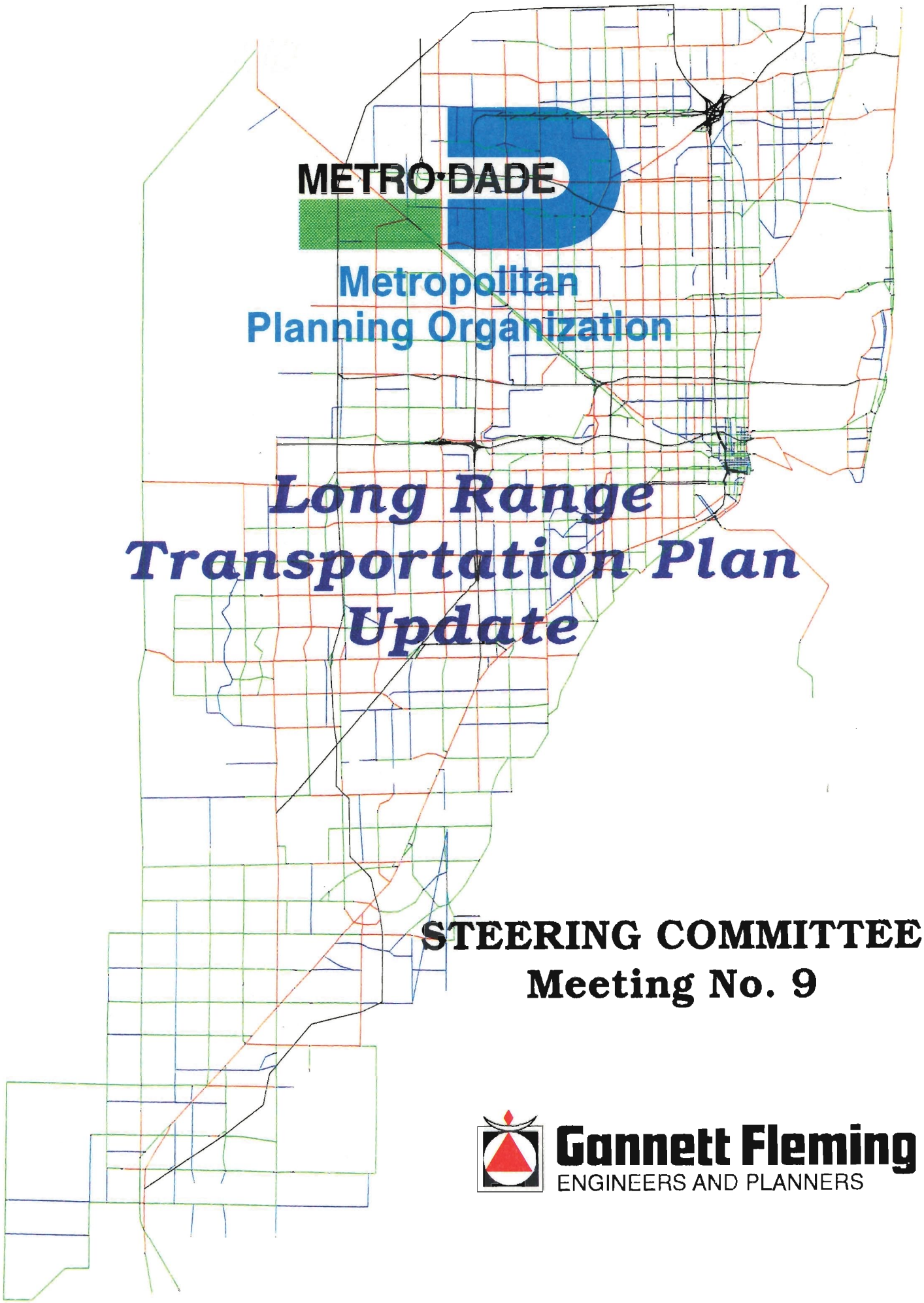


METRO-DADE

Metropolitan
Planning Organization

Long Range Transportation Plan Update

STEERING COMMITTEE
Meeting No. 9

Gannett Fleming
ENGINEERS AND PLANNERS

STEERING COMMITTEE MEETING NO. 9

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

AUGUST 23, 1994

AGENDA

I. SUMMARY OF PREVIOUS MEETING

MEETING NOTES
LONG RANGE TRANSPORTATION PLAN UPDATE

12 July 1994
Steering Committee Meeting No. 8

Meeting was called to order at 9:20 a.m.

Agenda Item I. Summary of Previous Meeting

- Comments on Technical Memoranda One and Two have been received. Jeff Weidner noted that the Interim Year datasets have not yet been received; the Technical Report cannot be completed without them. Mike Moore stated that URS has possession of the Interim Year datasets. Frederic R. Harris will finalize Technical Report One using comments received on the Technical Memoranda and receipt of the Interim Year datasets from URS.

- It was noted that the Tri-Rail line did not show up in the networks created thus far. Gannett Fleming agreed to code the Tri-Rail information into the appropriate networks using the coding schemes from the Regional Planning Model and other sources, as appropriate.

- Comments on the first draft of the Evaluation Criteria have been received by Gannett Fleming since Steering Committee Meeting No. 7.

- Relevant control and input files have been received from KPMG-Peat Marwick to compare the parameters used in the East-West Multimodal Corridor Study to those of this Plan Update.

Agenda Item II. Miami Transportation Planning Model, Year 1990 Validation

- Steering Committee comments on the model statistics and preliminary validation findings should be transmitted to the MPO by Wednesday, July 20th.

  - page 3; HEVAL network summaries
    Final Steering Committee agreement is needed on these tables.

  - page 4; Speed Capacity Table
    During the August Steering Committee meeting, the Consultant Team will highlight any changes made to the Speed Capacity

Table as well as any differences observed with the East-West Multimodal Corridor Study.

- pages 6 thru 9; Highway/Transit Speed Function Curves

  The speed curves shown are used to assist the model in developing proper transit speeds. Pursuant to comments from Wilson Fernandez, the Consultant Team will look at making the curves more congestion-sensitive.

- page 10; Transit Route Speeds by Mode
  Wilson Fernandez suggested that transit hard-coded speeds (on optional links) need to be taken out.

- page 11; Transit Route Peak and Off-Peak Speeds as compared to Observed.
  Cornelius Henry, Wilson Fernandez, and Jeff Weidner agreed to get together to finalize this table.

- page 13; ZDATA4 File
  Figures in this table should be PSAWDT, and be consistent with Broward for Air Quality reasons as well as for general technical consistency. Some discussion followed regarding the figure for I-95. All numbers will be checked. Broward, District VI, and MDTA to discuss and develop final ZDATA4 by Wednesday, July 20th.

- pages 15 through 23; Trip Generation
  The Steering Committee has seen the majority of the Trip Generation information presented here.

  The data relating to non-home-based trips is difficult to validate. As no reliable data exists, the number of trips has been relied upon in the equation (page 23). It is believed that this will prove to be realistic for Dade County (page 26).

- pages 29 through 38; Trip Distribution
  Myung Sung explained the graphs and tables relating to trip distribution and trip length.

- pages 41 through 44; Trip Distribution and Assignment
  Myung Sung pointed out that Screenlines 12 and 13 were high (model-derived volumes higher than traffic counts). This led to a discussion on the use of k-factors, which are used to account for income, beach, bridge and county line barriers. After additional transit assignments have been completed, discussion on the use of k-factors should resume.

