Gardon Rhodora D. Bayhon Ronald John S. Galiza Girlie L. Labastilla Fumihiro Abe

Eastern Asia Society for Transportation Studies

EASTS 1st Annual Conference
Manila, Philippines
September 28, 1995

No.	Title	Author/s
1	Cost Characteristics of Bus and Jeepney Transport Systems in Metro Manila	Ms. Josephine M. Bayan Dr. Olegario G. Villoria, Jr. Dr. Hitoshi Ieda
2	Basic Study of Urban Goods Movement in Metro Manila: An Assessment of Physical Distribution Facilities and Commodity Flow Patterns	Rebecca Garsuta Hirohito Kuse
3	The Role of Information Systems in Establishing the JUST-In-Time Type Transportation	Hirohito Kuse Jun T. Castro Yoji Takahashi
4	Development of a Simulation Progam for the Evaluation of Jeepney Stop Configurations with Focus on Single Lane Roadways	Jose Regin F. Regidor Ricardo G. Sigua
5	Analyzing Transfer Disutilities in Disaggregate Mode Choice Models for Work Trips Using Revealed and Stated Preference Data	Marites Tuazon Olegario G. Villoria,, Jr.
6	Effects of Uncontrolled Loading and Unloading of Jeepneys/Buses on the Capacity of Signalized Intersections	Ricardo G. Sigua
7	Defining Conductivity of Panel Survey in the Context of Developing Countries	Dr. Hussein S. Lidasan Dr. Haruo Ishida Dr. Takeshi Kurokawa Dr. Tohru Tamura
8	Discrete Choice Model on Locational Choices of Manufacturing Firms in Industrial Estates: The Case o f CALABARZON in the Philippines	Noriel Christopher Tiglao Dr. Asaichi Miyakawa

EASTS 2nd Annual Conference
Sheraton Walker Hill Hotel, Seoul Korea
October 29-31 1997

No.	Title	Author/s
1	Empirical Analysis on the Relationship Between Air Pollution and Traffic Flow Parameters	Rene Val R. Teodoro Olegario Villoria
2	A Study on Airport Investment Prioritization Scheme	Felicisimo C. Pangilinan, Jr. Toshinori Nemoto Olegario Villoria, Jr.
3	Application of Genetic Algorithms to an Airline-Networks Scheduling	Koji Urata Keiiti Sasaki Toru Tamura Kazuo Saito Akira Kawamura Hussein S. Lidasan
4	International Comparison Study of Traffic Flow Characteristics of Basic Expressway Segments	Karl Vergel Shigeru Morichi Ricardo Sigua
5	Predicting the Impact of the EDSA Mass Rail Transit on the Mode Choice Behavior of Car Users for Work Trips	Nenita R. Jimenez Olegario G. Villoria, Jr.
6	Exploring the Potentials of Telecommuting in the Philippines with Emphasis on Employees' Perceptions and Stated-Preferences	Rolyn Q. Zambales Hussein S. Lidasan Yoji Kawakami

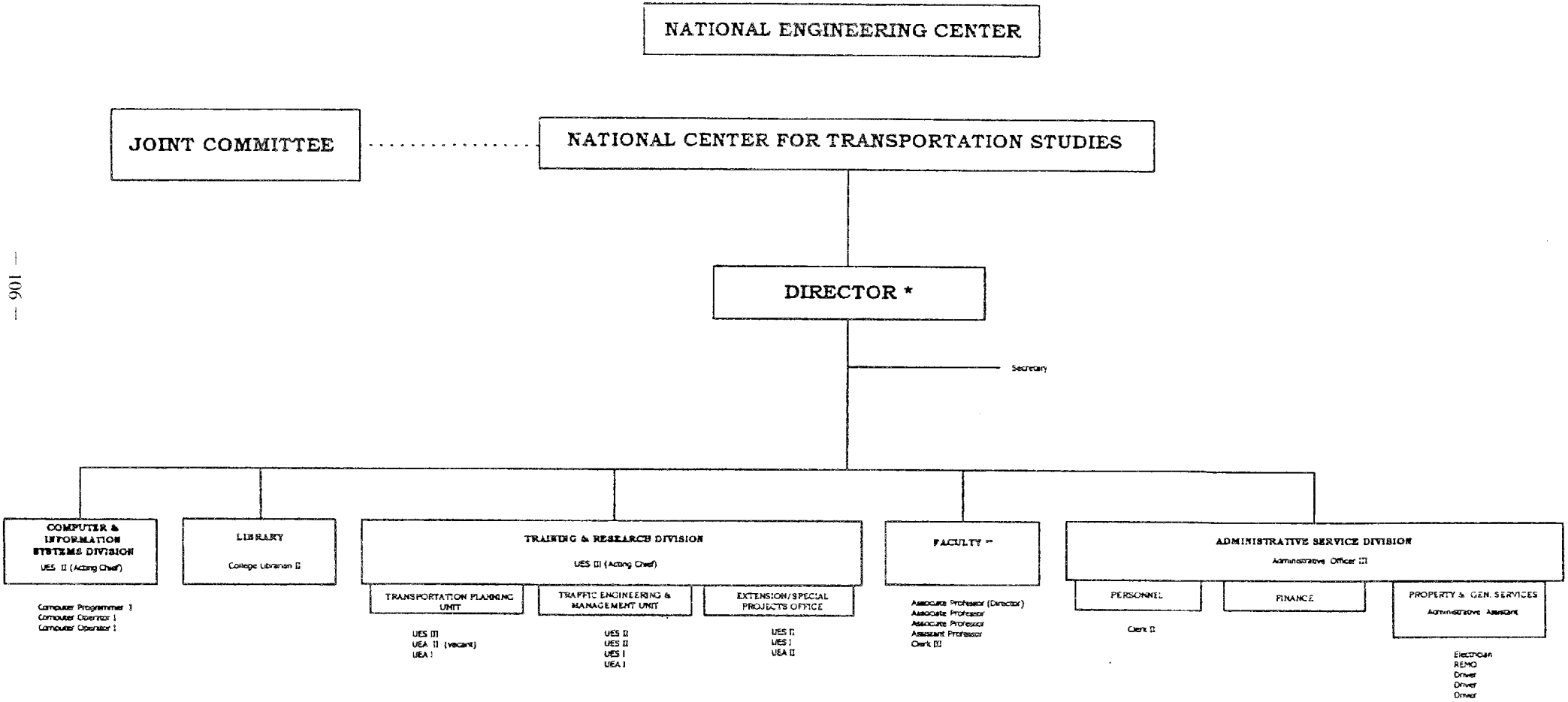
7	A Comparative Analysis of Survey Methodologies for the Collection of Transportation Planning Data	Dolores J. Molintas Hussein S. Lidasan Yoji Kawakami
8	Macroscopic Modelling of Bus Transport Market Considering the Modal Competition / Coalition and Its Application to Management / Policy Assessment	Hitoshi Ieda Ryoichi Watanabe Crispin Diaz
9	Assessment of Costs of Bus Transit Operations in Metro Manila	Crescencio Montalbo, Jr. Haruo Ishida
10	Development of Driving Cycle for Metro Manila	Ricardo G. Sigua

