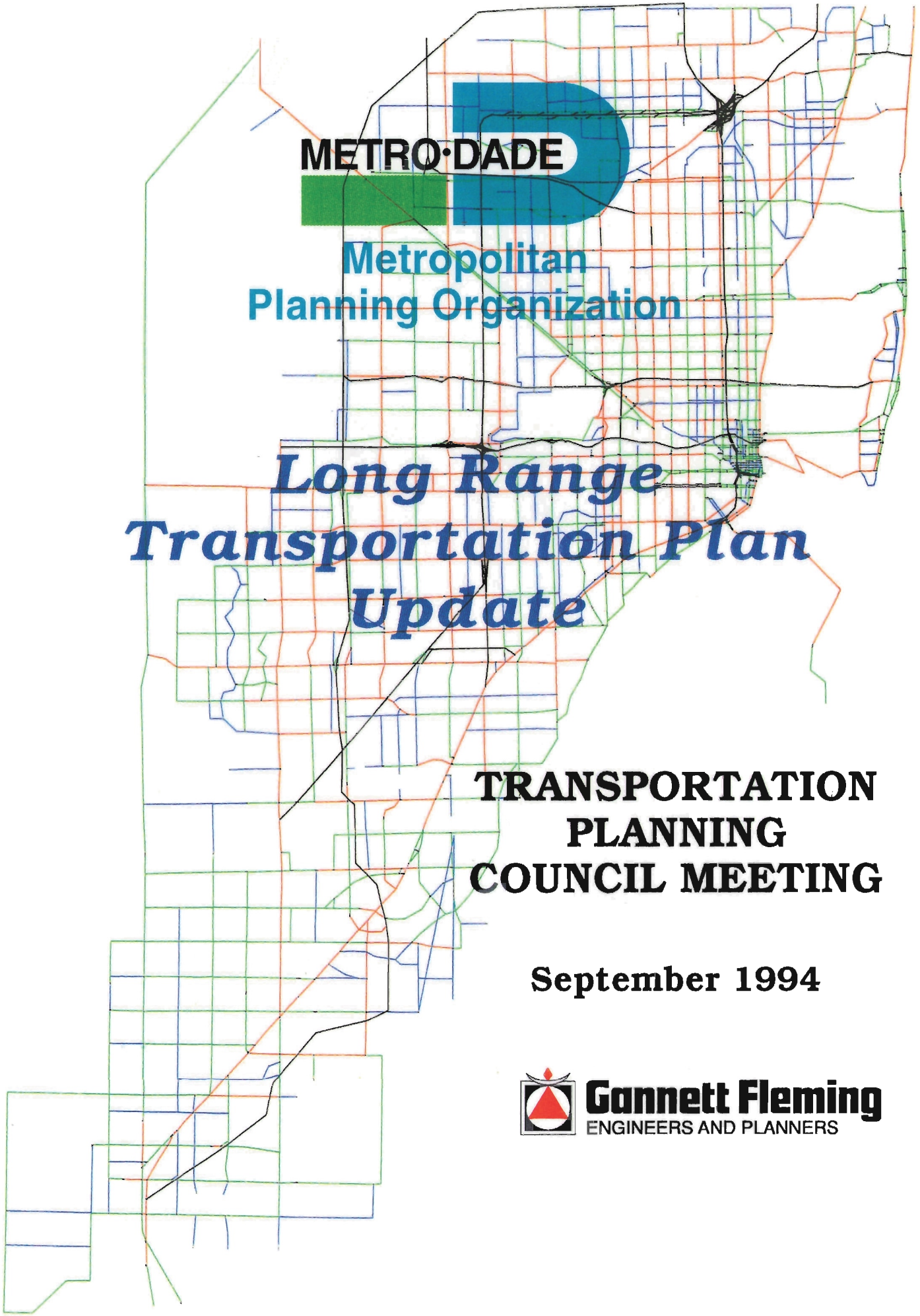


METRO·DADE

Metropolitan
Planning Organization

Long Range Transportation Plan Update

TRANSPORTATION PLANNING COUNCIL MEETING

September 1994

Gannett Fleming
ENGINEERS AND PLANNERS

TRANSPORTATION PLANNING COUNCIL MEETING

SEPTEMBER 1994

I. METRO-DADE MPO LONG RANGE TRANSPORTATION PLAN UPDATE PROJECT 1

II. LONG RANGE TRANSPORTATION PLAN WORK FLOW 3

III. TRAVEL DEMAND MODELING PROCESS 4

IV. MODEL VALIDATION 5

- Highway Network 5
- Transit Network 6
- External Trips 7
- Trip Generation 11
- Trip Distribution 18
- Mode Choice 24
- Highway Assignment 30
- Transit Assignment 32

METROPOLITAN PLANNING ORGANIZATION (MPO) OF THE MIAMI URBANIZED AREA LONG RANGE TRANSPORTATION PLAN UPDATE

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 has mandated that all Metropolitan Planning Areas (MPOs) update their Long Range Transportation Plans (LRTPs) at regular intervals. ISTEA includes rules, regulations, and requirements for the MPOs to follow in developing or updating their LRTPs. In addition, the Environmental Protection Agency (EPA) recently established and/or updated its own rules, regulations, and requirements for the MPOs to follow in developing LRTPs, so that the Agency can satisfy itself that the LRTPs are compatible with other environmental documents, such as the State Implementation Plan.

The Metropolitan Planning Organization (MPO) of the Miami Urbanized Area has initiated the Update of the Metro-Dade Long Range Transportation Plan (LRTP) for the Year 2015. This update is the first one since the ISTEA legislation was passed in 1991.

The LRTP will specify transportation improvements to be made in the region during the 1995-2015 period. The Plan is intended to achieve a regional, unified transportation system through comprehensive coordination among highways, transit facilities, and other modes of transportation.

The MPO has retained an eight-member consultant team headed by Gannett Fleming, Inc. to validate the travel forecasting model for the Year 1990 conditions and update the LRTP for the Year 2015 using the validated model. The work flow diagram for the six tasks Update Study, which started in November of 1993, is attached. Following is a brief narration of the work to be accomplished for the Update Study.

Year 1990 data will be complied and reviewed. Using the Year 1990 data, the travel forecasting model will be validated for the year 1990. The validated model will be used to forecast travel demand in the Year 2015. Year 2015 Transportation Needs Plan alternatives will be prepared based on travel demand estimates for the Year 2015. These alternatives will include highway, commuter rail, and urban transit improvements.

Goals and Objectives will be established by the Study Steering Committee and adopted by the MPO. An Alternatives Evaluation Methodology will be prepared by the consultant and approved by the Study Steering Committee (SC). The Goals and Objectives and the Evaluation Methodology will consider all the rules, regulations, and requirements of ISTEA, the Clean Air Act (CAA), the Clean Air Amendments of 1990 (CAAA) the National Environmental Policy Act (NEPA), and other relevant rules.

Using the alternatives evaluation methodology, the Year 2015 Transportation Needs Plan will be selected from the Year 2015 Needs Plan Alternatives. A Project Prioritization Technique will be developed by the consultant and it will be approved by the Steering Committee. The Project Prioritization Technique will be used to assign priority levels to the projects in the Needs Plan.

Data on historic financial resources for transportation improvements in the region will be developed. Based on the historic data; review of recent Acts and legislation of federal, state, and local agencies; and potential private funding opportunities; financial resources that may be expected to be available for transportation improvements in the region will be forecasted.

Using the forecasts of future financial resources and the prioritized projects in the Year 2015 Needs Plan, Year 2015 Cost Feasible Plan Alternatives will be developed. The alternative plans will be evaluated by means of the alternatives evaluation methodology to identify the Year 2015 Cost Feasible Plan.

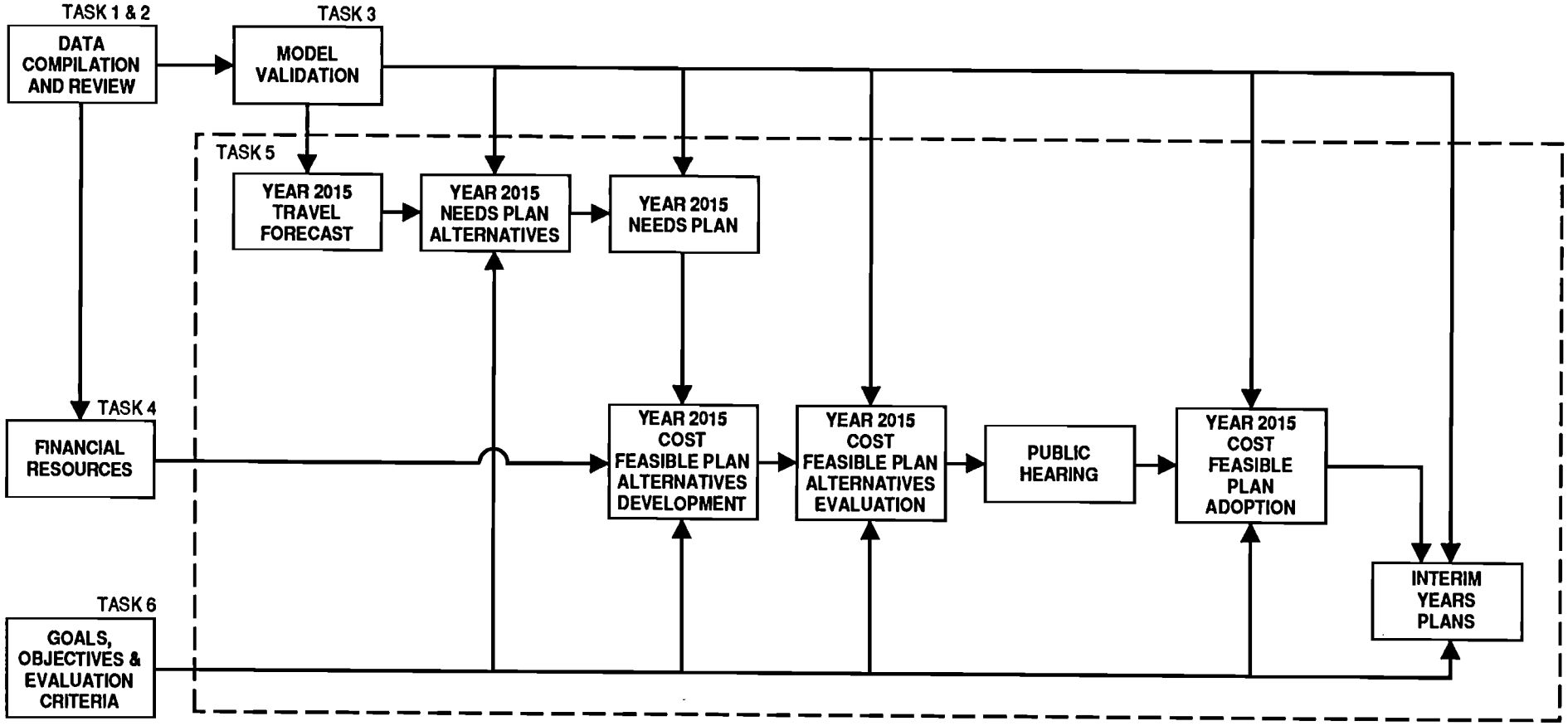
The Year 2015 Cost Feasible Plan will be scaled down on the basis of available financial resources to develop interim plans for the Years 2000, 2005, and 2010.