- pages 45 through 49; Nested Logit Model
  Myung Sung presented the initial research on the Southeast Regional Planning Model (SERPM). The incorporation of the Nested Logit Model into the SERPM was outlined (starting on page 50).

Agenda Item III. Project Evaluation Methodology

Evaluation Criteria

- The Committee has seen this set of criteria in a previous meeting. Comments previously received on the draft have been incorporated here to the extent possible. This set of Evaluation Criteria will be used as a diagnostic report card, of sorts, to evaluate the effectiveness of the overall Plan.

  - page 57; Objective 1: Number 3
    There was some discussion on what should constitute "sections" in this measurement.

  - page 58; Objective 2
    The major activity centers will be identified (using the CDMP) by the MPO and Planning Department by July 15th.

  - page 58; Objective 2: Number 2
    There was some discussion on the number of transfers. Suggested language to clarify this measure included adding "... not including access modes."

  - page 61; Objective 9
    A list of environmentally sensitive areas will be compiled by July 15th. It was also suggested that the Evaluation Criteria should make the final Plan meet the emissions budget. The emissions expectations from implementation of the Long Range Transportation Plan should be consistent with the motor vehicles emissions budget contained in the SIP.

  - pages 61 and 62; Objective 10
    Carlos Roa raised the issue of whether recognition of groundwater protection and waste management should be mentioned. The Plan should show that there will be no major disruptions to these environmental aspects.

  - page 62; Objective 12
    Steering Committee members discussed whether there are any designated truck routes or truck-restricted routes in Dade County. The MPO will report on this at the next meeting.

- Final comments from the Steering Committee members are due by Friday, July 15th.

Project Evaluation Methodology

- The proposed methodology to evaluate and rank project proposals for the Needs Plan was discussed (starts on page 67).
- Comments from Steering Committee members are due by Friday, July 22.
- Steering Committee members will be asked to weight the criteria categories.

Agenda Item IV. Other

Draft color maps depicting the Areas of Analysis were distributed for discussion and review. County Commission Districts have been aggregated into six Areas of Analysis. The Areas are overlaid with the 88 Traffic Analysis Districts (TADs) so that travel characteristics can be established for each. These maps would be used when the Plan goes out to the public.

Meeting Adjourned at 11:35 am

NEXT MEETING

Next meeting will be August 9th, 1994.

II. MODEL VALIDATION

HIGHWAY NETWORK

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

HIGHWAY LANE MILES FROM "HEVAL"

	CBD	FRINGE	RESIDENTIAL	OBD	RURAL	TOTAL
Freeway	5.05	65.48	461.96	163.89	124.20	820.58
Divided Arterial	6.70	28.09	871.50	688.67	79.43	1674.39
Undivided Arterial	24.30	33.85	715.08	308.12	265.79	1347.14
Collector	11.37	19.17	579.26	139.85	174.62	924.27
One-Way	0	0	0	0	0	0
TOTAL	**47.42**	**146.59**	**2627.80**	**1300.53**	**644.04**	**4766.38**

NUMBER OF LINKS BY FACILITY TYPE AND BY AREA TYPE

	CBD	FRINGE	RESIDENTIAL	OBD	RURAL	TOTAL
Freeway	28	131	521	233	76	989
Divided Arterial	13	45	749	631	47	1485
Undivided Arterial	122	110	917	426	197	1772
Collector	77	75	886	224	159	1421
One-Way	0	0	0	0	0	0
TOTAL	**240**	**361**	**3073**	**1514**	**479**	**5667**

NUMBER OF LINKS BY FACILITY TYPE AND BY NUMBER OF LANES

	NUMBER OF LANES									
	1	2	3	4	5	6	7	8	9+	TOTAL
Freeway	337	257	179	157	49	8	0	1	0	989
Divided Arterial	74	107	3	949	0	341	0	9	0	1485
Undivided Arterial	34	9767	192	528	1	32	0	9	0	1772
Collector	38	1206	9	165	0	3	0	0	0	1421
One-Way	0	0	0	0	0	0	0	0	0	0
TOTAL	**483**	**2547**	**383**	**1799**	**50**	**385**	**0**	**19**	**0**	**5667**

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
DEFAULT FROM FSUTMS

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	25.0	1,786	40.0	1,786	40.0	1,786	40.0	1,786	40.0	1,786
	2	30.0	630	30.0	630	30.0	658	30.0	686	30.0	686
	3	25.0	526	25.0	508	25.0	526	25.0	526	25.0	526
	4	25.0	432	25.0	404	25.0	423	25.0	423	25.0	423
	5	10.0	9,400	10.0	9,400	10.0	9,400	10.0	9,400	10.0	9,400
	6	25.0	611	25.0	620	25.0	630	25.0	649	25.0	649
2	1	25.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786
	2	35.0	790	35.0	790	35.0	818	35.0	855	35.0	855
	3	30.0	667	30.0	639	30.0	658	30.0	658	30.0	658
	4	30.0	536	30.0	508	30.0	526	30.0	526	30.0	526
	5	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400
	6	30.0	630	30.0	639	30.0	649	30.0	667	30.0	667
3	1	25.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786
	2	35.0	790	35.0	790	35.0	818	35.0	855	35.0	855
	3	30.0	667	30.0	639	30.0	658	30.0	658	30.0	658
	4	30.0	536	30.0	508	30.0	526	30.0	526	30.0	526
	5	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400
	6	30.0	733	30.0	743	30.0	771	30.0	790	30.0	790
	8	n/a	n/a	55.0	1,900	55.0	1,900	55.0	1,900	55.0	1,900
4	1	30.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786	45.0	1,786
	2	35.0	790	35.0	790	35.0	818	35.0	855	35.0	855
	3	30.0	667	30.0	639	30.0	658	30.0	658	30.0	658
	4	30.0	536	30.0	508	30.0	526	30.0	526	30.0	526
	5	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400
	6	30.0	696	30.0	705	30.0	714	30.0	752	30.0	752
5	1	35.0	1,786	50.0	1,786	50.0	1,786	50.0	1,786	50.0	1,786
	2	45.0	658	45.0	658	45.0	677	45.0	686	45.0	686
	3	40.0	545	40.0	526	40.0	564	40.0	658	40.0	658
	4	35.0	442	35.0	423	35.0	423	35.0	423	35.0	423
	5	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400	15.0	9,400
	6	35.0	733	35.0	743	35.0	771	35.0	790	35.0	790