<u>World Conference on Transport Research</u>

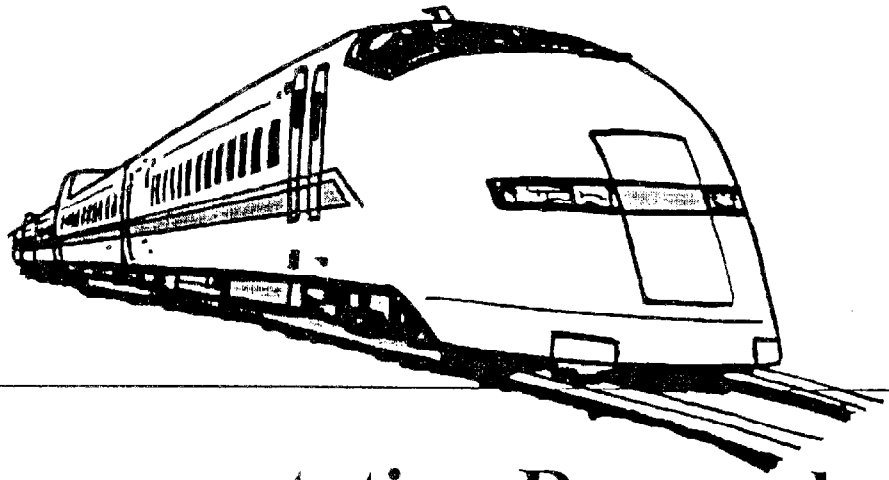
8th WCTR
Antwerp, Belgium
12-17 July, 1998

No.	Title	Author/s
1	Vehicular Noise and Emissions Abatement Strategies for Metro Manila	Dr. Ricardo G. Sigua Kazuo Kajiwara Ms. Sheilah A. Gaabucayan Aileen U. Mapalla Rene Val R. Teodoro

NCTS PERSONNEL CHART



* Additional Assignment
** On detail (part-time) from COE & SURP



Transportation Research and Information Network (TRAIN)

October 1997

NCTS

National Center for Transportation Studies
University of the Philippines

CREATION OF A TRANSPORTATION RESEARCH AND INFORMATION NETWORK IN THE PHILIPPINES (TRAIN)

at the National Center for Transportation Studies

A Project Proposal

I. INTRODUCTION

One of the problems facing major cities in developing countries of the Asia-Pacific Region is the increasing levels of traffic congestion. This is due to the great disparity between the available transportation infrastructure and the levels of economic and social activities 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 made on the basis of up-to-date and accurate information.

The creation of a Transportation Research and Information Network (TRAIN) is geared towards instituting a central repository for transportation research and information in the Philippines. It in 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.

II. BACKGROUND

The National Center for Transportation Studies (NCTS) is a leading institution in human resource development in the field of transportation.

As a regular unit of the University of the Philippines 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.

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 UP 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 Asean countries and ultimately worldwide.

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

All workstations and computers are dedicated for use in research activities. However, given the surplus of these equipment, the Center is opening these 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.

III. 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'.

IV. 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:

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 discussions 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;

V. STRATEGIES

The project will involve the processing of network membership applications. The memberships 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:

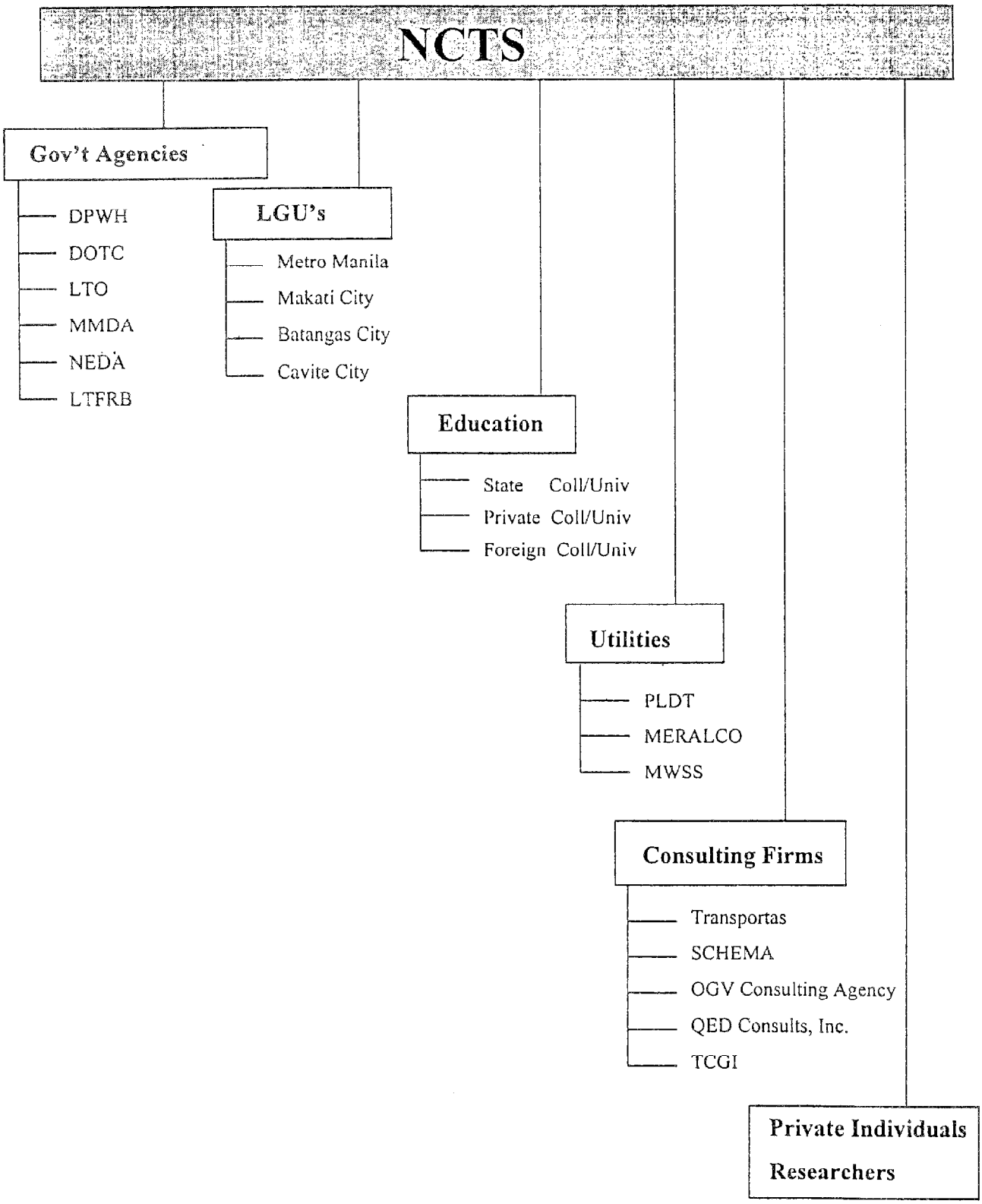
- National Center for Transportation Studies
- School of Urban and Regional Planning
- Major Universities
- Department of Transportation and Communication (DOTC)
- Department of Public Works and Highways (DPWH)
- Metro Manila Development Authority (MMDA)
- National Economic and Development Authority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

As well as, other attached agencies in transportation, namely:

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

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 a number of staff on the administration of the network and Internet services.

Proposed TRAIN Organization



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.

VI. 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 setup 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 (OPAC)

This is a bibliographic listing of all the holdings of the library available online 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.

Online Reference Service

Query negotiation and answering can be posted on a 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 McMillan Publishing, McGrawHill, Prentice Hall and others of the like which have the capability of receiving orders online. Requests for book purchase can be facilitated through a request form accessible on the web.