In updating the LRTP through the process described above, the consultant will closely coordinate with the Study Steering Committee (SC) and MPO Staff. During each monthly meeting, the consultant will present results obtained from the work of the previous month to the SC and seek needed approvals and policy input from the SC to proceed further with the study.

The consultant will prepare 10 Technical Memoranda at selected stages of the study documenting the analysis results, three Technical Reports consolidating the material included in the Technical memoranda, and at the end of the study, an Executive Summary. The consultant will also prepare a promotional brochure (at the initiation of the study) and a final brochure (at the conclusion of the study) as public information documents.

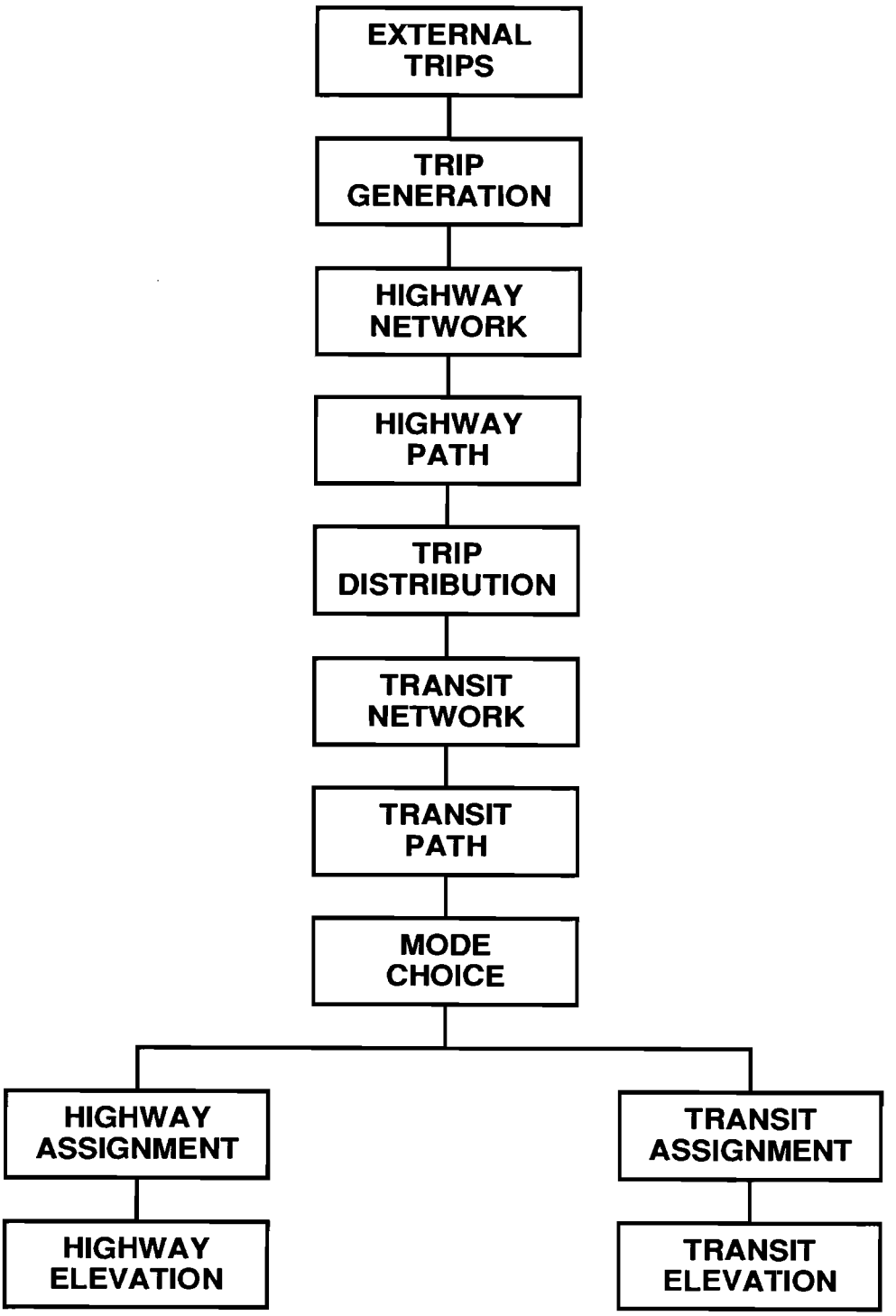
METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

WORK FLOW DIAGRAM



Gannett Fleming
ENGINEERS AND PLANNERS

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION
MODELING PROCESS



Gannett Fleming
ENGINEERS AND PLANNERS

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

HIGHWAY LANE MILES BY FACILITY TYPE

Freeway	820 miles	17%
Divided Arterial	1,680 miles	35%
Undivided Arterial	1,350 miles	29%
Collector	920 miles	19%
Total	**4,770 miles**	**100%**

HIGHWAY LANE MILES BY AREA TYPE

Central Business District (CBD)	50 miles
Fringe	150 miles
Residential	2,630 miles
Outlying Business District (OBD)	1,300 miles
Rural	640 miles
Total	**4,770 miles**

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

TRANSIT NETWORK SUMMARY

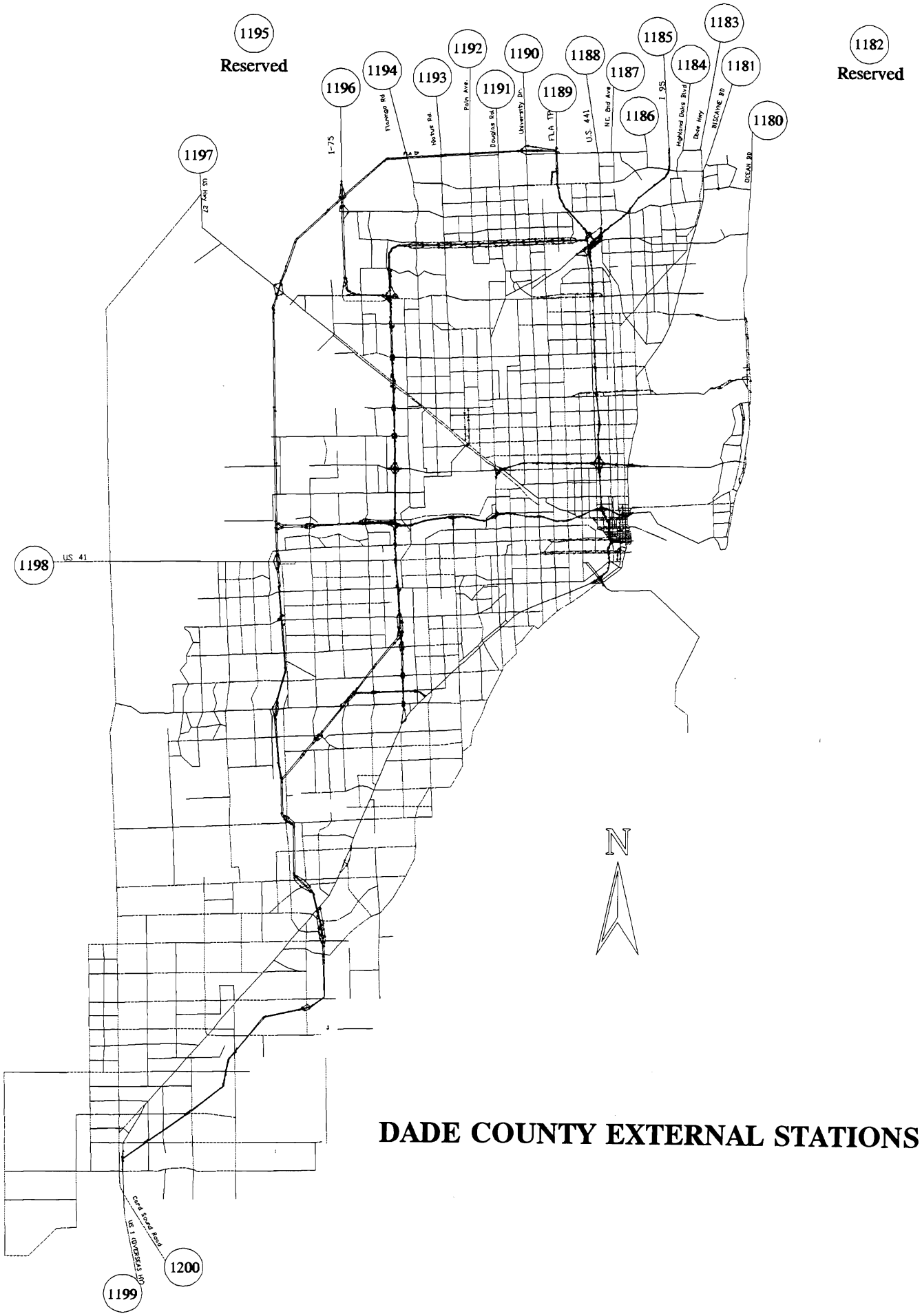
	AM Peak		MIDDAY	
	Route Miles	**Avg. Speed**	**Route Miles**	**Ave. Speed**
Local Bus	2,484	13.4	2,299	16.0
Express Bus	282	22.0	59	25.4
Metrorail	42.2	30.5	42.2	30.5
Commuter Rail	28.2	38.8	28.2	38.8
Metromover	3.9	10.9	3.9	10.9