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
1986 MUATS VALIDATION

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	27.0	1,350	27.0	1,350	27.0	1,350	27.0	1,350	27.0	1,350
	2	27.0	750	27.0	750	27.0	750	27.0	750	27.0	750
	3	27.0	460	27.0	460	27.0	460	22.5	420	22.5	420
	4	22.5	350	22.5	350	18.0	300	18.0	300	18.0	300
	5	9.0	10,000	9.0	10,000	9.0	10,000	9.0	10,000	9.0	10,000
	6	22.5	700	22.5	700	22.5	700	22.5	700	22.5	700
2	1	27.0	1,900	27.0	1,900	27.0	1,900	27.0	1,900	27.0	1,900
	2	27.0	700	27.0	700	27.0	700	27.0	700	27.0	700
	3	22.5	460	22.5	460	22.5	460	22.5	460	22.5	460
	4	18.0	450	18.0	450	18.0	450	18.0	450	18.0	450
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	700	31.5	700	31.5	700	31.5	700	31.5	700
3	1	36.0	1,900	36.0	1,900	36.0	1,900	36.0	1,900	36.0	1,900
	2	36.0	1,000	31.5	875	31.5	875	31.5	875	31.5	875
	3	31.5	800	31.5	800	27.0	700	27.0	700	27.0	700
	4	27.0	700	27.0	700	27.0	700	27.0	700	27.0	700
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800
4	1	36.0	1,900	36.0	1,900	36.0	1,900	36.0	1,900	36.0	1,900
	2	36.0	750	36.0	750	31.5	675	31.5	675	31.5	675
	3	31.5	800	31.5	800	27.0	650	27.0	650	27.0	650
	4	31.5	600	27.0	550	27.0	550	27.0	550	27.0	550
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800
5	1	40.5	1,900	40.5	1,900	40.5	1,900	40.5	1,900	40.5	1,900
	2	36.0	725	36.0	725	36.0	725	36.0	725	36.0	725
	3	31.5	700	31.5	700	31.5	700	31.5	700	31.5	700
	4	27.0	600	27.0	600	27.0	600	27.0	600	27.0	600
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800

Shading denotes changes from FSUTMS default values.

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
EAST/WEST CORRIDOR MULTIMODAL STUDY

Area Type	Facility Type	Number of Lanes									
		1		2		3-4		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	30.0	1,499	30.0	1,499	30.0	1,499	30.0	1,499	30.0	1,349
	2	27.0	750	27.0	750	27.0	750	27.0	750	27.0	750
	3	27.0	460	27.0	460	27.0	460	27.0	460	22.5	420
	4	22.5	350	22.5	350	18.0	300	18.0	300	18.0	300
	5	9.0	10,000	9.0	10,000	9.0	10,000	9.0	10,000	9.0	10,000
	6	22.5	700	22.5	700	22.5	700	22.5	700	22.5	700
2	1	34.5	2,109	34.5	2,109	34.5	2,109	34.5	2,109	30.0	1,898
	2	25.7	700	25.7	700	25.7	700	25.7	700	25.7	700
	3	22.5	460	22.5	460	22.5	460	22.5	460	22.5	460
	4	18.0	450	18.0	450	18.0	450	18.0	450	18.0	450
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	700	31.5	700	31.5	700	31.5	700	31.5	700
3	1	40.0	2,109	40.0	2,109	40.0	2,109	40.0	2,109	40.0	1,898
	2	36.0	1,000	31.5	875	31.5	875	31.5	875	31.5	875
	3	31.5	800	31.5	800	27.0	700	27.0	700	27.0	700
	4	27.0	700	27.0	700	27.0	700	27.0	700	27.0	700
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800
4	1	40.0	2,109	40.0	2,109	40.0	2,109	40.0	2,109	40.0	1,898
	2	36.0	750	36.0	750	31.5	675	31.5	675	31.5	675
	3	28.4	800	28.4	800	24.3	650	24.3	650	24.3	650
	4	31.5	600	27.0	550	27.0	550	27.0	550	27.0	550
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800
5	1	40.5	1,900	40.5	1,900	40.5	1,900	40.5	1,900	40.5	1,710
	2	36.0	725	36.0	725	36.0	725	36.0	725	36.0	725
	3	31.5	700	31.5	700	31.5	700	31.5	700	31.5	700
	4	27.0	600	27.0	600	27.0	600	27.0	600	27.0	600
	5	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000	13.5	10,000
	6	31.5	800	31.5	800	31.5	800	31.5	800	31.5	800

Shading denotes values changed from those assumed in the 1985 MUATS.

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
1990 MUATS VALIDATION

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	30.0	1,391	30.0	1,391	30.0	1,391	30.0	1,391	30.0	1,391
	2	25.0	773	25.0	773	25.0	773	25.0	773	25.0	773
	3	23.0	474	23.0	474	23.0	474	23.0	474	23.0	474
	4	22.0	361	22.0	361	22.0	361	22.0	361	22.0	361
	5	8.5	10,000	8.5	10,000	8.5	10,000	8.5	10,000	8.5	10,000
	6	20.0	721	20.0	721	20.0	721	20.0	721	20.0	721
2	1	34.0	1,751	34.0	1,751	34.0	1,751	34.0	1,751	34.0	1,751
	2	27.0	773	27.0	773	27.0	773	27.0	773	27.0	773
	3	26.0	577	26.0	577	26.0	577	26.0	577	26.0	577
	4	24.0	464	24.0	464	24.0	464	24.0	464	24.0	464
	5	10.5	10,000	10.5	10,000	10.5	10,000	10.5	10,000	10.5	10,000
	6	25.0	721	25.0	721	25.0	721	25.0	721	25.0	721
3	1	37.0	1,957	37.0	1,957	37.0	1,957	37.0	1,957	37.0	1,957
	2	32.0	927	32.0	955	32.0	955	32.0	955	32.0	955
	3	31.0	721	31.0	721	31.0	721	31.0	721	31.0	721
	4	30.0	743	30.0	743	30.0	743	30.0	743	30.0	743
	5	11.0	10,000	11.0	10,000	11.0	10,000	11.0	10,000	11.0	10,000
	6	30.0	824	30.0	824	30.0	824	30.0	824	30.0	824
4	1	38.0	1,957	38.0	1,957	38.0	1,957	38.0	1,957	38.0	1,957
	2	33.0	979	33.0	979	33.0	979	33.0	979	33.0	979
	3	32.0	824	32.0	824	32.0	824	32.0	824	32.0	824
	4	31.0	721	31.0	721	31.0	721	31.0	721	31.0	721
	5	11.0	10,000	11.0	10,000	11.0	10,000	11.0	10,000	11.0	10,000
	6	30.0	824	30.0	824	30.0	824	30.0	824	30.0	824
5	1	40.0	1,957	40.0	1,957	40.0	1,957	40.0	1,957	40.0	1,957
	2	36.0	979	36.0	979	36.0	979	36.0	979	36.0	979
	3	35.0	824	35.0	824	35.0	824	35.0	824	35.0	824
	4	34.0	721	34.0	721	34.0	721	34.0	721	34.0	721
	5	14.0	10,000	14.0	10,000	14.0	10,000	14.0	10,000	14.0	10,000
	6	40.0	824	40.0	824	40.0	824	40.0	824	40.0	824

Shading denotes values changed from those assumed in the 1990 East/West Corridor Study.