Inter Library Loan

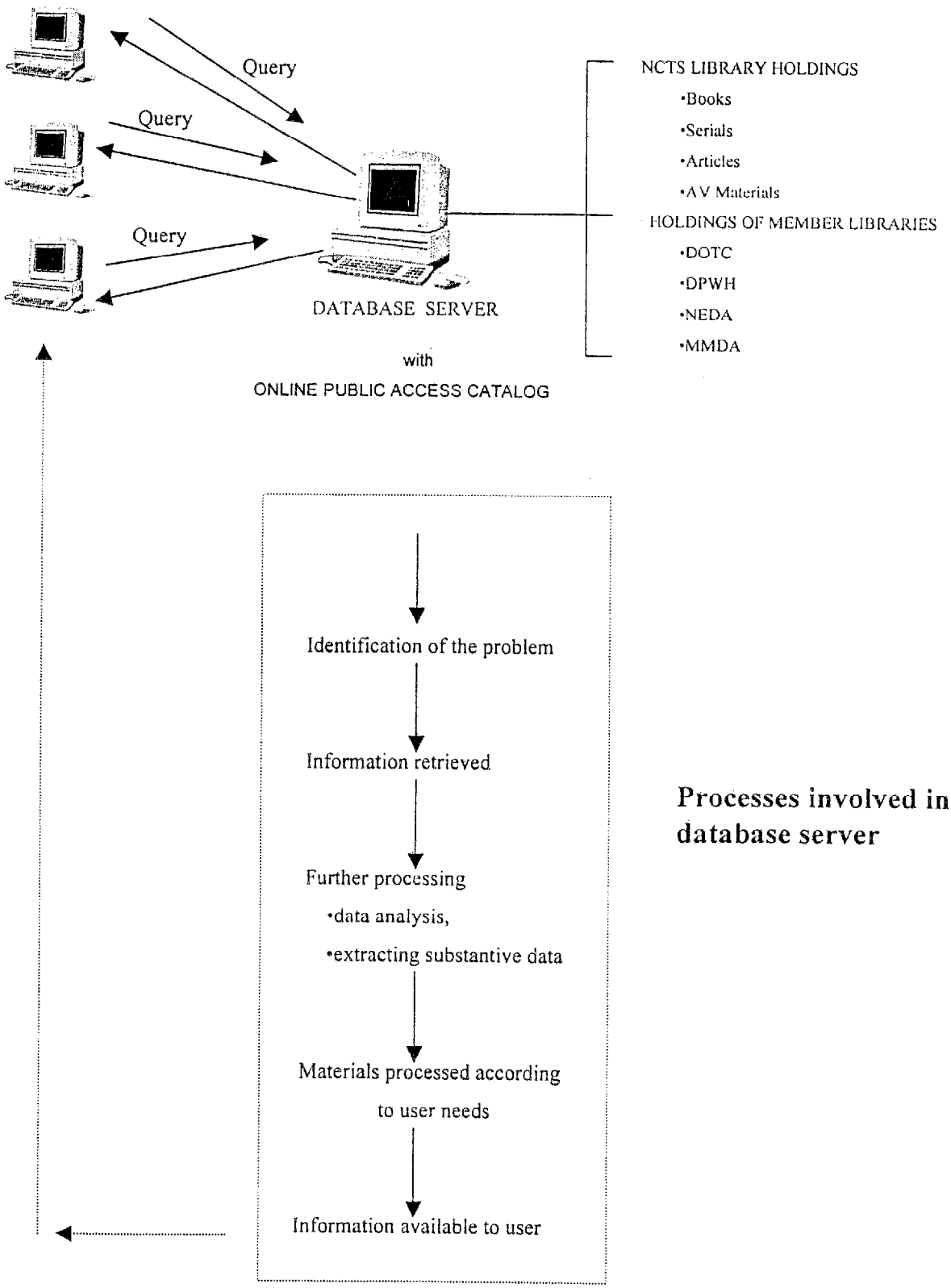
An interlibrary loan agreement will be developed among the premiere transportation libraries around the country. This will form a cooperative effort among the selected libraries to share, exchange and redirect information with each other. A complete listing of the holdings of all the cooperative libraries 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 catalog will be integrated 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 libraries abroad. The proposed services involve 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

LIBRARY INFORMATION SYSTEM



Processes involved in the database server

c) A Web Server which 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 be delegate the data to NCTS before it ends by 1999.

Network Security

The network will adapt 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

VII. PROJECT BENEFITS

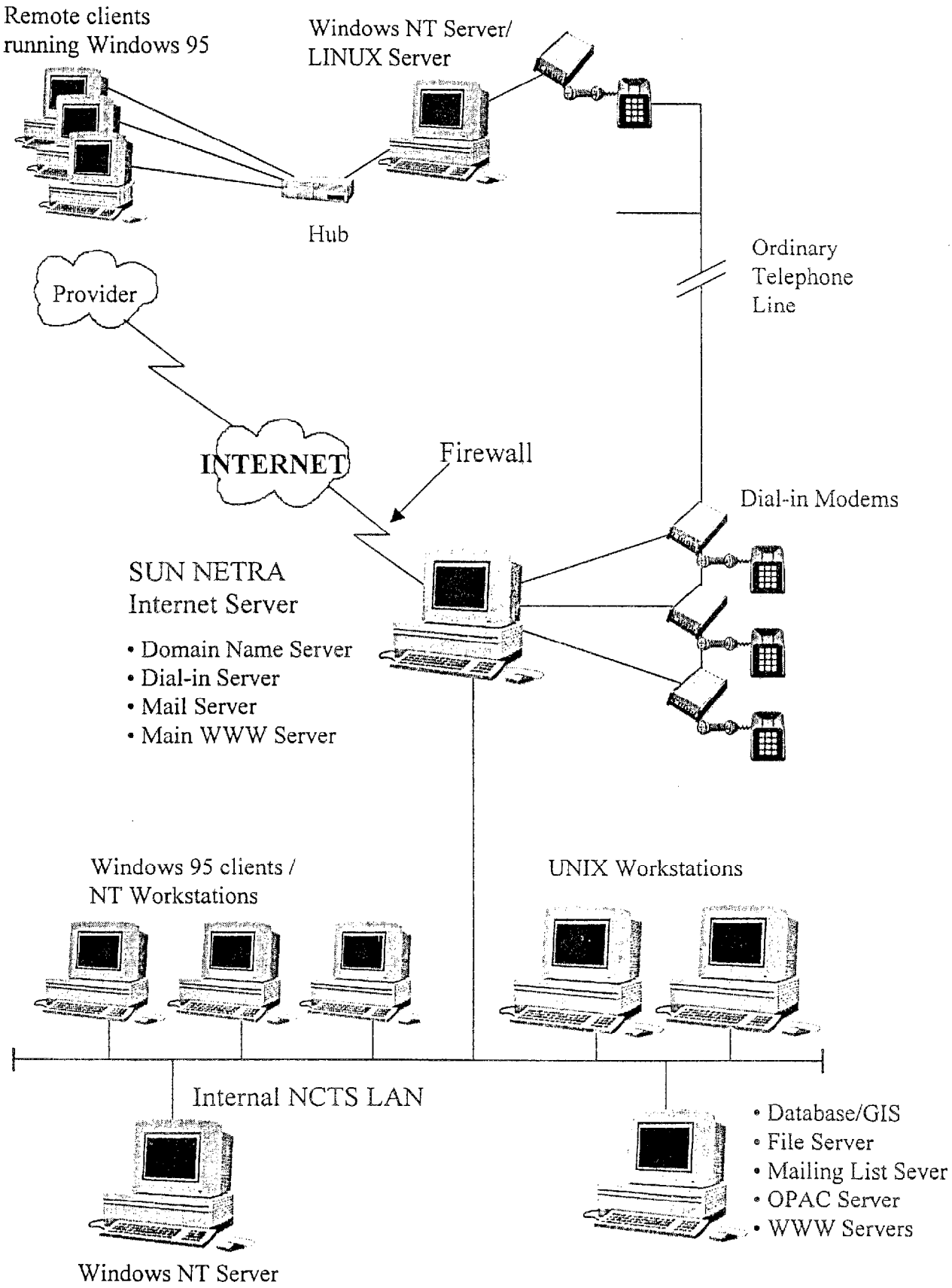
Once the TRAIN Website is on-line, information about the TRAIN will be available to institutions and individuals connected to the Internet. The TRAIN may provide on-line advertisements through its Website. The TRAIN Website will feature information on its on-going activities, information on on-going and past researches, transport publications, as well as, information about its members. The network servers of TRAIN can also provide web hosting capabilities to 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 undertakings will benefit from such a vast information and technology resource.