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

EXTERNAL TRIPS

Zone Number	External Station Number	Description
1180	21600	Collins Ave/A1A
1181	35400	Biscayne Blvd/U.S. 1 - North
1182	-	Not Used
1183	14400	Dixie Highway
1184	6300	Highland Oaks Blvd
1185	146700	I-95
1186	5900	N.E. 12 Ave
1187	6100	N.E. 2 Ave/S.W. 56 Ave
1188	40700	N.W. 2 Ave/U.S. 441/S.R. 1
1189	61200	Florida's Turnpike
1190	45400	N.W. 27 Ave/University Dr
1191	9400	N.W. 37 Ave/Douglas Rd
1192	13500	N.W. 47 Ave/Palm Ave
1193	17200	N.W. 57 Ave/Hiatus Rd
1194	12200	N.W. 67 Ave/Flamingo Rd
1195	-	Not Used
1196	53600	I-75
1197	7600	U.S. 27
1198	4300	U.S. 41/Tamiami Trail
1199	12100	U.S. 1 - South
1200	3100	Card Sound Rd
TOTAL	**516,700**	-



DADE COUNTY EXTERNAL STATIONS

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

INTERCOUNTY TRIP DISTRIBUTION SUMMARY
SOUTHEAST REGIONAL PLANNING MODEL II

HOMEBASED WORK TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	106,100	59,500	165,600
Dade	106,100	-	6,700	112,800
Palm Beach	59,500	6,700	-	66,200
Total	**165,600**	**112,800**	**66,200**	**344,600**

HOMEBASED NON-WORK TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	210,700	117,000	327,700
Dade	210,700	-	800	211,500
Palm Beach	117,000	800	-	117,800
Total	**327,700**	**211,500**	**117,800**	**657,000**

NON-HOMEBASED TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	99,000	50,000	149,000
Dade	99,000	-	400	99,400
Palm Beach	50,000	400	-	50,400
Total	**149,000**	**99,400**	**50,400**	**298,800**

TOTAL TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	415,800	226,500	642,300
Dade	415,800	-	7,900	423,700
Palm Beach	226,500	7,900	-	234,400
Total	**642,300**	**423,700**	**234,400**	**1,300,400**

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

ESTIMATED (SERPM II) VS OBSERVED (CENSUS)
HOMEBASED WORK EXTERNAL TRIPS

ESTIMATED - SERPM II

	Broward	Dade	Palm Beach	Total
Broward	-	106,000	60,000	166,000
Dade	106,000	-	7,000	113,000
Palm Beach	60,000	7,000	-	67,000
Total	**166,000**	**113,000**	**67,000**	**346,000**

OBSERVED - CENSUS

	Broward	Dade	Palm Beach	Total
Broward	-	109,000	57,000	166,000
Dade	109,000	-	6,000	115,000
Palm Beach	57,000	6,000	-	63,000
Total	**166,000**	**115,000**	**63,000**	**344,000**

ESTIMATED/OBSERVED

	Broward	Dade	Palm Beach	Total
Broward	-	0.97	1.05	1.00
Dade	0.97	-	1.17	0.98
Palm Beach	1.05	1.17	-	1.06
Total	**1.00**	**0.98**	**1.06**	**1.01**

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

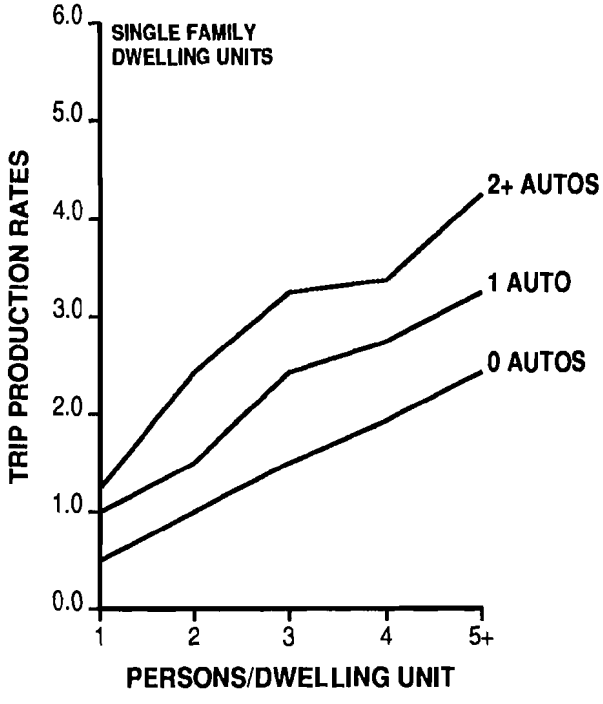
MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

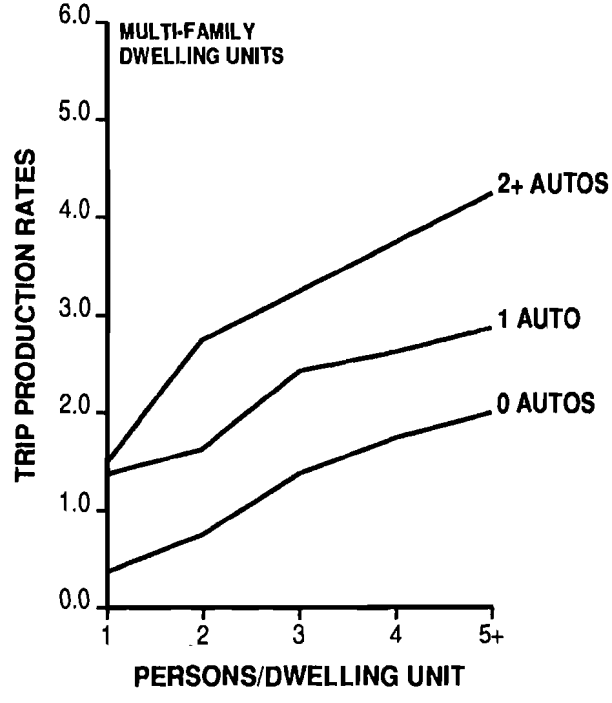
SOCIOECONOMIC CHARACTERISTICS

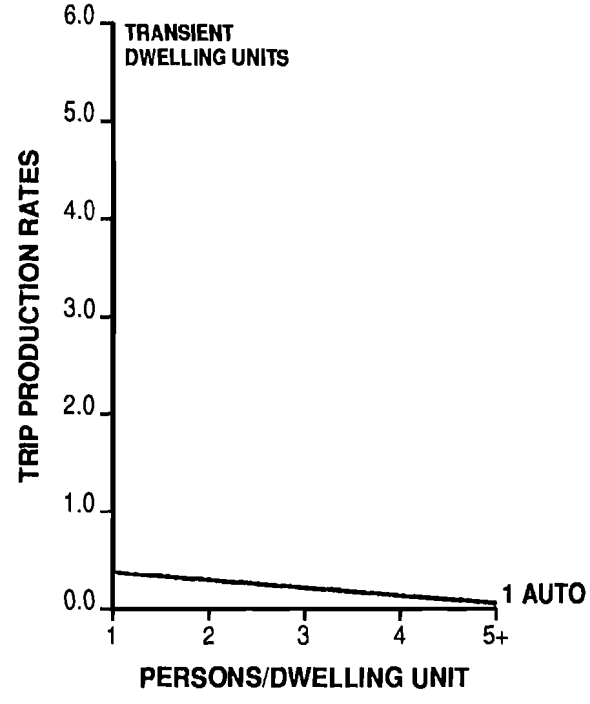
PERMANENT POPULATION	=	1,902,000
TRANSIENT POPULATION	=	97,000
TOTAL POPULATION	**=**	**1,999,000**
PERMANENT DWELLING UNITS	=	691,000
TRANSIENT DWELLING UNITS	=	56,000
TOTAL DWELLING UNITS	**=**	**747,000**
INDUSTRIAL EMPLOYEES	=	151,300
COMMERCIAL EMPLOYEES	=	275,200
SERVICE EMPLOYEES	=	678,300
TOTAL EMPLOYEES	**=**	**1,104,800**
PERSONS/DWELLING UNIT, PERMANENT	=	2.75
PERSONS/DWELLING UNIT, TRANSIENT	=	1.73
EMPLOYEES/DWELLING UNIT	**=**	**1.60**