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
DIFFERENCE BETWEEN FSUTMS DEFAULT AND 1986 MUATS VALIDATION

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	2.0	(436)	-13.0	(436)	-13.0	(436)	-13.0	(436)	-13.0	(436)
	2	-3.0	120	-3.0	120	-3.0	92	-3.0	64	-3.0	64
	3	2.0	(66)	2.0	(48)	2.0	(66)	-2.5	(106)	-2.5	(106)
	4	-2.5	(82)	-2.5	(54)	-7.0	(123)	-7.0	(123)	-7.0	(123)
	5	-1.0	600	-1.0	600	-1.0	600	-1.0	600	-1.0	600
	6	-2.5	89	-2.5	80	-2.5	70	-2.5	51	-2.5	51
2	1	2.0	114	-18.0	114	-18.0	114	-18.0	114	-18.0	114
	2	-8.0	(90)	-8.0	(90)	-8.0	(118)	-8.0	(155)	-8.0	(155)
	3	-7.5	(207)	-7.5	(179)	-7.5	(198)	-7.5	(198)	-7.5	(198)
	4	-12.0	(86)	-12.0	(58)	-12.0	(76)	-12.0	(76)	-12.0	(76)
	5	-1.5	600	-1.5	600	-1.5	600	-1.5	600	-1.5	600
	6	1.5	70	1.5	61	1.5	51	1.5	33	1.5	33
3	1	11.0	114	-9.0	114	-9.0	114	-9.0	114	-9.0	114
	2	1.0	210	-3.5	85	-3.5	57	-3.5	20	-3.5	20
	3	1.5	133	1.5	161	-3.0	42	-3.0	42	-3.0	42
	4	-3.0	164	-3.0	192	-3.0	174	-3.0	174	-3.0	174
	5	-1.5	600	-1.5	600	-1.5	600	-1.5	600	-1.5	600
	6	1.5	67	1.5	57	1.5	29	1.5	10	1.5	10
4	1	6.0	114	-9.0	114	-9.0	114	-9.0	114	-9.0	114
	2	1.0	(40)	1.0	(40)	-3.5	(143)	-3.5	(180)	-3.5	(180)
	3	1.5	133	1.5	161	-3.0	(8)	-3.0	(8)	-3.0	(8)
	4	1.5	64	-3.0	42	-3.0	24	-3.0	24	-3.0	24
	5	-1.5	600	-1.5	600	-1.5	600	-1.5	600	-1.5	600
	6	1.5	104	1.5	95	1.5	86	1.5	48	1.5	48
5	1	5.5	114	-9.5	114	-9.5	114	-9.5	114	-9.5	114
	2	-9.0	67	-9.0	67	-9.0	48	-9.0	39	-9.0	39
	3	-8.5	155	-8.5	174	-8.5	136	-8.5	42	-8.5	42
	4	-8.0	158	-8.0	177	-8.0	177	-8.0	177	-8.0	177
	5	-1.5	600	-1.5	600	-1.5	600	-1.5	600	-1.5	600
	6	-3.5	67	-3.5	57	-3.5	29	-3.5	10	-3.5	10

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
DIFFERENCE BETWEEN EAST WEST MULTIMODAL CORRIDOR STUDY AND 1986 VALIDATION

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	3.0	149	3.0	149	3.0	149	3.0	149	3.0	(1)
	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	3	0.0	0	0.0	0	0.0	0	4.5	40	0.0	0
	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
2	1	7.5	209	7.5	209	7.5	209	7.5	209	3.0	(2)
	2	-1.3	0	-1.3	0	-1.3	0	-1.3	0	-1.3	0
	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
3	1	4.0	209	4.0	209	4.0	209	4.0	209	4.0	(2)
	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
4	1	4.0	209	4.0	209	4.0	209	4.0	209	4.0	(2)
	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	3	-3.1	0	-3.1	0	-2.7	0	-2.7	0	-2.7	0
	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(190)
	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UDPATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

SPEED CAPACITY TABLE
DIFFERENCE BETWEEN 1990 VALIDATION AND
EAST WEST MULTIMODAL CORRIDOR STUDY

Area Type	Facility Type	Number of Lanes									
		1		2		3		4		5+	
		Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity	Speed	Capacity
1	1	0.0	(109)	0.0	(109)	0.0	(109)	0.0	(109)	0.0	42
	2	-2.0	23	-2.0	23	-2.0	23	-2.0	23	-2.0	23
	3	-4.0	14	-4.0	14	-4.0	14	-4.0	14	0.5	54
	4	-0.5	11	-0.5	11	4.0	61	4.0	61	4.0	61
	5	-0.5	0	-0.5	0	-0.5	0	-0.5	0	-0.5	0
	6	-2.5	21	-2.5	21	-2.5	21	-2.5	21	-2.5	21
2	1	-0.5	(358)	-0.5	(358)	-0.5	(358)	-0.5	(358)	4.0	(147)
	2	1.3	73	1.3	73	1.3	73	1.3	73	1.3	73
	3	3.5	117	3.5	117	3.5	117	3.5	117	3.5	117
	4	6.0	14	6.0	14	6.0	14	6.0	14	6.0	14
	5	-3.0	0	-3.0	0	-3.0	0	-3.0	0	-3.0	0
	6	-6.5	21	-6.5	21	-6.5	21	-6.5	21	-6.5	21
3	1	-3.0	(152)	-3.0	(152)	-3.0	(152)	-3.0	(152)	-3.0	59
	2	-4.0	(73)	0.5	80	0.5	80	0.5	80	0.5	80
	3	-0.5	(79)	-0.5	(79)	4.0	21	4.0	21	4.0	21
	4	3.0	43	3.0	43	3.0	43	3.0	43	3.0	43
	5	-2.5	0	-2.5	0	-2.5	0	-2.5	0	-2.5	0
	6	-1.5	24	-1.5	24	-1.5	24	-1.5	24	-1.5	24
4	1	-2.0	(152)	-2.0	(152)	-2.0	(152)	-2.0	(152)	-2.0	59
	2	-3.0	229	-3.0	229	1.5	304	1.5	304	1.5	304
	3	3.6	24	3.6	24	7.7	174	7.7	174	7.7	174
	4	-0.5	121	4.0	171	4.0	171	4.0	171	4.0	171
	5	-2.5	0	-2.5	0	-2.5	0	-2.5	0	-2.5	0
	6	-1.5	24	-1.5	24	-1.5	24	-1.5	24	-1.5	24
5	1	-0.5	57	-0.5	57	-0.5	57	-0.5	57	-0.5	247
	2	0.0	254	0.0	254	0.0	254	0.0	254	0.0	254
	3	3.5	124	3.5	124	3.5	124	3.5	124	3.5	124
	4	7.0	121	7.0	121	7.0	121	7.0	121	7.0	121
	5	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0
	6	8.5	24	8.5	24	8.5	24	8.5	24	8.5	24

TRANSIT NETWORK

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRANSIT NETWORK PARAMETERS

* PARAM	MODE				
	4	5	6	7	8
MAXS	55	70	60	58	30
MAXD	30	10	30	30	2
MH (AM)	120	60	120	120	10
MH (MD)	180	60	120	120	15
FH	.1	.1	.1	.1	.1
C	1	1	1	1	1
LAY	5	2	5	2	0
LPC	10	0	10	0	0

CART = 'FFT'
CART = 'CT1'
PERIOD (AM) = (0700, 0859)
PERIOD (MD) = (0900, 1559)