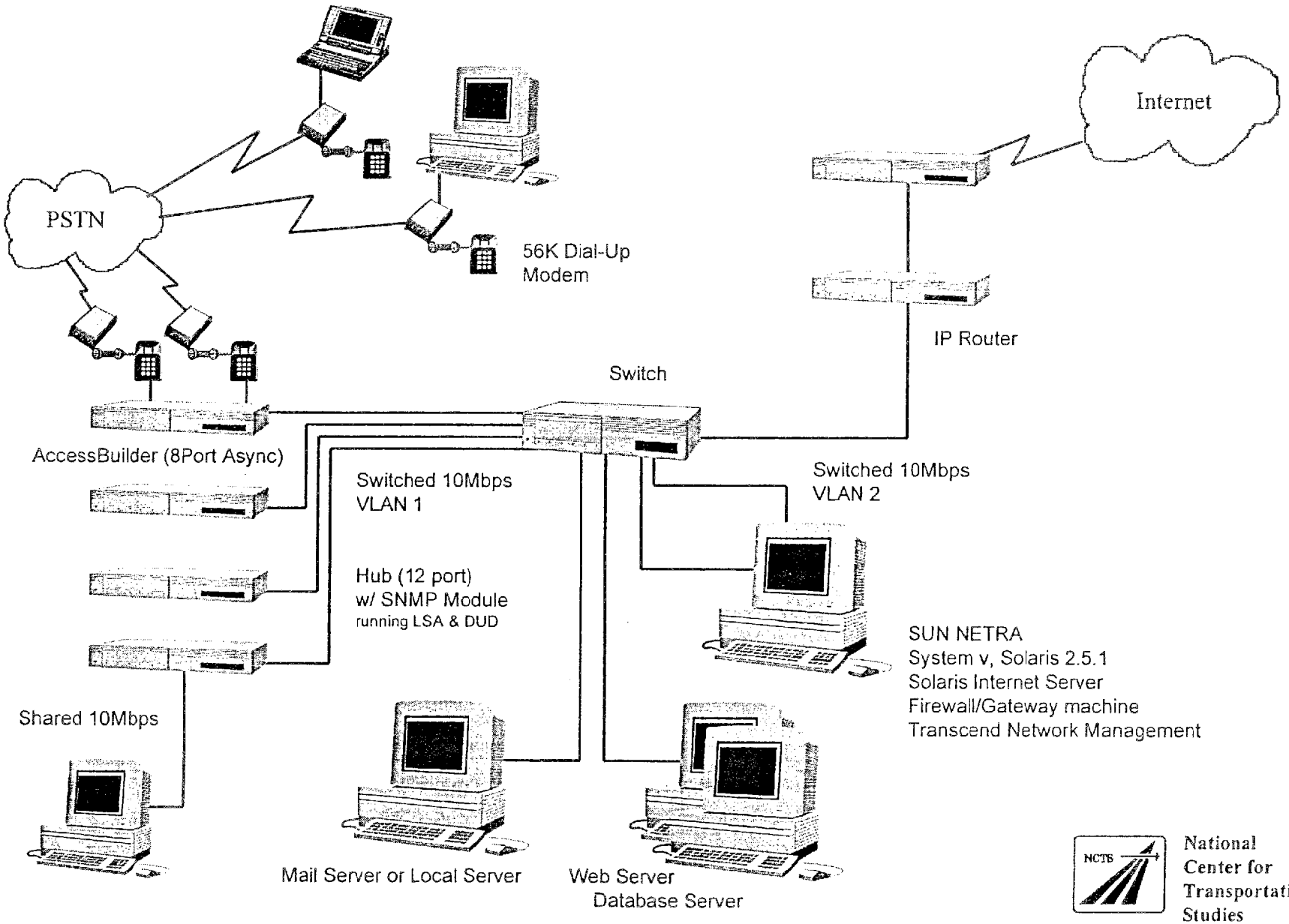
VIII. SUSTAINABILITY OF THE NETWORK

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.

Workgroup/ LAN-WAN Access :



Proposed TRAIN Switched LAN and WAN Project



National
Center for
Transportation
Studies

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 fund can be built by the form of earnings, sponsorships and endorsements from concerned government agencies.

Further possible cost recovery schemes are being explored.

IX. IMPLEMENTATION SCHEDULE

The project will be done in phases, as follows:

Phase	Tasks Involved	Duration
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	Mar 98 - Apr 98
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	May 98 - June 98
Phase 3	Pre-testing of remote connection Network programming	July 98 - Aug 98
Phase 4	Availability of dial-in access Fully operational remote access services	Sep 98 - Oct 98
Phase 5	Full internet services Global connection and on-line applications	Nov 98 - Dec 98

National Center for Transportation Studies

*Faculty and Staff who work as part time Instructors/with additional assignments**

1.	Dr. Ricardo G. Sigua	NCTS Director
2.	Dr. Olegario G. Villoria, Jr.	Head of CSMG
3.	Dr. Hussein S. Lidasan	Coordinator of Graduate Program
4.	Mr. Noriel Christopher C. Tiglao	Instructor at COE
5.	Mr. Rene Val R. Teodoro	Instructor at AIT
6.	Ms. Ma. Sheilah A. Gaabucayan	Instructor at SURP

*NCTS Training Lecturers (with UP appointment)**

1.	Mr. George D. Esguerra	-DOTC
2.	Mr. Cesar T. Valbuena	-DOTC
3.	Mr. Elizer F. Tomas	-PNP
4.	Mr. Cesar A. Villadores	-PNP

*(without appointment/ by Invitation)**

5.	Dr. Primitivo C. Cal	-DOTC/UPSURP
6.	Ms. Linda M. Templo	-DPWH
7.	Mr. Ernesto L. Camarillo	-MMDA
8.	Ms. Maritess Tuazon	-DOTC
9.	Mr. Manuel M. Bonoan	-DPWH
10.	Mr. Thomas B. Marcelo	-NEDA
11.	Mr. Nabor C. Gaviola	-SMDI
12.	Mr. Ruben Reinoso	-NEDA
13.	Mr. Victor Dato	-NEDA
14.	Dr. Corazon Cruz	-MMDA

*as of AY 1998-1999

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF RENEWAL OF APPOINTMENT

Mr. George D. Esguerra
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents, I am hereby approving the renewal of your appointment as **Resource Person,** with **temporary status,** in the **National Center for Transportation Studies,** U.P. Diliman, with an honorarium of **One Thousand Pesos (₱ 1,000.00) per month,** effective **1 July 1998 until 31 December 1998** unless sooner terminated, and subject to pertinent University regulations.

Done at Quezon City, Philippines, this 7th day of May 1998.

CLARO T. LLAGUNO
Chancellor

Budget Item No. 2602004
PS Lump Sum

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF RENEWAL OF APPOINTMENT

Mr. Cesar T. Valbuena
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents, I am hereby approving the renewal of your appointment as **Resource Person,** with **temporary status,** in the **National Center for Transportation Studies,** U.P. Diliman, with an honorarium of **One Thousand Pesos (₱ 1,000.00) per month,** effective **1 July 1998 until 31 December 1998** unless sooner terminated, and subject to pertinent University regulations.