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED WORK (HBW) TRIPS

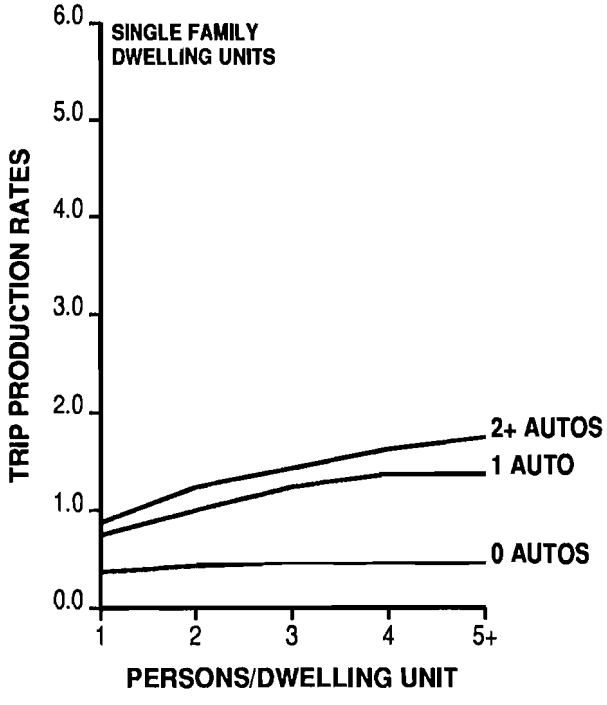


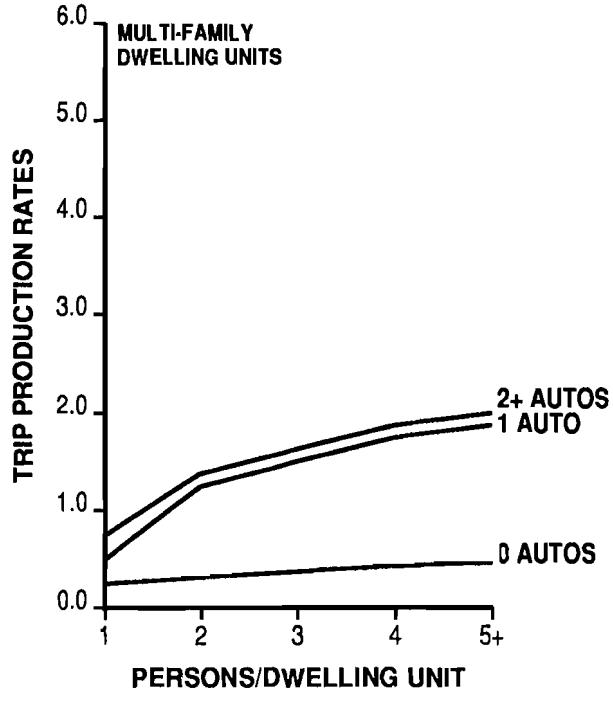


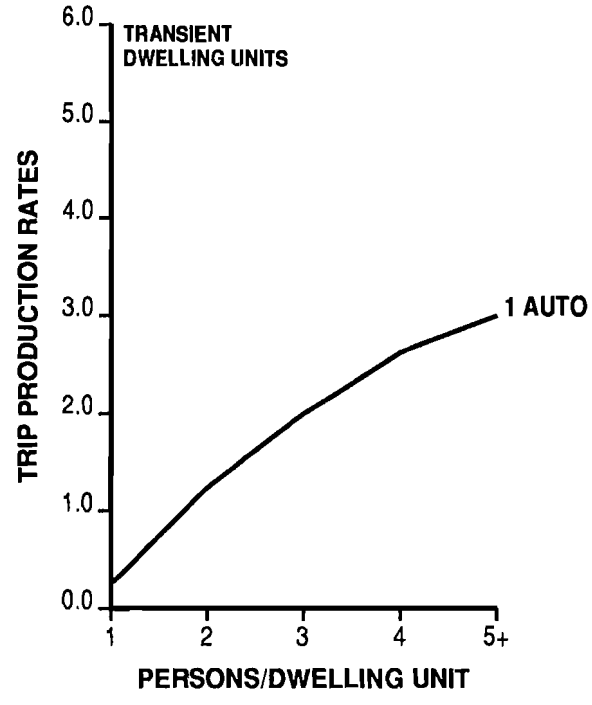


METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED SHOPPING (HBSH) TRIPS

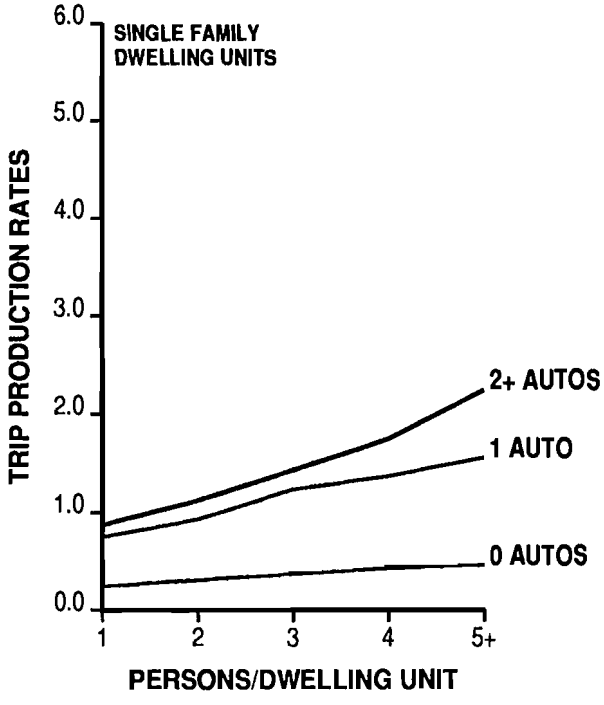


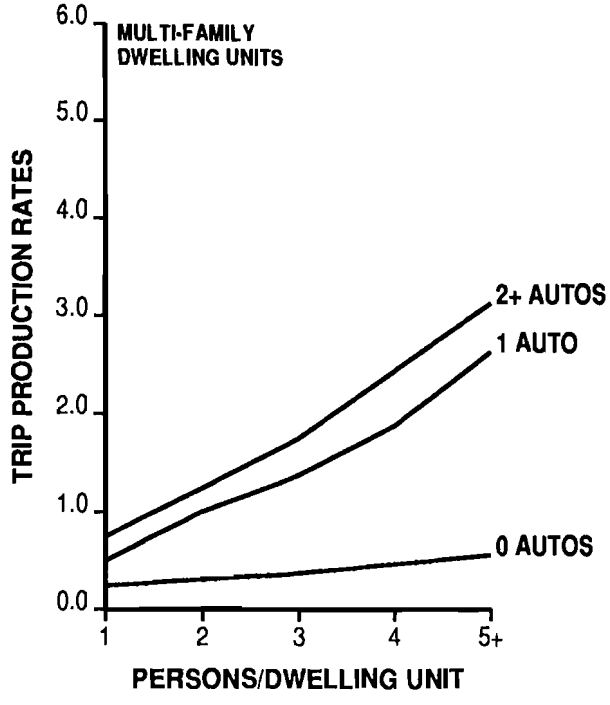


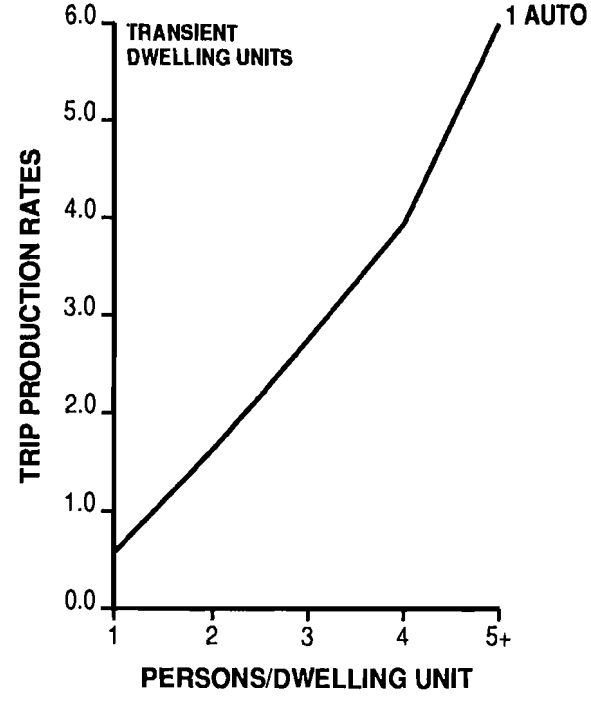


METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED SOCIAL/RECREATIONAL (HBSR) TRIPS