* REFER TO UTPS MANUAL FOR DEFINITIONS

AM: AM PEAK PERIOD
MD: MIDDAY PERIOD

MODE 4: METROBUS (LOCAL)
MODE 5: METRORAIL
MODE 6: METROBUS (EXPRESS)
MODE 7: COMMUTER RAIL
MODE 8: METROMOVER

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

HIGHWAY/TRANSIT SPEED FUNCTION CURVE

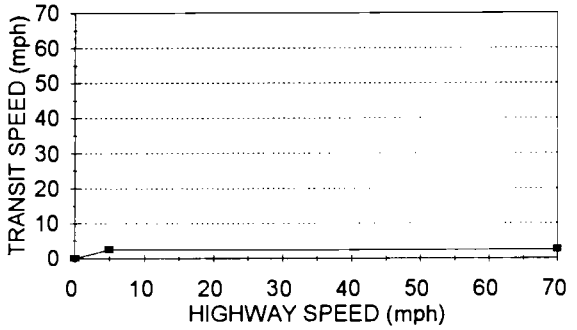
Curve Number	Low Speed		High Speed		Transit Mode	Area Type	Highway Facility Type
	Auto	Transit	Auto	Transit			
1	5	2.5	70	2.5	1,3	1-5	1-6
2	30	30	70	70	2	1-5	1-6
3	26	26	43	35	4 6	1 1	1 1
4	26	26	50	45	4 6	2-4 2-4	1 1
5	42	42	55	50	4 6	5 5	1 1
6	18	8	32	14	4 4 4 6 6	1-2 2 1-2 1 1	2-3 4 6 2-3 6
7	22	13	35	22	6 6	2 2	2-3 6
8	18	11	37	23	4 4 6	3 3 2	2-4 6 4
9	18	14	36	24	6 6	3-4 3-4	2-4 6
10	18	9	36	15	4 4	4 4	2-4 6
11	24	17	48	33	6 6	5 5	2-4 6
12	24	16	48	32	4 4	5 5	2-4 6
13	10	6	26	10	4 6	1 1	4 4

FACILITY TYPE 1: FREEWAY
FACILITY TYPE 2: DIVIDED ARTERIAL
FACILITY TYPE 3: UNDIVIDED ARTERIAL
FACILITY TYPE 4: COLLECTOR
FACILITY TYPE 5: CENTROID CONNECTOR
FACILITY TYPE 6: ONE-WAY

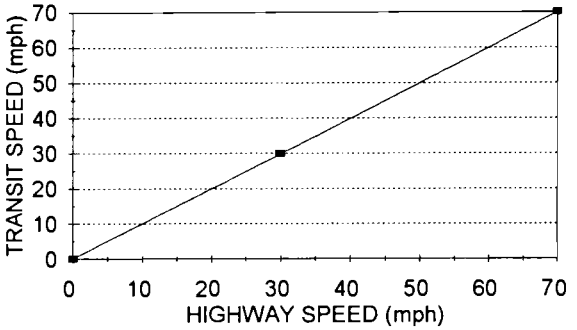
AREA TYPE 1: CBD
AREA TYPE 2: CBD FRINGE
AREA TYPE 3: RESIDENTIAL
AREA TYPE 4: OBD
AREA TYPE 5: RURAL

TRANSIT MODE 1: WALK ACCESS
TRANSIT MODE 2: AUTO ACCESS
TRANSIT MODE 4: METROBUS (LOCAL)
TRANSIT MODE 6: METROBUS (EXPRESS)