Done at Quezon City, Philippines, this 7th day of May 1998.

CLARO T. LLAGUNO
Chancellor

Budget Item No. 2602004
PS Lump Sum

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF RENEWAL OF APPOINTMENT

Mr. Elizer F. Tomas
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents, I am hereby approving the renewal of your appointment as **Resource Person,** with **temporary status,** in the **National Center for Transportation Studies,** U.P. Diliman, with an honorarium of **One Thousand Pesos (₱ 1,000.00) per month,** effective **1 July 1998 until 31 December 1998** unless sooner terminated, and subject to pertinent University regulations.

Done at Quezon City, Philippines, this 12th day of May 1998.

CLARO T. LLAGUNO
Chancellor

Budget Item No. 2602004
PS Lump Sum

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF RENEWAL OF APPOINTMENT

Mr. Cesar A. Villadores
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents, I am hereby approving the renewal of your appointment as **Resource Person,** with **temporary status,** in the **National Center for Transportation Studies,** U.P. Diliman, with an honorarium of **One Thousand Pesos (₱ 1,000.00) per month,** effective **1 July 1998 until 31 December 1998** unless sooner terminated, and subject to pertinent University regulations.

Done at Quezon City, Philippines, this 7th day of May 1998.

CLARO P. LLAGUNO
Chancellor

Budget Item No. 2602004
PS Lump Sum

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF APPROVAL OF APPOINTMENT (ADDITIONAL ASSIGNMENT)

Dr. Hussein S. Lidasan
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents and upon the recommendation of the **Director, National Center for Transportation Studies,** I am hereby approving the renewal of your appointment as **Program Coordinator, National Center for Transportation Studies,** U.P. Diliman, as an additional assignment, without additional compensation, but **with administrative load credit of 3 units**, effective **1 June 1998 until 31 October 1998** unless sooner terminated, subject to pertinent University regulations.

Done at Quezon City, Philippines, this 7th day of May 1998.

CLARO T. LLAGUNO
Chancellor

/rose

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UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF APPROVAL OF APPOINTMENT (ADDITIONAL ASSIGNMENT)

Dr. Olegario G. Villoria, Jr.
(Thru the Director)
National Center for Transportation Studies
U.P. Diliman

By authority of the Board of Regents and upon the recommendation of the **Director, National Center for Transportation Studies,** I am hereby approving the renewal of your appointment as **Head of Computer Systems Management Group, National Center for Transportation Studies,** U.P. Diliman, as an additional assignment, without additional compensation, but **with administrative load credit of 3 units,** effective **1 June 1998 until 31 October 1998** unless sooner terminated, subject to pertinent University regulations.

Done at Quezon City, Philippines, this 7th day of May 1998.

CLARO ALLAGUNO
Chancellor

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF APPROVAL OF APPOINTMENT
(As Additional Assignment)

Mr. Noriel Christopher C. Tiglao
(Thru the Dean)
College of Engineering
U.P. Diliman

By authority of the Board of Regents, I am hereby approving the renewal of your appointment as **Senior Lecturer 1,** with temporary status*, in the Department of Civil Engineering, College of Engineering, U.P. Diliman, with an honorarium of ₱318.00 per hour of actual service and ₱954.00 for each final examination, as an additional assignment effective **01 June 1998** until **31 May 1999** unless sooner terminated, and subject to pertinent University regulations and provided that this assignment is scheduled outside your regular office hours as University Extension Specialist II, National Center for Transportation Studies, U.P. Diliman.

Done at Quezon City, Philippines, this 05th day of October 1998.

CLARO T. LAGUNO
Chancellor

2600001
PS Lump Sum

*In case of non-renewal of a temporary appointment, the person concerned shall be so informed in writing by the Dean at **least sixty days before the expiration date**. Payment of salaries prior to or beyond the approved appointment period shall be the personal responsibility of the Head of the unit or the person who requested the appointee to report for work outside of the period of the approved appointment.

From: Sec. 5.4.5 U.P. Diliman Faculty Manual , p. 25, 1989
Sec. 11, CSC Rule V Appointment, p. 17, 1992
OC Memo No. 98-123 on Appointments dated March 9, 1998
OC Memo No. 98-141 to HRDO Director dated March 26, 1998

/jjc

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF APPROVAL OF APPOINTMENT
(ADDITIONAL ASSIGNMENT)

Ms. Ma. Sheilah A. Gaabucayan
(Thru the Dean)
School of Urban and Regional Planning
U.P. Diliman

By authority of the Board of Regents and upon the recommendation of the Dean, School of Urban and Regional Planning, I am hereby approving your original appointment as **Senior Lecturer 2,** with **temporary status,** in the **School of Urban and Regional Planning,** U.P. Diliman, with an honorarium of **₱ 350.00 per hour of actual service, and ₱ 1,050.00 for each final examination,** as an additional assignment, effective **5 June 1998 until 31 October 1998** unless sooner terminated, and subject to pertinent University regulations, provided that this assignment is scheduled outside your regular office hours as University Extension Specialist III, National Center for Transportation Studies, U.P. Diliman.

Done at Quezon City, Philippines, this 28th day of July 1998.

M. CLARO T. LLAGUNO
Chancellor

Budget Item No. 4800001
PS Lump Sum

/rose

UNIVERSITY OF THE PHILIPPINES
DILIMAN QUEZON CITY

OFFICE OF THE CHANCELLOR

NOTIFICATION OF APPROVAL OF APPOINTMENT (ADDITIONAL ASSIGNMENT)

Mr. Rene Val R. Teodoro
(Thru the Dean)
Asian Institute of Tourism
U.P. Diliman

By authority of the Board of Regents and upon the recommendation of the Dean, Asian Institute of Tourism, U.P. Diliman, I am hereby approving your original appointment as **Senior Lecturer 1** in the Asian **Institute of Tourism, U.P. Diliman, as an additional assignment, with an honorarium of P263.00 per hour of actual service and P789.00 for each final examination,** effective **June 1, 1997 until March 31, 1998** unless sooner terminated and subject to pertinent University regulations, and the condition that this assignment is scheduled outside your regular office hours as University Extension Specialist in the National Center for Transportation Studies, U.P. Diliman.

Done at Quezon City, Philippines, this 4th day of **July 1997.**

M. CLARK F. LLAGUNO
Chancellor

Code/IOB No. 5400001
LS for Lecturers

/rpm

7757

CERTIFICATE OF ACCREDITATION

Presented to

National Center For Transportation Studies

(GTI-00929-0595)

for having satisfactorily met the requirements for Accreditation as a Training Institution prescribed under CSC Memorandum Circular No. 9, s. 1994.

All rights and privileges appurtenant thereto shall be deemed in force unless sooner revoked by the Commission.

Given this 17th *day of* August 1995 *at the Civil Service Commission, Constitution Hills, Diliman, Quezon City.*

CORAZON ALMA G. DE LEON
Chairman

CPE Form No. 10

Republic of the Philippines
Professional Regulation Commission
Manila

CPE COUNCIL FOR CIVIL ENGINEERING

awards this

CERTIFICATE OF ACCREDITATION

to

NATIONAL CENTER FOR TRANSPORTATION STUDIES

Apacible st., U.P. Campus Diliman, Quezon City

for having completed the requirements for Continuing Professional Education as CPE Provider in accordance with the guidelines set forth by the PROFESSIONAL REGULATION COMMISSION in PRC Resolution No. 381, Series of 1995.