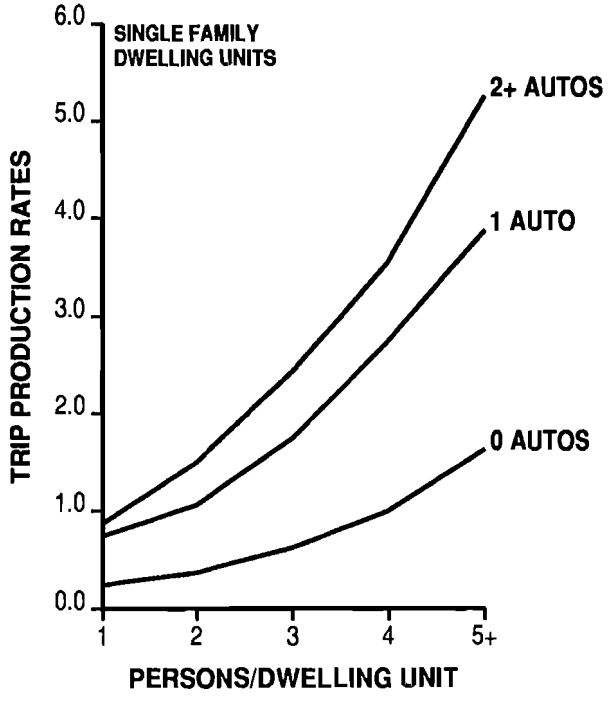


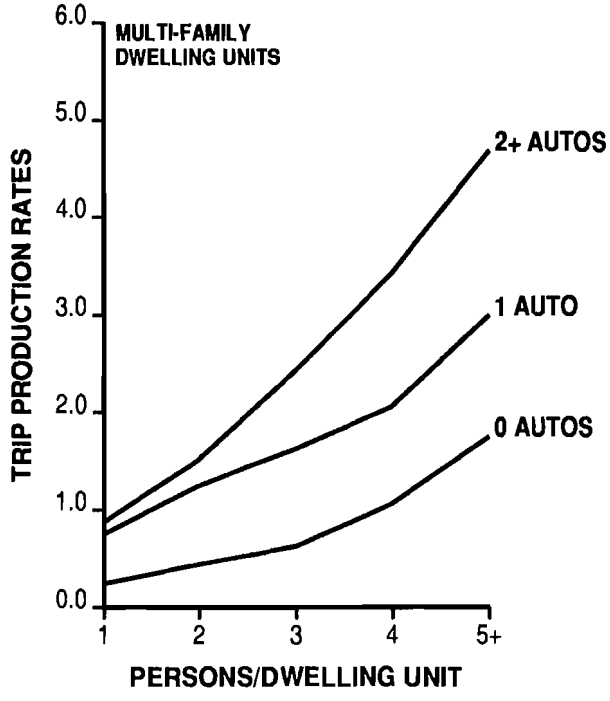


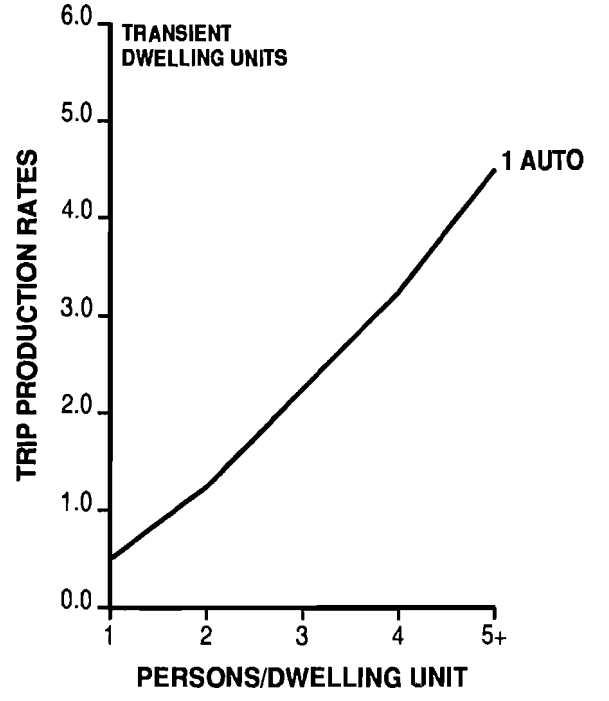


METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED OTHER (HB0) TRIPS







METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRIP ATTRACTION EQUATIONS

HOMEBASED WORK TRIPS	= 1.80 X (TOTAL EMPLOYEES)
HOMEBASED SHOPPING TRIPS	= 6.10 X (COMMERCIAL EMPLOYEES)
HOMEBASED SOC./REC. TRIPS	= 0.50 X (DWELLING UNITS) + 1.50 X (SERVICE EMPLOYEES)
HOMEBASED OTHER TRIPS	= 0.20 X (DWELLING UNITS) + 1.80 X (SERVICE EMPLOYEES) + 1.30 X (SCHOOL ENROLLMENT)
NON-HOMEBASED TRIPS	= 0.30 X (DWELLING UNITS) + 2.90 X (COMMERCIAL EMPLOYEES) + 1.40 X (SERVICE EMPLOYEES)
TRUCK & TAXI (T/T) TRIPS	= 0.30 X (DWELLING UNITS) + 0.45 X (TOTAL EMPLOYEES)

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

TRIP GENERATION SUMMARY

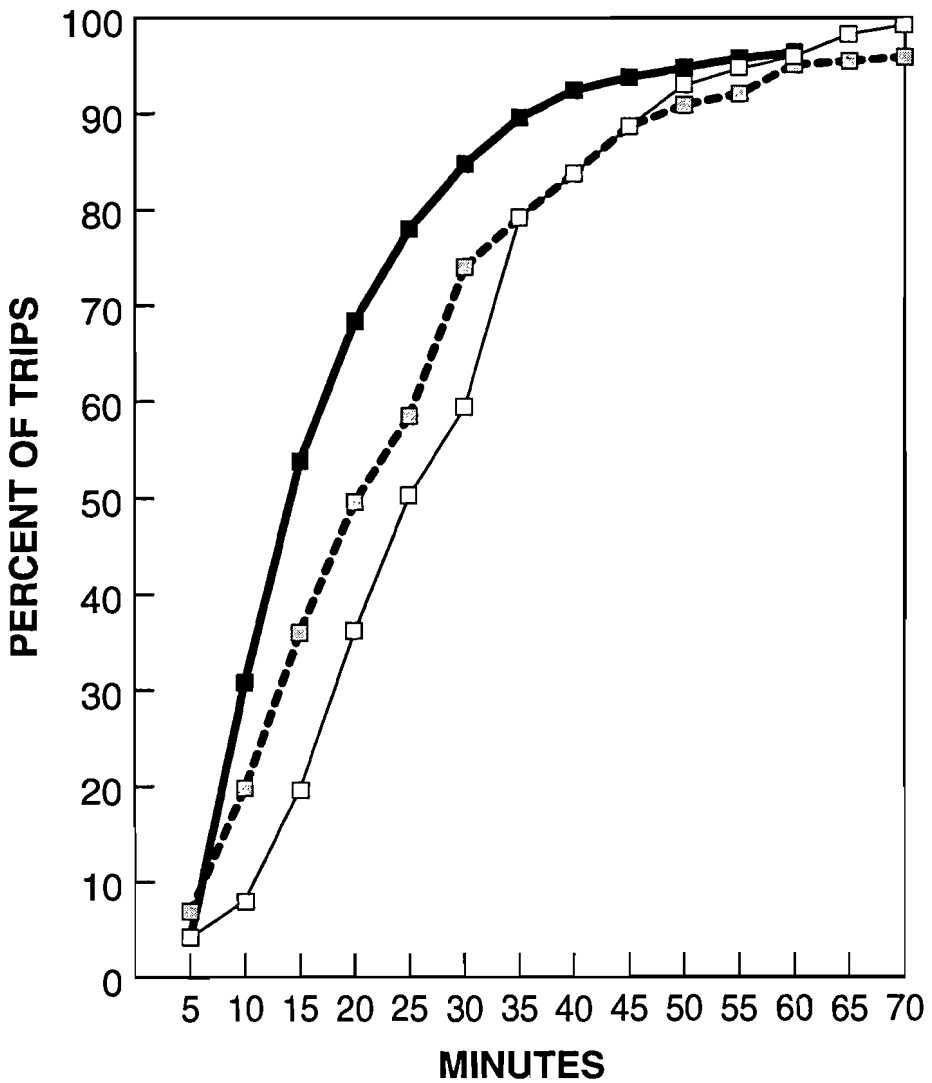
HOMEBASED WORK TRIPS	1,591,000	24%
HOMEBASED SHOPPING TRIPS	824,000	13%
HOMEBASED SOCIAL/RECREATION TRIPS	869,000	13%
HOMEBASED OTHER TRIPS	1,336,000	20%
NON-HOMEBASED TRIPS	2,009,000	30%
TOTAL TRIPS	**6,629,000**	**100%**