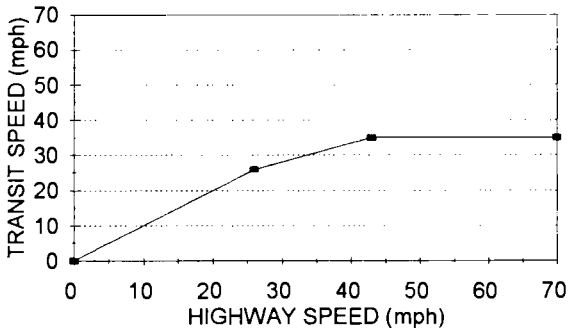
SPEED CURVE 1



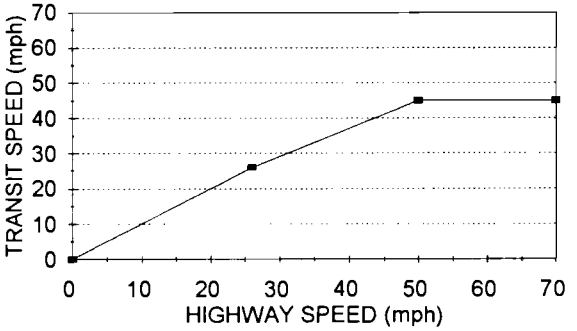
SPEED CURVE 2



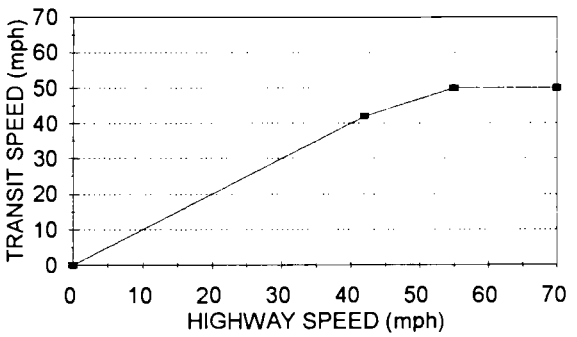
SPEED CURVE 3



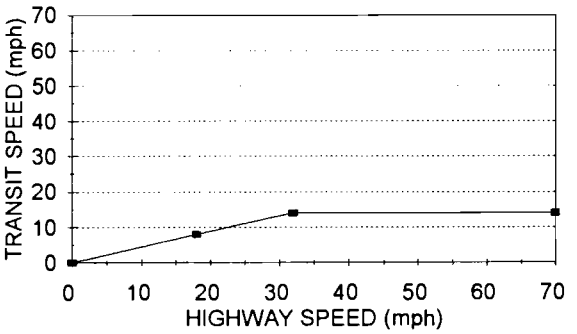
SPEED CURVE 4



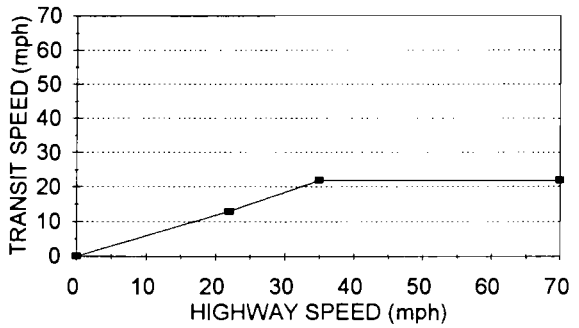
SPEED CURVE 5



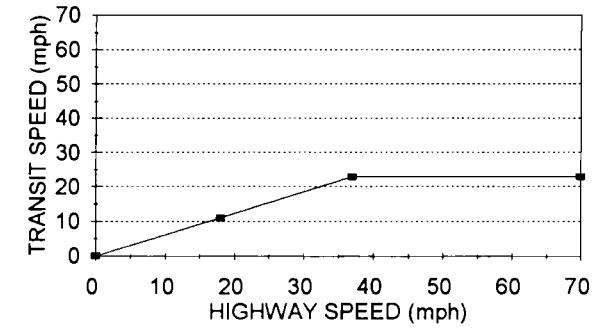
SPEED CURVE 6



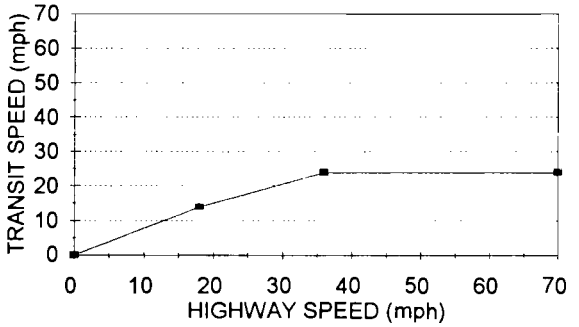
SPEED CURVE 7



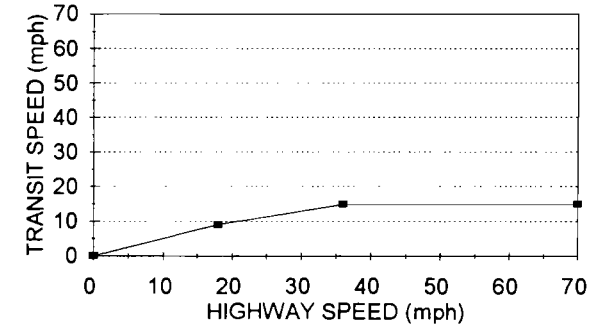
SPEED CURVE 8



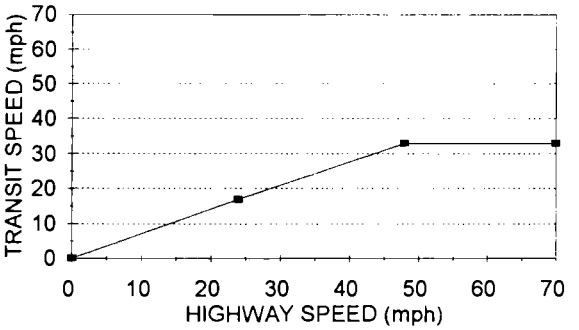
SPEED CURVE 9



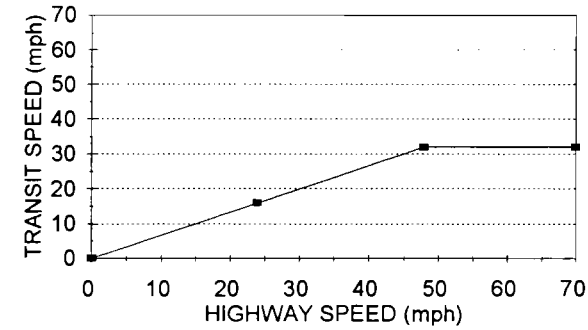
SPEED CURVE 10

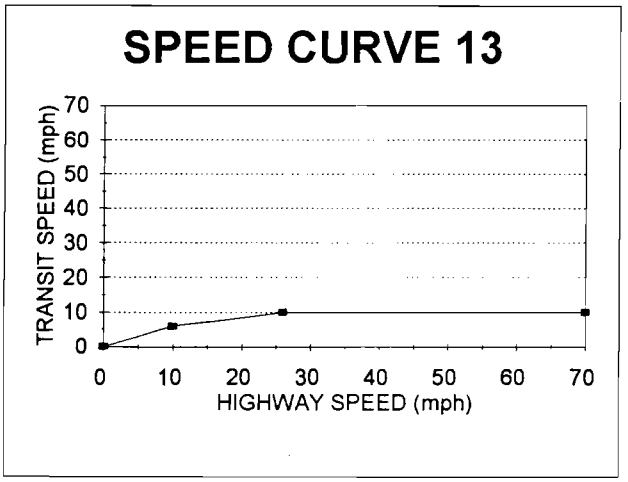


SPEED CURVE 11



SPEED CURVE 12




SPEED CURVE 13
TRANSIT SPEED (mph)
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
HIGHWAY SPEED (mph)

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRANSIT NETWORK SUMMARY

	AM - 2 HRS					
	ROUTE			VEHICLE		
	MILES	MIN.	SPEED	NO.	MILES	RUNS
Mode 4	2,483.9	11,089	13.44	467	9,980.9	4.0
Mode 5	41.1	81.0	30.44	12	652.8	15.9
Mode 6	281.6	765.5	22.07	45	1,415.6	5.0
Mode 7	42.3	65.7	38.9	3	44.7	1.1
Mode 8	3.9	21.4	10.9	12	231.2	59.3
	MD - 7 HRS					
Mode 4	2,298.8	8,637.4	15.97	330	29,043.5	12.6
Mode 5	41.1	80.6	30.60	6	1,149.2	28.0
Mode 6	59.0	139.5	25.38	4	373.9	6.3
Mode 7	28.2	43.8	38.63	2	196.9	7.0
Mode 8	3.9	21.4	10.93	4	235.2	60.3

Mode 4: Local Bus
Mode 5: Metrorail
Mode 6: Express Bus
Mode 7: Commuter Rail
Mode 8: Metromover