Accreditation No. 016

Given this 17th day of July 1997
Expires on 17th July 2000.

ERNESTO DE CASTRO
Chairman

CPE Form No. 12

Republic of the Philippines
Professional Regulation Commission
Manila

CPE Council for CIVIL ENGINEERING

Certification of Accreditation of Program/Activity/Source

This is to certify that the program/activity/source listed below is accredited for **126** credit units.

REGULAR TRAINING PROGRAM (REQUISITE COURSE)

Name of Provider : **NATIONAL CENTER FOR TRANSPORTATION STUDIES (NCTS)**
Provider Accreditation No. : 016
Program Accreditation No. : 093
Date Approved : July 22, 1997

The accreditation for the above-stated program is subject to renewal after **three years.**

ERNESTO DE CASTRO
Chairman

CPE Form No. 12

Republic of the Philippines
Professional Regulation Commission
Manila

CPE Council for CIVIL ENGINEERING

Certification of Accreditation of Program/Activity/Source

This is to certify that the program/activity/source listed below is accredited for **154** credit units.

REGULAR TRAINING PROGRAM (ADVANCE COURSE)

Name of Provider : NATIONAL CENTER FOR TRANSPORTATION STUDIES (NCTS)
Provider Accreditation No. : 016
Program Accreditation No. : 098
Date Approved : July 22, 1997

The accreditation for the above-stated program is subject to renewal after **three years.**

ERNESTO DE CASTRO
Chairman

National Center for Transportation Studies
University of the Philippines, Diliman, 1101 Quezon City
Telephone Nos: 929-04-95/920-5301 loc. 5516/5258/5807
Telefax: (632) 929-56-64

NATIONAL CENTER FOR TRANSPORTATION STUDIES 3-YEAR DEVELOPMENT PLAN(1999-2001)

1. INTRODUCTION

As part of the University's strategic planning process, the National Center for Transportation Studies developed the **Transplan** (1995-2008 NCTS Strategic Plan) in 1994 containing its short-term, medium term, and long-term plans. In the **Transplan**, the NCTS is planned to become part of the proposed Institute of Civil Engineering. Under this proposal, the NCTS will be integrated with the Institute's Division of Transportation Engineering.

Based on the **Transplan**, the mission of the Center is to contribute to national growth and development by providing academic instruction, scholarly research, training and other extension services in the fields of transportation engineering, planning and management. In the pursuit of its mission, the Center seeks to become an internationally recognized center of excellence in the field of transportation studies.

1.1 ACADEMIC PROGRAM

HIGHLIGHTS:
Ph.D. in 2000
MSIE, Major in Transportation in 2000
Diploma Course in TP and TE in 1999 and 2000, respectively

`NATIONAL CENTER FOR TRANSPORTATION STUDIES
ACADEMIC PROGRAM
3-YEAR DEVELOPMENT PLAN

Objectives	Current Status	1999	2000	2001
Improve the existing Master's degree program in transportation	2 Master's programs: • MSCE major in Transp'n. eng'g. • MAURP major in Transp'n planning	MA Transp'n Planning	Continue Continue	Continue Continue
Expand master's program by initiating the development of degree specialization within the existing graduate degree programs of the University.				
• MSIE(Major in Transportation Systems): with the Department of Industrial Engineering and Operations Research;	Curriculum almost finalized;	Submission for approval	Implementation	continue
• MA in Economics (Major in Transp'n Economics): with the School of Economics		Discussion with the School of Economics; Development of Curriculum	Submission for approval	Implementation
• Offer Diploma Course under Open University Program of the Univ.		Introduce non-thesis option	Continue	Continue

Institution of Ph.D. Programs in Transportation • Ph.D. in Civil Engineering; major in transp'n engineering • Ph.D. in Transportation Planning	Preparatory discussions	Development of curriculum; submission for approval	Implementation	Continue
Faculty Development	Ph.D. holders in Transportation • COE: 2 • SURP: 3	COE: 4* SURP: 3 Secure 1 faculty item at COE *1 with item already	COE: 4 SURP: 4 Secure 1 faculty item at SURP	COE: 4 SURP: 4

NCTS STAFF DEVELOPMENT

Name	1999	2000	2001	2002	2003
C. Montalbo*		Ph.D.			
S. Gaabucayan**				Ph.D.	
N. Tiglao**				Ph.D.	
R. Teodoro					Ph.D.
J. Castro*	MSCE			Ph.D.	
S. Palmiano*		M.SCE			Ph.D.
A. Mappala+		M.S. Env E			
M. Rostrata**				MA TP	
T. Ronquillo+		M.A. Educ.			
C. Gerundio+		M.A. Educ.			
M. Apuan		M.A. PA			
D. Caingat+		MBA			
A. Abao+		MA LS			
R. Bayhon+		MA LS			
C. Gardon+		MA IR			
R. Regidor *(COE)	Ph.D.				
K. Vergel	Ph.D.				

* Ongoing (on study leave) **Committed +Ongoing (part time)

1.2 TRAINING & EXTENSION PROGRAM

THREE-YEAR DEVELOPMENT PLAN (1999-2001)
Training Unit, Training and Research Division
National Center for Transportation Studies

Main Activity : Regular Training Program (RTP)

Goals/Objectives	Current Status	Strategies /Implementation		
		1999	2000	2001
• To strengthen training programs for local participants for the promotion of human resource development in the field of transportation	• The RTP is currently being conducted once a year • It is divided into 3 major courses, namely: the Requisite, Advanced, and Professional	• Strengthen Professional Course as a viable venue for technology transfer as well as forum for senior level transport officials in the Philippines	→	→
• To devolve the Requisite Course of the Regular Training Program to concerned transport-related agencies	• Requisite Course is still under the training program of NCTS	• Conduct Trainors' Training Program	• Create a inter-agency training committee	• Transfer RTP-Requisite Course modules to agencies
• To continually upgrade existing training programs to ensure timeliness and effectivity	• To date, it has been attended by more than 1,600 personnel from government offices in the country	• Continually renew accreditation with PRC and CSC to encourage more participants, especially from the provinces • Expand Course curriculum of RTP to include other modes of transport, specifically rail transport	→ • Expand Course curriculum of RTP to include other modes of transport, specifically air transport	→ • Expand Course curriculum of RTP to include other modes of transport, specifically water transport
• To strengthen the linkages between NCTS and agencies involved on transportation		• Continue conduct of RTP Courses • Participate in inter-agency study teams	→	→
• To sustain the Regular Training Program		Charging of training fee for materials	→	→

Main Activity : Regional Short Term Seminars (RSTS)

Goals/Objectives	Current Status	Strategies/Implementation		
		1999	2000	2001
• To meet perceived training needs in various regions of the Philippines	• RSTS is currently conducted with financial assistance from JICA	• Conduct of Regional Short Term Seminar	→	→
• Encourage regional initiative in solving transportation problems in the regions		• Establish regional centers tapping former participants of RSTS		
• To strengthen linkages among the local transport planners and traffic engineers and enforcers as well as policy makers in the regions		• Develop and strengthen linkage with the local government units for possible funding of future training programs as needed by the region or city • Accreditation with DILG/LGA to improve information dissemination and enhance participation	→	→

Main Activity : Short Term Seminars (STS)

Goals/Objectives	Current Status	Strategies/Implementation		
		1999	2000	2001
• To provide training programs and seminars on pertinent and highly specialized topics transportation	• STS has not been conducted this year	• Conduct a training needs assessment survey among the various transport-relation agencies • Establish Short Term Seminars (STS) that will cater to the private sector, executives, and/o specific groups of professional within the transportation framework	→	→
• To assist in sustaining programs of the Center		• Accreditation with PRC to maximize attendance • Develop schedule of fees for STS		