OTHER TRIPS

TRUCK AND TAXI TRIPS	728,000
EXTERNAL TRIPS	510,000

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

CUMULATIVE TRIP LENGTH DISTRIBUTION
HOME-BASED WORK (HBW) TRIP

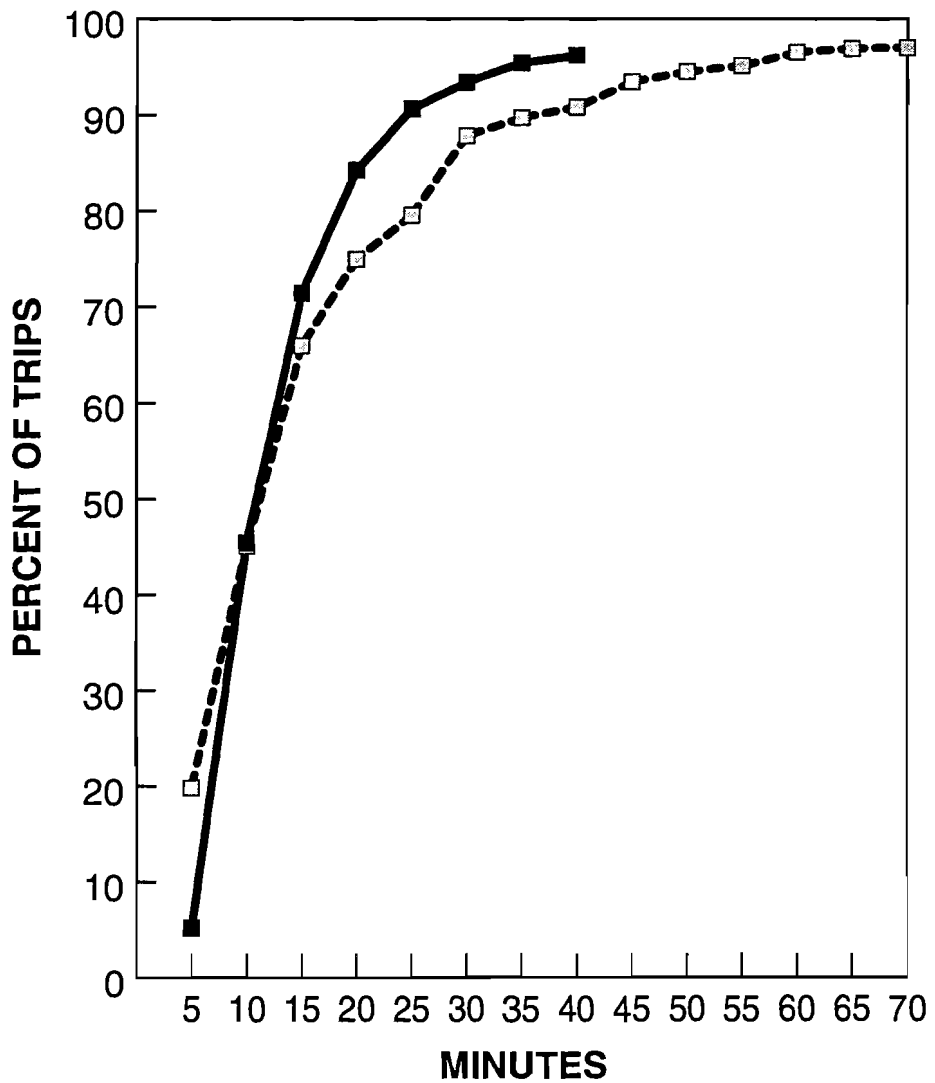


LEGEND

- 1990 Model Validation
- 1994 Survey by Behavioral Science Research
- Census

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

CUMULATIVE TRIP LENGTH DISTRIBUTION HOME-BASED SHOPPING (HBSH) TRIP



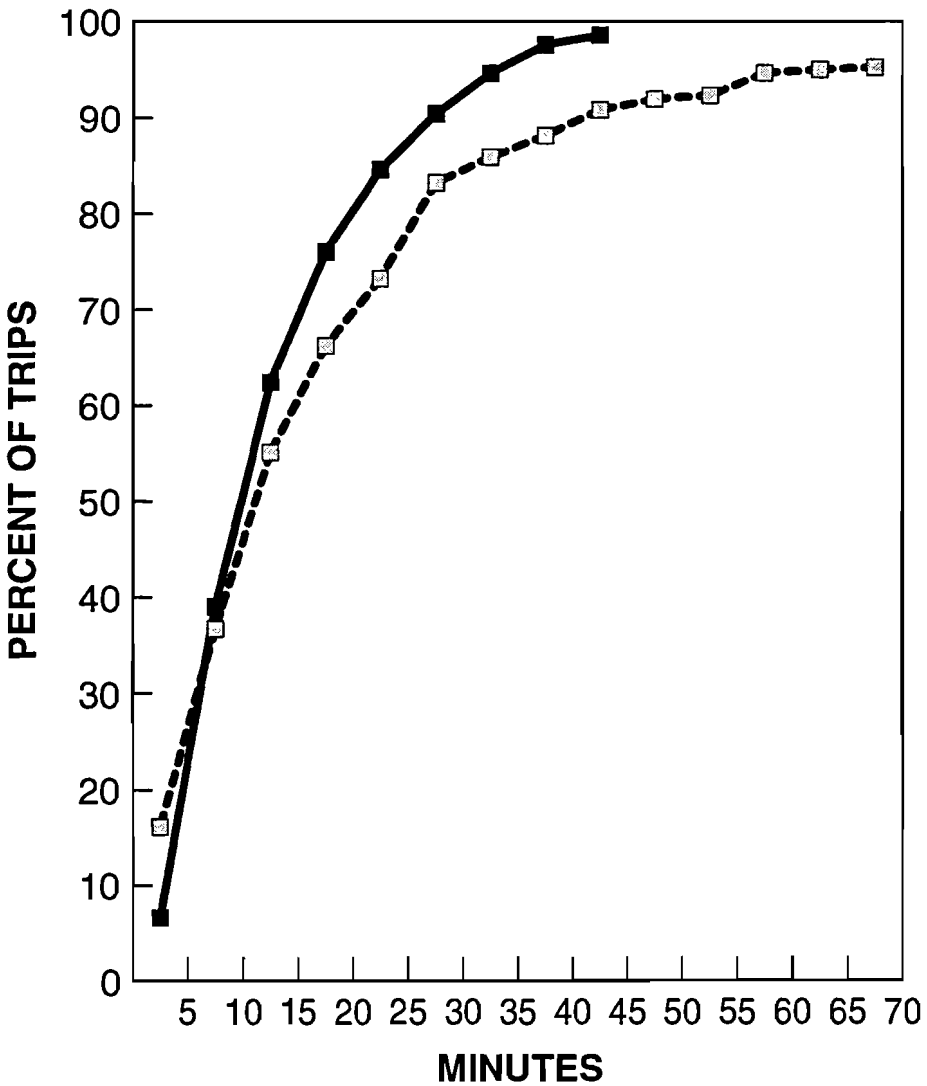
LEGEND

1986 Model Validation

1994 Survey by Behavioral Science Research

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

CUMULATIVE TRIP LENGTH DISTRIBUTION HOME-BASED SOCIAL/RECREATION (HBSR) TRIP



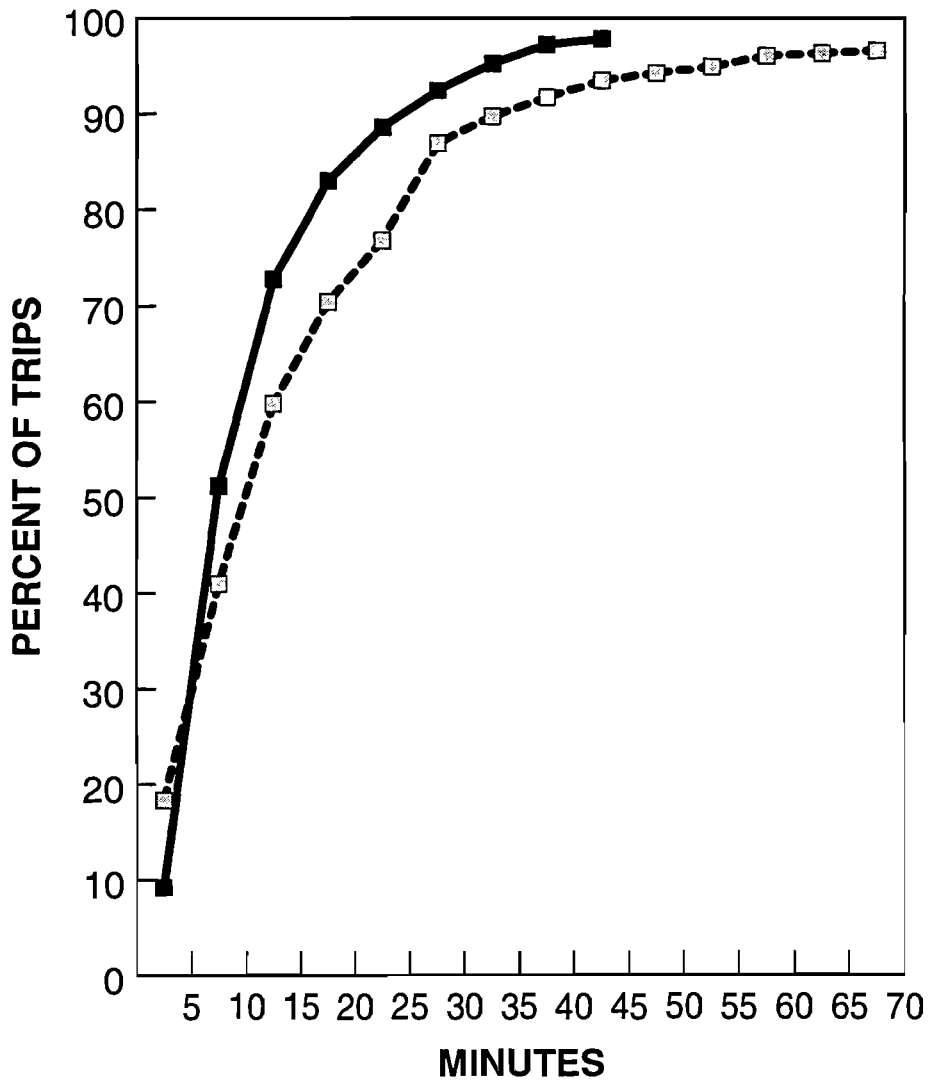
LEGEND

1986 Model Validation

1994 Survey by Behavioral Science Research

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

CUMULATIVE TRIP LENGTH DISTRIBUTION HOME-BASED OTHER (HBO) TRIP



LEGEND

1986 Model Validation

1994 Survey by Behavioral Science Research

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

ESTIMATED VS OBSERVED
HOMEBASED WORK INTERNAL TRIPS

OBSERVED (CENSUS)

	Grey	Green	Red	Blue	DK Blue	Yellow	Total
Grey	128,000	59,900	55,500	14,100	33,100	47,900	338,500
Green	59,900	90,100	35,000	8,600	23,600	19,900	237,100
Red	55,500	35,000	92,600	21,800	59,300	46,200	310,400
Blue	14,100	8,600	21,800	59,500	19,400	10,500	133,900
DK Blue	33,100	23,600	59,300	19,400	65,200	27,400	228,000
Yellow	47,900	19,900	46,200	10,500	27,400	83,100	235,000
Total	338,500	237,100	310,400	133,900	228,000	235,000	1,482,900

ESTIMATED (MIAMI MODEL)