Metro Dade Transit System Data

mode	MDTA ID	line	model peak period (am) MILES	Speed	MINS	hdwy	Veh	Trips	model off-peak period (md) MILES	Speed	MINS	hdwy	Veh	Trips	MDTA Observed (target) peak period (am) MILES	Speed	MINS	Hdwy	Veh	MDTA Observed (target) off-peak period (md) MILES	Speed	MINS	Hdwy	Veh	Daily Boardings	
4	A	1	10.0	10.91	55.0	30.0	3.0		10.0	14.42	41.6	30.0	2.0		10.6	14.50	43.9	30	2	10.6	14.50	43.9	30	2	572	
4	B	3	22.8	12.31	111.1	22.0	6.0		22.8	16.29	84.0	40.0	3.0		22.9	19.20	71.6	15-30	4	22.9	19.20	71.6	40	2	1,433	
4	C	5	17.8	11.41	93.6	20.0	6.0		17.8	14.09	75.8	20.0	5.0		19.4	10.00	116.4	20	7	19.4	10.00	116.4	20	7	4,782	
4	D	8	35.2	13.34	158.3	30.0	6.0		35.2	14.98	141.0	30.0	6.0		35.4	14.40	140.0	30	6	35.4	14.40	143.0	30	6	2,431	
4	E	9	31.0	14.61	127.3	60.0	3.0		31.0	15.76	118.0	60.0	3.0		34.9	13.90	150.6	60	3	34.9	13.90	150.6	60	3	695	
4	F	13	18.6	12.74	87.6	20.0	5.0		18.6	15.37	72.6	30.0	3.0		18.7	12.00	93.5	20	6	18.7	12.00	93.5	30	4	1,773	
4	G	15	36.2	13.07	166.2	30.0	7.0		36.2	16.45	132.0	30.0	5.0		35.6	13.30	160.6	30	8	35.6	13.30	160.6	15-30	6	3,351	
4	G	17	21.6	13.39	96.8	35.0	4.0		no service						21.2	13.53	94.0	35	(b)	no service					(b)	
4	H	21	43.8	12.98	202.5	15.0	15.0		43.8	14.95	175.8	15.0	13.0		44.4	12.40	214.8	15	15	44.4	12.40	214.8	15	15	7,059	
4	J	23	38.6	11.58	200.0	20.0	12.0		38.6	15.78	146.8	20.0	9.0		41.3	14.80	167.4	20	10	41.3	14.80	167.4	20	7	5,504	
4	K	25	28.2	12.82	132.0	20.0	8.0		28.2	15.67	108.0	20.0	6.0		30.1	13.90	129.9	20	10	31.1	13.90	134.2	20	9	4,852	
4	L	29	31.8	13.45	141.9	30.0	6.0		31.8	14.61	130.6	30.0	5.0		28.5	11.96	143.0	30	18	32.6	15.60	125.4	30	12	11,051	*
4	L	31	28.0	13.63	123.3	30.0	5.0		28.0	14.69	114.4	30.0	5.0		28.5	13.36	128.0	30	(b)	28.5		140.0	30	(b)	(b)	
4	L	33	18.0	14.42	74.9	15.0	6.0		no service						18.3	13.39	82.0	15	(b)	no service					(b)	
4	M	37	19.8	11.76	101.0	30.0	4.0		19.8	14.08	84.4	30.0	4.0		23.0	10.50	131.4	30	5	23.0	10.50	131.4	30	5	2,165	*
4	R	39	26.2	15.16	103.7	60.0	2.0		26.2	16.55	95.0	60.0	2.0		24.7	14.30	103.6	60	2	24.7	14.30	103.6	60	2	552	
4	S	43	40.8	12.66	193.3	15.0	15.0		40.8	15.22	160.8	15.0	12.0		42.5	13.70	186.1	15	14	42.5	13.70	186.1	15	14	10,271	
4	T	47	28.0	13.13	128.0	20.0	8.0		28.0	16.63	101.0	20.0	6.0		27.9	15.30	109.4	20		27.9	15.30	109.4	20		3,180	
4	V	49	34.8	14.05	148.6	60.0	3.0		34.8	15.49	134.8	60.0	3.0		38.3	15.30	150.2	60	3	38.3	15.30	150.2	60	3	396	
4	W	51	5.1	12.05	25.4	24.0	2.0		5.1	12.34	24.8	24.0	2.0		5.2	8.90	35.1	24	2	5.2	8.90	35.1	24	2	896	
4	1	61	24.6	12.62	117.0	7.5	18.0		24.6	15.87	93.0	30.0	4.0		24.1	17.42	83.0	7.5	11	24.1	16.43	88.0	30	4	3,340	
4	1	63	13.4	12.88	62.4	120.0	1.0		no service						14.3	10.09	85.0	(c)	(b)	no service					(b)	
4	1	64	26.2	13.42	117.1	25.0	6.0		no service						25.8	9.86	157.0	25	(b)	no service					(b)	
4	2	67	28.6	14.18	121.0	60.0	3.0		28.6	16.22	105.8	60.0	2.0		28.7	12.57	137.0	60	3	28.7	12.57	137.0	60	8	4,318	*
4	2	69	12.0	12.50	57.6	15.0	5.0		12.0	14.88	48.4	15.0	4.0		12.6	10.36	73.0	15	(b)	12.6	9.82	77.0	15	(b)	(b)	
4	3	71	43.0	13.19	195.6	20.0	11.0		43.0	15.38	167.8	20.0	10.0		47.3	13.90	204.2	20	15	47.3	13.90	204.2	20	12	8,707	
4	3	72	27.2	12.04	135.6	40.0	4.0		no service						30.2	13.23	137.0	40	(b)	no service					(b)	
4	6	73	30.6	12.51	146.8	60.0	3.0		53.6	15.16	212.2	60.0	4.0		31.8	14.60	130.7	60		51.4	14.60	211.2	60		567	
4	7	75	20.0	8.53	140.7	40.0	4.0		20.0	14.53	82.6	20.0	5.0		22.9	14.90	92.2	40	7	22.9	14.90	92.2	20-40	7	3,250	*
4	7A	77	30.0	11.45	157.2	40.0	5.0		30.0	14.90	120.8	40.0	4.0		29.2	14.90	117.6	40	(b)	29.2	14.90	117.6	40	(b)	(b)	
4	8	80	27.8	11.44	145.8	15.0	11.0		27.8	13.92	119.8	15.0	9.0		28.5	12.70	134.6	15	10	28.5	12.70	134.6	15	10	6,907	
4	8	81	22.2	10.96	121.5	30.0	5.0		22.2	13.79	96.6	30.0	4.0		22.8	10.36	132.0	30	(b)	22.8	10.36	132.0	30	(b)	(b)	
4	9	83	36.4	12.98	168.3	40.0	5.0		36.4	15.27	143.0	40.0	4.0		38.1	13.40	170.6	40	9	38.1	13.40	170.6	40	5	5,138	
4	9	84	25.2	12.63	119.7	60.0	3.0		25.2	15.15	99.8	20.0	6.0		26.9	13.23	122.0	60	(b)	26.9	11.87	136.0	20	(b)	(b)	
4	10	87	27.6	12.70	130.4	40.0	4.0		27.6	15.14	109.4	40.0	4.0		28.3	13.50	125.8	40	7	28.3	13.50	125.8	40	4	2,591	
4	11	89	27.6	13.20	125.5	7.5	19.0		27.6	15.56	106.4	10.0	12.0		28.9	12.40	139.8	7.5-15	20	28.9	12.40	139.8	10	14	13,780	
4	11	90	17.6	12.39	85.2	15.0	7.0		17.6	14.96	70.6	15.0	6.0		18.1	7.59	143.0	15	(b)	18.1	7.59	143.0	15	(b)	(b)	
4	12	95	27.8	14.35	116.2	30.0	5.0		27.8	16.07	103.8	30.0	4.0		27.3	11.90	137.6	30	6	27.3	11.90	137.6	30	6	3,249	
4	16	101	27.6	12.38	133.8	20.0	8.0		27.6	14.73	112.4	20.0	7.0		27.6	13.50	122.7	20	7	27.6	13.50	122.7	20	7	4,978	
4	17	105	41.8	15.83	158.4	30.0	6.0		40.8	18.16	134.8	30.0	5.0		41.9	15.20	165.4	30	11	41.9	15.20	165.4	30-60	7	5,732	
4	17	107	18.8	14.28	79.0	30.0	3.0		no service						20.6	11.24	110.0	30	(b)	no service					(b)	
4	21	110	30.2	15.09	120.1	60.0	3.0		30.2	16.75	108.2	60.0	2.0		28.5	11.80	144.9	60	5	28.5	11.80	144.9	30-60	5	2,200	
4	21	111	19.0	14.45	78.9	60.0	2.0		19.0	16.29	70.0	60.0	2.0		18.6	11.51	97.0	60	(b)	18.6	11.51	97.0	60	(b)	(b)	
4	22	112	42.6	14.33	178.4	60.0	4.0		42.6	16.32	156.6	60.0	3.0		44.4	15.00	187.0	60	10	44.4	13.95	191.0	60	7	3,924	
4	22	113	34.8	14.52	143.8	30.0	6.0		34.8	15.89	131.4	60.0	3.0		35.3	16.29	130.0	20-60	(b)	35.3	13.93	152.0	20-60	(b)	(b)	
4	24	115	26.6	12.05	132.5	22.0	7.0		26.6	14.94	106.8	15.0	8.0		27.6	13.10	126.4	15-30	10	27.6	13.10	126.4	15-30	10	4,453	
4	24	117	21.8	11.76	111.2	20.0	7.0		21.8	15.10	86.6	30.0	4.0		22.2	9.94	134.0	20	(b)	22.2	13.90	95.8	30	(b)	(b)	
4	27	119	33.2	14.21	140.2	30.0	6.0		33.2	16.88	118.0	30.0	5.0		33.3	14.58	137.0	30	(b)	33.3	18.60	107.4	30	13	8,870	
4	27	121	40.8	13.82	177.1	15.0	13.0		40.8	16.43	149.0	22.0	8.0		40.5	12.90	188.4	12-30	14	40.5	12.90	158.4	15-30	2	713	
4	28	129	25.6	15.85	96.9	60.0	2.0		25.6	17.49	87.8	30.0	4.0		28.1	18.60	90.6	60	2	28.1	11.96	141.0	30	(b)	(b)	
4	29	131	25.6	13.63	112.7	70.0	2.0		25.6	15.39	99.8	70.0	2.0		26.3	13.20	119.5	70	2	26.3	13.20	119.5	70	2	445	
4	32	133	44.6	14.49	184.7	20.0	11.0		44.6	16.56	161.6	30.0	6.0		46.9	15.70	179.2	20	10	46.9	15.70	179.2	30	7	3,850	
4	33	135	24.4	14.88	98.4	30.0	4.0		24.4	16.98	86.2	45.0	3.0		26.5	14.10	112.8	30	6	26.5	14.10	112.8	45	3	1,854	
4	35	137	55.0	16.11	204.8	60.0	4.0		55.0	17.52	188.4	60.0	4.0		58.9	23.50	150.4	60	6	58.9	23.50	150.4	60	6	2,212	
4	36	143	24.4	10.58	138.4	40.0	4.0		24.4	13.71	106.8	40.0	3.0		23.6	9.70	146.0	40	10	23.6	9.70	146.0	40	5	3,696	*
4	36	145	23.4	12.65	111.0	60.0	3.0		23.4	14.56	96.4	60.0	2.0		23.2	12.65	110.0	(b)	(b)	23.2	13.65	102.0	(b)	(b)	(b)	
4	37	146	40.6	10.55	231.0	30.0	9.0		40.6	16.26	149.8	30.0	6.0		43.0	12.30	209.8	30	7	43.0	12.30	209.8	30	7	3,576	
4	40A	150	28.0	14.13	118.9	60.0	3.0		28.0	16.06	104.6	60.0	2.0		29.1	15.05	116.0	60	(d)	29.1	15.45	113.0	60	(d)	(b)	