Main Activity : Third Country Training Programme

Goals/Objectives	Current Status	Strategies/Implementation		
		1999	2000	2001
• To establish professional and technical linkage with neighboring countries in the Asia-Pacific Region	• JICA recently approved in principle the Executives' Forum for Transportation Development (EXETRAM)	• Conduct Third Country Training Program with assistance of the Government of Japan through the Japanese International Cooperation Agency	→	→
• To promote collaborative research among the former participants of the TCTP from various Asia-Pacific countries in the field of transportation		• Establish Regional Center for Transportation tapping former participants of the ASCOTT and TRANSMEX • Maximize utilization of the computer superhighway for exchange of views and opinions	→	→

Main Activity : Third Country Experts' Programme (TCEP)

Goals/Objectives	Current Status	Strategies/Implementation		
		1999	2000	2001
• To tap technical expertise of transport professionals in the neighboring countries of the Asia-Pacific Region	• The Center has conducted 4 programs under the TCEP and the participants are being tapped to be speakers for the Third Country Training Programs of the Center	• Conduct Third Country Experts' Program with assistance of the Government of Japan through the Japanese International Cooperation Agency • Conduct the RTP-Professional Course simultaneously with the TCEP to maximize experts' exposure • Conduct In-House training for the NCTS staff to ensure continuous upgrading of knowledge and sharing of commonality of experience		

1.3 RESEARCH PROGRAM

Research in the Center is managed and undertaken through research groups (RGs) which are concerned with all matters concerning research such as choice of topics, survey plan, methodology, analytic interpretation, etc. RGs are flexible groupings of faculty, staff, and students organized according to areas of research. The RG setup fosters an atmosphere of innovative thinking and open discussion in the conduct of its research activities. All students are expected to participate in at least one RG starting the second semester in his/her first year in the graduate program. Each RG is supervised by a senior faculty member designated by the Director of the Center. If the topic involves cooperative work with other organizations, members from these organizations are welcome to join the RG.

Areas of Study of the Research Groups

	Road	Rail	Maritime	Urban & Regional	Air
Planning *Policy* *Surveys* *Modeling* *Analysis* *Land Use* *Environment*	S	S	S	S	M
Administration *Regulation* *Financing* *Legal* *Organization*	S	S	S	S	M
Design *Geometric* *Pavement* *Vehicle*	S	M	M	M	L
Construction *Management*	M	M	L	L	L
Operations *Control systems* *Management*	S	S	M	M	L
Maintenance	S	M	M	M	L

S - Short-term M - Medium-term L - Long-term

The target number of research topics to be completed is shown as follows:

a) Short-Term	(1995-1997)	20 per year
b) Medium-Term	(1998-2000)	30 per year
c) Long-Term	(2001-2008)	50 per year

THREE YEAR DEVELOPMENT PLAN (1999-2001)
Training and Research Division : Research Unit
National Center for Transportation Studies

Concerning : Research Activity

Objective	Current Status	Strategies/Implementation		
INTERNAL		1999	2000	2001
a) Research Group (RG)				
- expand research area to covermulti-modal transport, urban development and environmental	(please refer to figure 1, shaded areas are the areas that have been already covered by exisiting researches)	Establish local issues RG	Greater focus on Rail and Maritime	
- conduct research addressing current local transportation problems and issues	- NCTS has published 17 discussion papers since July 1995			
- publish regularly in refereed journals each year	- NCTS has published a total of 54 papers in the past 5 years to different journals and conferences	Continuation of the current research mode, while continued upgrading of research staff		
-use of research results in training activities	- 31 Graduate theses since Oct 1994 - Currently 5 RGs, 2 under special topics			
b) Research Initiative Committee (RIC)				
- strengthen the Research Group (RG) structure	largely ad-hoc nature of RIC; composed of RG heads	Establish working guidelines for RIC	Implement	Continue
- approve topics and research plans				
- establish and maintain sources of funding sustainable research activities	Inadequate funds	Identify sources and secure working relations with these agencies		
- identify publication opportunities for researchers	researchers have presented their work in international and local conferences, under the aegis of NCTS.			
- coordinate with TRAIN on the development and maintenance of a national transportation research database and information service, establishing links worldwide				
EXTERNAL				
-collaborate internationally in research with other institutions and organizations	-Active participation in JSPS, EASTS, TSSP	Continue	Continue	Continue
	-Limited number of institutional linkages	Establish new linkages	Continue	Continue
-promote exchange of staff with research institutions in other countries				

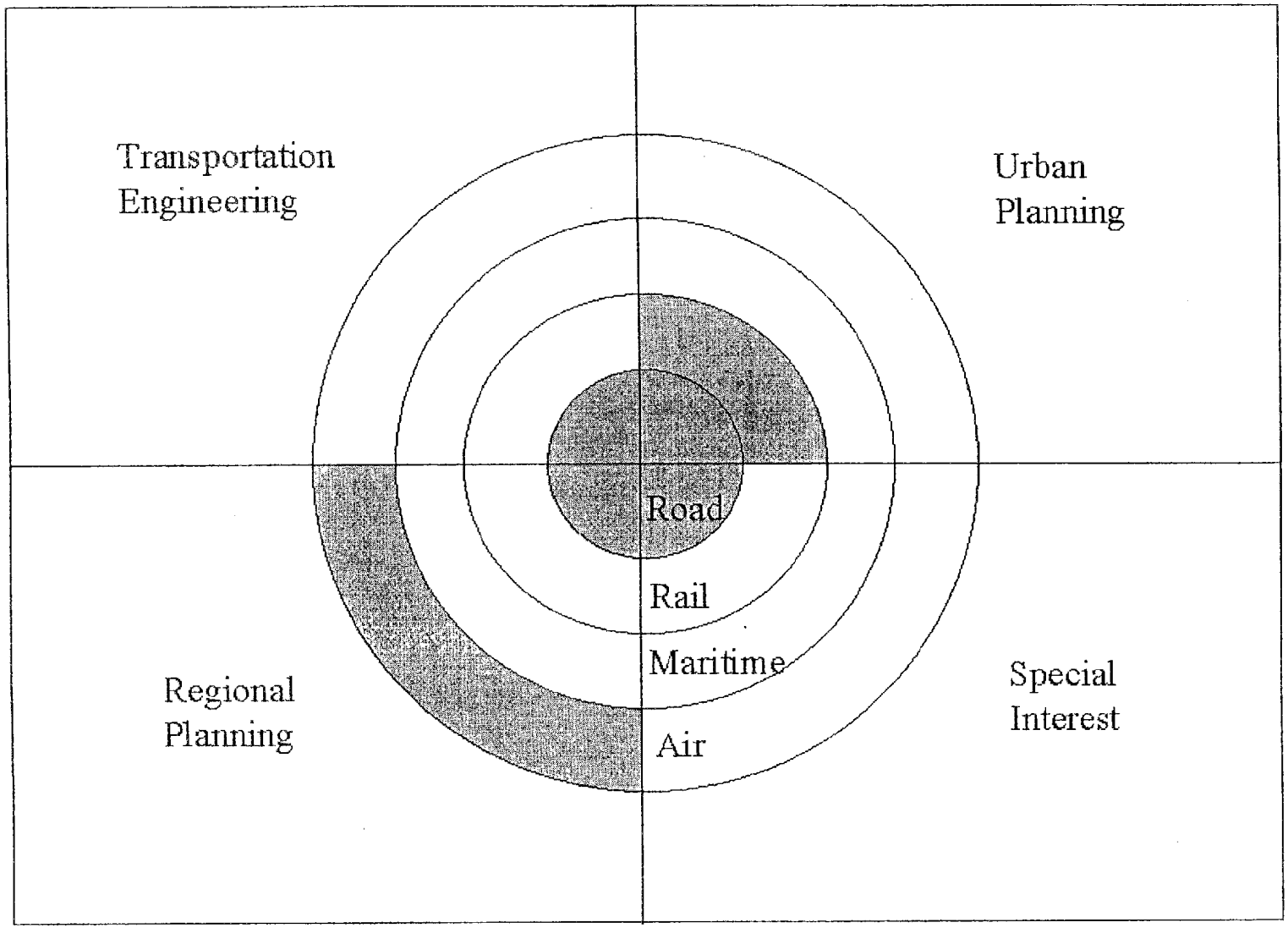
Transportation
Engineering
Urban
Planning
Road
Rail
Maritime
Air
Regional
Planning
Special
Interest

Figure 1

1.4 COMPUTER AND INFORMATION SERVICES

As part of its regular activities, the Center is creating 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 linkages 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.