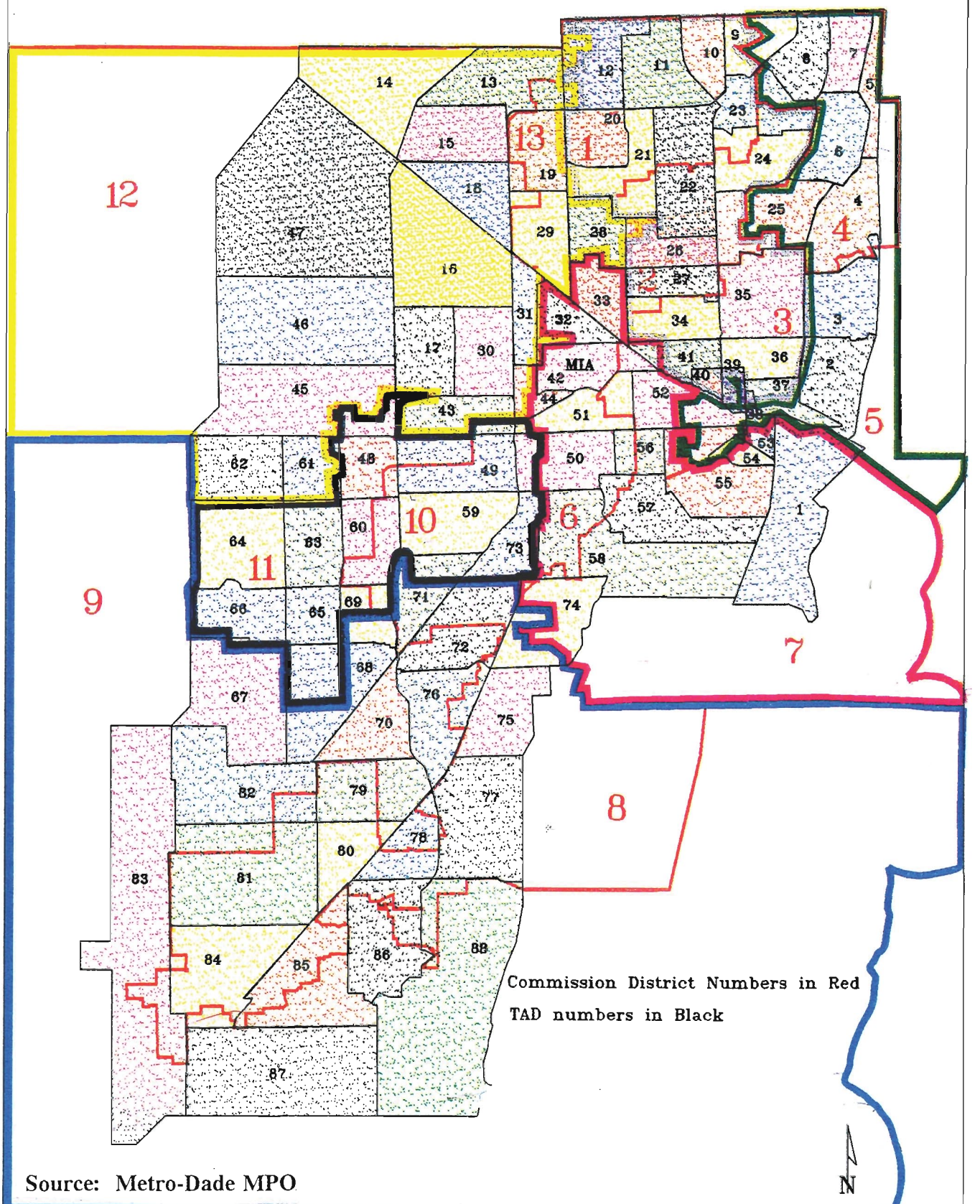
	Grey	Green	Red	Blue	DK Blue	Yellow	Total
Grey	147,000	75,500	49,300	8,300	19,500	52,700	352,300
Green	75,500	107,300	40,800	9,200	19,800	24,300	276,900
Red	49,300	40,800	92,900	15,600	47,700	42,600	288,900
Blue	8,300	9,200	15,600	74,300	29,100	12,500	149,000
DK Blue	19,500	19,800	47,700	29,100	88,400	43,200	247,700
Yellow	52,700	24,300	42,600	12,500	43,200	100,900	276,200
Total	352,300	276,900	288,900	149,000	247,700	276,200	1,591,000

	Grey	Green	Red	Blue	DK Blue	Yellow	Total
Grey	8.63%	4.04%	3.74%	0.95%	2.23%	3.23%	22.83%
Green	4.04%	6.08%	2.36%	0.58%	1.59%	1.34%	15.99%
Red	3.74%	2.36%	6.25%	1.47%	4.00%	3.12%	20.93%
Blue	0.95%	0.58%	1.47%	4.01%	1.31%	0.71%	9.03%
DK Blue	2.23%	1.59%	4.00%	1.31%	4.40%	1.85%	15.38%
Yellow	3.23%	1.34%	3.12%	0.71%	1.85%	5.60%	15.85%
Total	22.83%	15.99%	20.94%	9.03%	15.38%	15.85%	100.00%

	Grey	Green	Red	Blue	DK Blue	Yellow	Total
Grey	9.24%	4.75%	3.10%	0.52%	1.23%	3.31%	22.14%
Green	4.75%	6.74%	2.56%	0.58%	1.24%	1.53%	17.40%
Red	3.10%	2.56%	5.84%	0.98%	3.00%	2.68%	18.16%
Blue	0.52%	0.58%	0.98%	4.67%	1.83%	0.79%	9.37%
DK Blue	1.23%	1.24%	3.00%	1.83%	5.56%	2.72%	15.57%
Yellow	3.31%	1.53%	2.68%	0.79%	2.72%	6.34%	17.36%
Total	22.14%	17.40%	18.16%	9.37%	15.57%	17.36%	100.00%

YEAR 2015 TRANSPORTATION PLAN
AREAS OF ANALYSIS

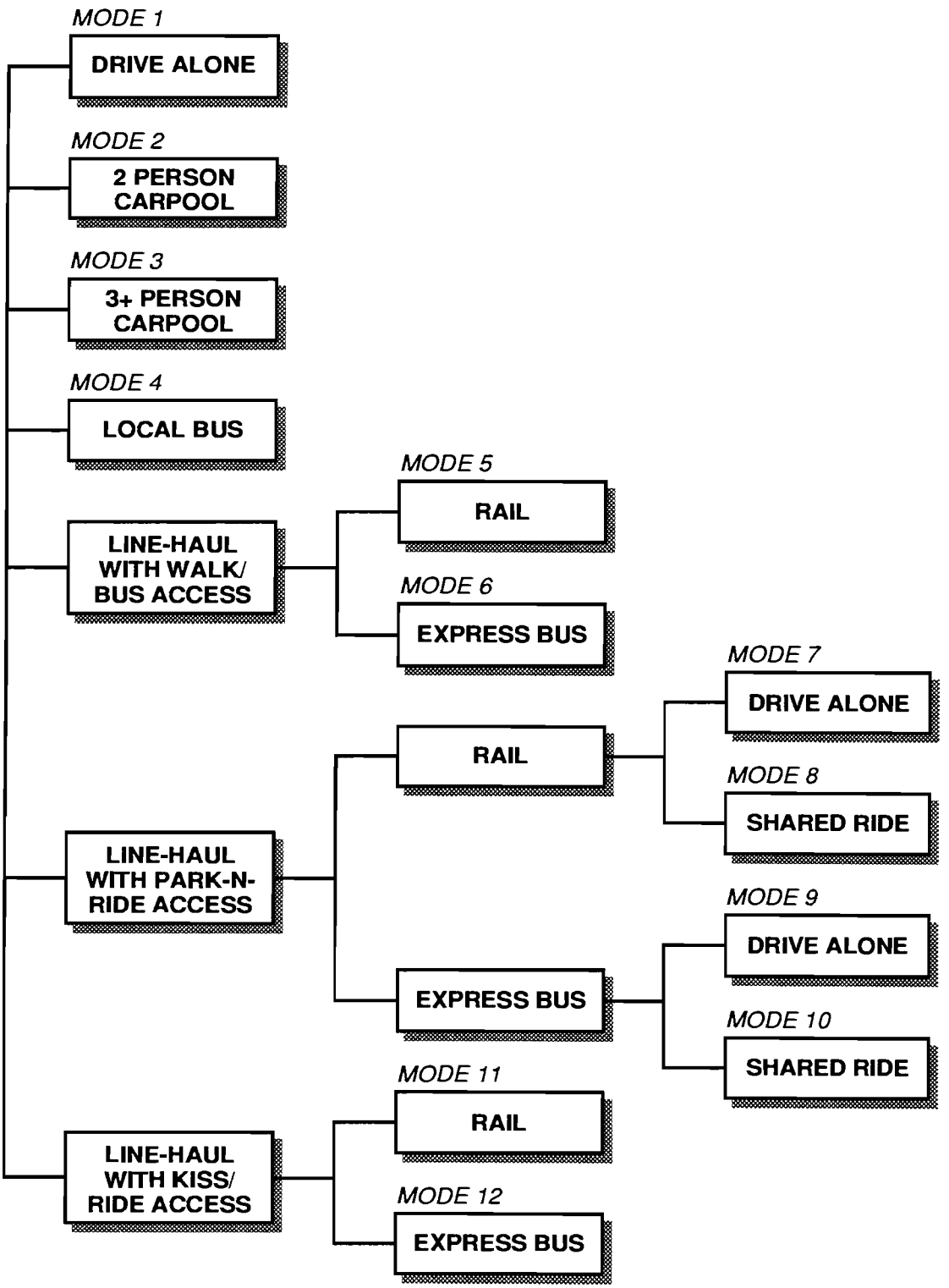
TADs Aggregated by County Commission Districts