THREE-YEAR DEVELOPMENT PLAN (1999-2001)
Computer and Information Systems Division
National Center for Transporation Studies

Objective	Current Status	Strategies/ Implementation		
		1999	2000	2001
a) **Transportation Research and Information Network (TRAIN)** - Provide on-line research and transportation information - Maintain database of member individuals involved in transporation field - provide services available through Internet to its members - Set up and maintain a Network Operations Center (NOC) at the NCTS and maintain a wide-area computer network and remote access	<u>Computer Network</u> - NCTS network has been upgraded to a switched network configuration with 70 outlets throughtout the premises and enough expansion capacity - NCTS acquired a leased line connection to the Internet - Local area network security is ensured by a firewall device; Installation of new network servers	Set up remote access facility Establish Discussion Group/ Mailing List NOC Renovation/ Improvement of Work Area	Provide Web Hosting services →	
	<u>Library</u> - Installation of CSD/ISIS for computerized information storage and retrieval system for library resources - Acquisition of additional titles; Indexing of 1958 news clippings - Collection of maps	Establish inter-library loan agreement Provide Internet services →	Establish Online Public Access Catalog (OPAC) →	
		Inter-connection with other UP Libraries	Develop Archives System	
	<u>Inter-agency networking</u> - On-going discussion with key transport-related agencies regarding network link-ups - On-going discussion regarding library resource and data sharing	Connect Agency for Data Capture →		

Objective	Current Status	Strategies/ Implementation		
		1999	2000	2001
b) Comprehensive Urban and Transportation Planning Database - Propose the creation of a comprehensive database to provide base information for the conduct of urban and transportation planning - Identify issues and concerns for the development, implementation, utilization and maintenance of a comprehensive planning database - Provide a strategic plan for the implementation and operation of the planning database	<u>Database Repository</u> - NCTS has been designated as official repository of MMUTIS Data - Proposal to draft a memorandum of agreement among counterpart agencies will be presented by NCTS	Establish MOA Design/ Implement MMUTIS DBMS		
	<u>Available Data</u> - OD and HIS Data has been forwarded to NCTS - Other data items are in the process of transferring	Provide Local Data Update/Develop MMUTIS Data		Provide Regional Data
	<u>Training</u> - MMUTIS with NCTS will conduct a training on STRADA and MMUTIS Model - STRADA Training is proposed to be institutionalized under NCTS training program	JICA STRADA Training		
	<u>Information Service</u> - NCTS provided 1986 OD Data to private client	Develop Promotion Strategies Provide Value-Added Transport Data with Fee to sustain database operation		

Objective	Current Status	Strategies/ Implementation		
		1999	2000	2001
c) Trainings/ Seminars - Provide training and seminar activities related to computer applications in the field of transportation	Seminars Conducted - CISD has conducted 3 in-house seminars this year related to computer use and applications	GIS Application Seminar DBASE Sem. Computer Networks Sem.		
d) Systems Development - Conduct R&D activities in the area of computer applications and systems development - Utilize available existing/ cost-effective technologies for use in the field of transportation	Accident Research - CISD is undertaking research on the development of a traffic accident information system using GIS GIS Application - NCTS has secured a new digitizer for the development of digital map information - NCTS has Metro Manila Land Use GIS	Develop Accident System Updated MM GIS Philippine Road Network GIS	Accident System Deployment MM Infrastructure GIS	Philippine Infrastructure GIS
e) Staff Development - Attract and develop pool of competent staff for increase in taskload in CISD	Current Staff - There are currently 4 staff at CISD (1tech, 3 non-tech) with permanent positions - There are 2 staff working at the Library (1 contractual, 1 contractual-project basis) - Current taskload is high although manageable so far - There is a need to upgrade/ secure new staff for the future	Upgrade Item of Existing Staff Head Librarian-1 Library Clerk-1	Admin Support-1 Network Expert-1 GIS Expert-1 DB Expert-2 Lirary Aide-2	

1.5 ADMINISTRATIVE SERVICES

THREE-YEAR DEVELOPMENT PLAN (1999-2001)
Administrative Services Division
National Center for Transportation Studies

Objective	Current Status	Strategies/Implementation		
		1999	2000	2001
To improve and strengthen administrative support system. *1. Systems computerization* a) upgrading method of personnel time monitoring by instituting a computerized time recording system (CTRS)	DTRs are manually done which is time consuming and is subject to manipulation.	identification and acquisition of a computer unit specifically for the purpose; install the unit and the time attendance terminal and program (in coordination with CISD)	full implementation	→
b) to systematize inventory control measures (recording and accounting) of all physical and capital assets by insituting a Centralized and Automatic Register of Asset Transfers (CARAT)	items transferred from one area to another are not readily reflected in the Master List and is difficult to identify acccountable personnel.	updating of Master List identification of unserviceable items and preparation of Memorandum Receipts and disposal therof.	installation of program in all divisions and test run before the year ends (in coordination with CISD)	full implementation
c) to create a comprehensive personnel data base of NCTS' (TTC) personnel profile to include past administrators, consultants, lecturers, retirees, etc.	personnel records has not been computerized since. Retrieval is made more difficult as they are not readily accessible.	establish central filing system inventory of existing records gather data to update 201 files	continue data gathering	complete
2. *Rehabilitation of facilities:* * repair of garage building * expansion of library and additional fixtures	unused/needs rehab. full area capacity	follow-up of budget request/ upon approval, request for pre-repair inspection	canvass of prices/cost estimates, bidding and then work commences	continue if not finished by end of preceding year.
*replacement of existing airconditioning units	unserviceable - 20 years in use	same as above	same as above	same as above

Objective	Current Status	1999	2000	2001
3. *Personnel*				
a) secure and complete all the desired thirty (30) regular plantilla positions	22 permanent items, 7 -requested from DBM 1 -requested from UP	follow up of request, constant communication with UPCBO	nomination and screening/selection of applicants, hiring, processing of appointment papers	
b) secure additional faculty items for NCTS staff after obtaining PhD	4 active faculty at NCTS; 3 PhD and 2 MS students are in Japan	coordination with UPCOE and UPSURP		
4. *Finance* secure additional budget allocation for NCTS' expenditures not only in view of the termination of Japan/JICA assistance but in the face of a dramatic increase in cost of operations ...	P2.0M budget allocation for MOOE every year	request for P1.5M budget increase had been submitted to the University for a P3M operating expenditures	will request P4.0M* operating expenditures	will request P5.0M* operating expenditures
		***subject to government regulations/availabity of funds**		