Source: Metro-Dade MPO

FLORIDA STANDARD MODE CHOICE MODEL

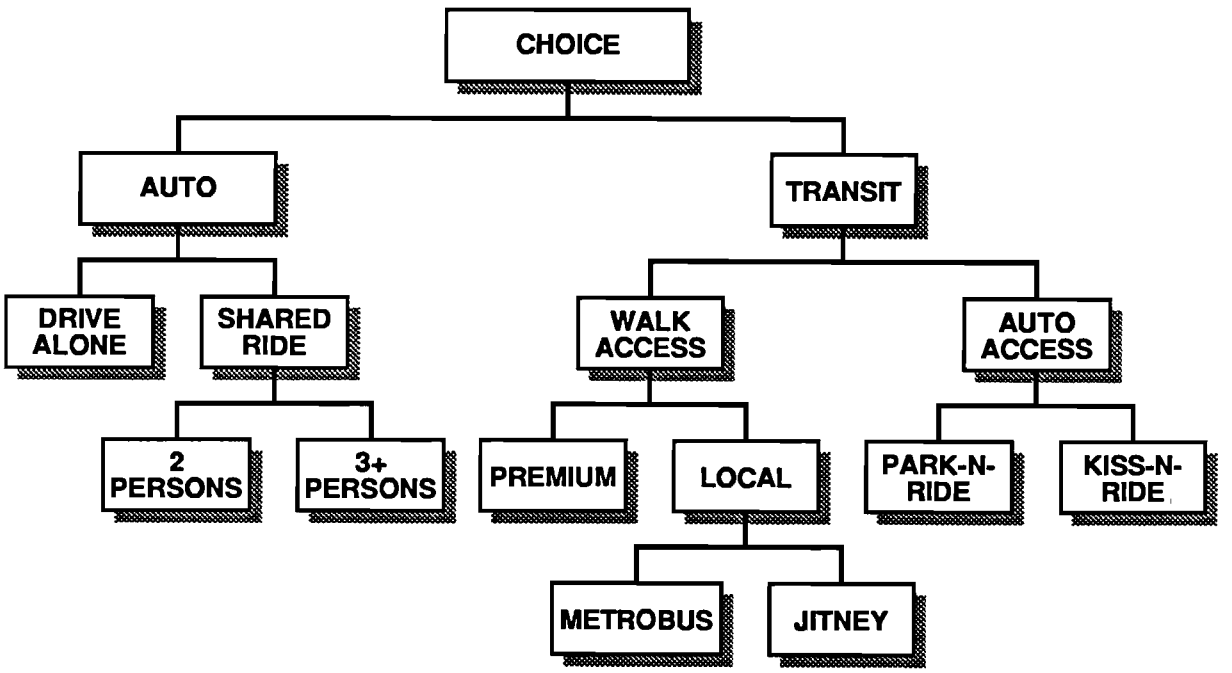
METRO•DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE



Gannett Fleming
ENGINEERS AND PLANNERS

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MODE CHOICE MODEL NESTING STRATEGIES



METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

MODE CHOICE SUMMARY
HOMEBASED WORK TRIPS

			(1) Observed	(2) Estimated	(2)/(1)
Auto	Drive Alone		1,040,000	1,031,000	0.99
	2 Persons		331,000	342,000	1.03
	3+ Persons		123,000	112,000	0.91
	Subtotal		**1,494,000**	**1,485,000**	**0.99**
Transit	Walk Access	Premium	19,000	20,000	1.05
		Local	50,000	52,000	1.04
		Jitney	15,000	20,000	1.33
	Auto Access	Park-N-Ride	10,000	8,000	0.80
		Kiss-N-Ride	3,000	6,000	2.00
	Subtotal		**97,000**	**106,000**	**1.10**
TOTAL			**1,591,000**	**1,591,000**	**1.00**

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

MODE CHOICE SUMMARY
HOMEBASED NON-WORK TRIPS

			(1) Observed	(2) Estimated	(2)/(1)
Auto	Drive Alone		653,000	638,000	0.98
	2 Persons		1,534,000	1,557,000	1.01
	3+ Persons		769,000	736,000	0.96
	Subtotal		**2,956,000**	**2,931,000**	**0.99**
Transit	Walk Access	Premium	9,000	11,000	1.22
		Local	51,000	72,000	1.41
		Jitney	10,000	11,000	1.10
	Auto Access	Park-N-Ride	2,000	3,000	1.50
		Kiss-N-Ride	1,000	1,000	1.00
	Subtotal		**73,000**	**98,000**	**1.34**
TOTAL			**3,029,000**	**3,029,000**	**1.00**

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

MODE CHOICE SUMMARY
NON-HOMEBASED TRIPS

			(1) Observed	(2) Estimated	(2)/(1)
Auto	Drive Alone		483,000	491,000	1.02
	2 Persons		981,000	967,000	.99
	3+ Persons		506,000	494,000	.98
	Subtotal		**1,970,000**	**1,952,000**	**.99**
Transit	Walk Access	Premium	4,000	6,000	1.50
		Local	29,000	46,000	1.59
		Jitney	4,000	4,000	1.00
	Auto Access	Park-N-Ride	1,000	1,000	1.00
		Kiss-N-Ride	0	0	0
	Subtotal		**38,000**	**57,000**	**1.50**
TOTAL			**2,008,000**	**2,009,000**	**1.00**

METRO-DADE MPO
LONG RANGE TRANSPORTATION UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

MODE CHOICE SUMMARY
TOTAL TRIPS

			(1) Observed	(2) Estimated	(2)/(1)
Auto	Drive Alone		2,177,000	2,160,000	.99
	2 Persons		2,846,000	2,866,000	1.01
	3+ Persons		1,,397,000	1,342,000	.96
	Subtotal		**6,420,000**	**6,368,000**	**.99**
Transit	Walk Access	Premium	32,000	37,000	1.16
		Local	130,000	170,000	1.31
		Jitney	29,000	35,000	1.21
	Auto Access	Park-N-Ride	13,000	12,000	.92
		Kiss-N-Ride	4,000	7,000	1.75
	Subtotal		**208,000**	**261,000**	**1.25**
TOTAL			**6,628,000**	**6,629,000**	**1.00**

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

ESTIMATED HIGHWAY VOLUME/HIGHWAY COUNT RATIO BY SCREENLINE

SCREENLINE NUMBER	ESTIMATED VOLUME	COUNT	VOLUME/ COUNT
1	585,302	562,793	1.04
2	519,634	605,234	.86
3	753,310	699,182	1.08
4	719,753	751,128	.96
5	892,613	804,945	1.11
6	720,709	748,407	.96
7	953,099	834,247	1.14
8	257,996	281,381	.92
9	419,901	464,937	.90
10	512,014	487,444	1.05
11	201,828	214,617	.94
12	329,580	304,861	1.08
13	54,873	47,985	1.14
TOTAL	**6,920,612**	**6,807,161**	**1.02**
99*	20,529,042	20,315,298	1.01

* Represents miscellaneous links throughout the area where counts are available.

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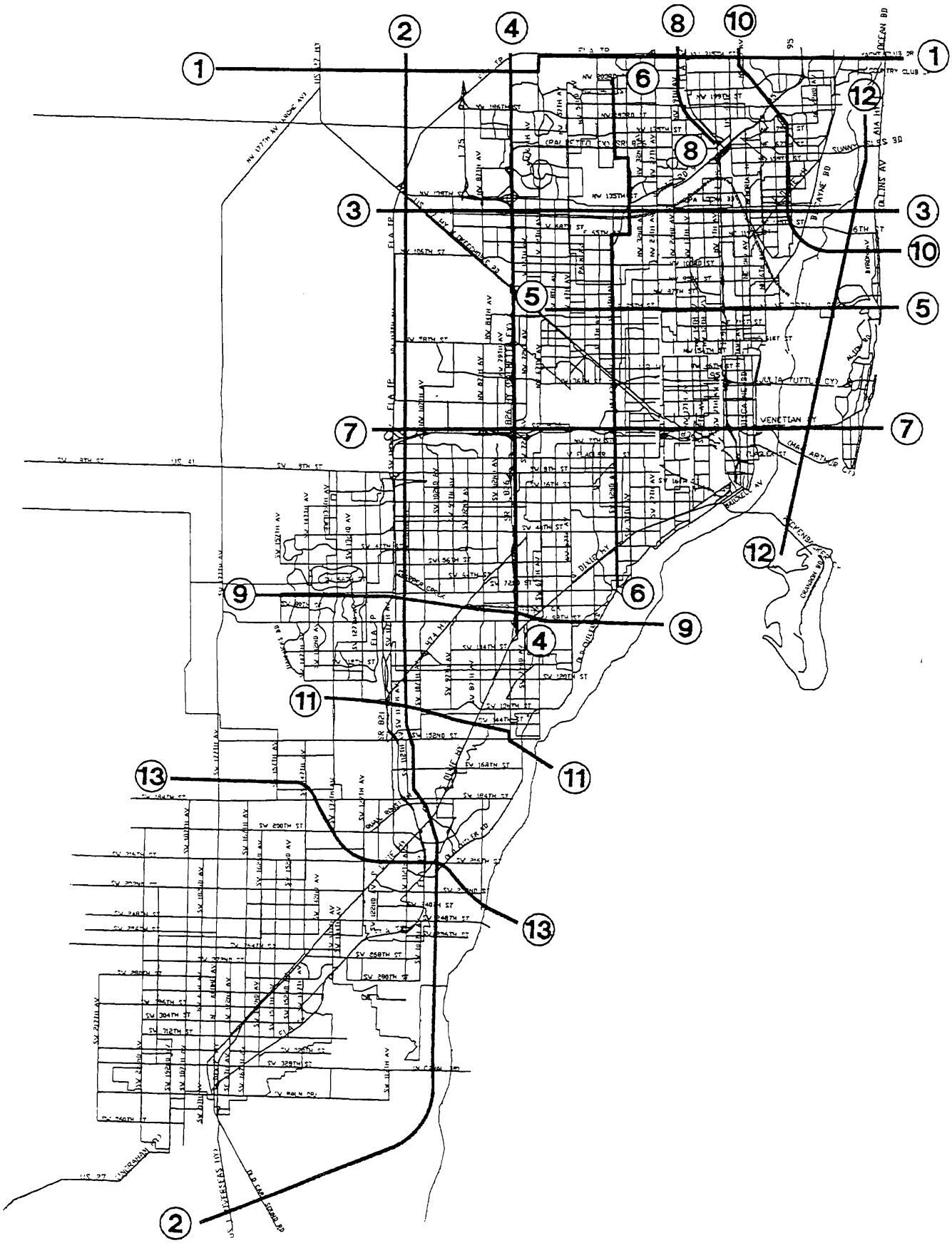

1990 HIGHWAY SCREENLINES

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRANSIT RIDERSHIP

MODE	OBSERVED (1)	ESTIMATED (2)	(2)/(1)
LOCAL BUS	200,000	312,000	1.56
EXPRESS BUS	4,000	4,000	1.00
METRORAIL	49,000	46,000	.94
TRIRAIL	4,000	1,000	.25
METROMOVER	12,000	9,000	.75
TOTAL	**269,000**	**372,000**	**1.38**