Metro Dade Transit System Data

mode	MDTA ID	line	model peak period (am) MILES	Speed	MINS	hdwy	Veh	Trips	model off-peak period (md) MILES	Speed	MINS	hdwy	Veh	Trips	MDTA Observed (target) peak period (am) MILES	Speed	MINS	Hdwy	Veh	MDTA Observed (target) off-peak period (md) MILES	Speed	MINS	Hdwy	Veh	Daily Boardings	
4	40	151	27.8	13.93	119.7	60.0	3.0		27.8	15.92	104.8	60.0	2.0		29.1	15.50	112.6	60	5	29.1	15.50	112.6	60	5	2,422	
4	41	152	no service						34.0	13.90	146.8	60.0	3.0		no service					(a)	(a)	(a)	(a)	(a)	(a)	
4	42	153	35.8	11.36	189.1	60.0	4.0		35.8	16.42	130.8	60.0	3.0		38.0	15.10	151.0	60	3	38.0	15.10	151.0	60	3	1,049	
4	48	157	27.4	12.17	135.1	60.0	3.0		27.4	15.81	104.0	60.0	2.0		29.3	11.30	155.6	60	3	29.3	11.30	155.6	60	3	827	
4	52	159	50.2	13.00	231.7	30.0	9.0		50.2	16.64	181.0	60.0	4.0		53.6	15.90	202.3	30-60	8	53.6	15.90	202.3	60	6	2,445	
4	54	163	28.8	13.90	124.3	20.0	7.0		28.8	16.24	106.4	60.0	2.0		29.1	12.20	143.1	20	8	29.1	12.20	143.1	60	3	2,273	
4	56	165	28.6	13.34	128.6	60.0	3.0		28.6	17.91	95.8	60.0	2.0		29.4	16.60	106.3	60		29.4	16.60	106.3	60			
4	57	167	20.8	15.68	79.6	60.0	2.0		no service						19.2	18.30	63.0	60	5	no service					1,353	
4	62	169	19.8	13.86	85.7	60.0	2.0		no service						19.9	11.37	105.0	60	11	no service					5,936	
4	62	170	13.8	14.20	58.3	60.0	2.0		13.8	16.17	51.2	60.0	2.0		13.5	11.10	73.0	60	(b)	13.5	11.91	68.0	60	(b)	(b)	
4	62	171	18.6	17.86	62.5	20.0	4.0		18.6	20.07	55.6	30.0	3.0		17.3	14.42	72.0	20	(b)	17.3	15.49	67.0	30	(b)	(b)	
4	62	172	24.8	16.55	89.9	30.0	4.0		24.8	18.60	80.0	30.0	4.0		25.0	14.29	105.0	30	(b)	25.0	15.63	96.0	30	(b)	(b)	
4	65	173	19.3	13.34	86.8	65.0	2.0		19.3	16.95	68.3	65.0	2.0		19.3	22.00	52.6	65	1	19.3	22.00	52.6	65	1		
4	67	174	33.6	15.44	130.6	60.0	3.0		33.6	17.68	114.0	60.0	3.0		31.4	17.30	(a)	60		(a)	17.30	(a)	60		(b)	
4	70	175	48.4	17.97	161.6	60.0	3.0		48.4	18.74	155.0	60.0	3.0		52.4	25.20	124.8	60		52.4	25.20	124.8	60			
4	71	177	23.6	14.51	97.6	60.0	2.0		23.6	17.27	82.0	60.0	2.0		22.8	16.20	84.4	60	4	22.8	16.20	84.4	60	4		
4	72	181	32.2	15.88	121.7	60.0	3.0		32.2	18.12	106.6	60.0	2.0		34.3	17.00	121.1	60		34.3	17.00	121.1	60			
4	72	182	20.4	17.29	70.8	60.0	2.0		no service						21.0	18.81	67.0	60		no service						
4	73	183	40.0	13.49	177.9	40.0	5.0		40.0	16.17	148.4	60.0	3.0		41.7	14.30	175.0	30-60	7	41.7	14.30	175.0	60	4	2,256	
4	74	186	22.0	13.41	98.4	60.0	2.0		22.0	15.42	85.6	60.0	2.0		21.9	12.88	102.0	60	2	21.9	12.88	102.0	60	2	298	
4	75	187	42.2	15.59	162.4	30.0	6.0		42.2	17.88	141.6	30.0	6.0		41.7	14.70	170.2	30	7	41.7	14.70	170.2	30	7	3,324	
4	77	189	32.4	13.87	140.2	45.0	4.0		32.4	15.65	124.2	45.0	4.0		31.9	14.70	130.2	45	11	31.9	14.70	130.2	45	7	7,531	*
4	77	190	32.0	13.67	140.5	60.0	3.0		32.0	15.51	123.8	60.0	3.0		31.9	(a)	(a)	60	(b)	31.9	(a)	(a)	60	(b)	(b)	
4	77	192	28.6	13.86	123.8	60.0	3.0		28.6	15.43	111.2	60.0	3.0		27.9	(a)	(a)	60	(b)	27.9	(a)	(a)	60	(b)	(b)	
4	83	193	34.2	14.58	140.7	30.0	6.0		34.2	16.85	121.8	30.0	5.0		37.2	14.90	149.8	20-60	7	37.2	14.90	149.8	30	6	3,971	
4	83	195	30.0	14.89	120.9	30.0	5.0		no service						30.0	14.63	123.0	20-60		no service					(b)	
4	87	197	34.6	12.68	163.7	30.0	7.0		27.2	15.97	102.2	60.0	2.0		34.9	13.90	150.6	30	3	26.5	13.90	114.4	60	2	1,046	
4	88A	199	18.2	15.58	70.1	30.0	3.0		18.2	16.96	64.4	60.0	2.0		18.1	15.51	70.0	30		18.1	15.51	70.0	60			
4	88	200	17.4	15.72	66.4	15.0	6.0		17.4	17.11	61.0	30.0	3.0		18.8	14.80	76.2	15-30	6	18.8	14.80	76.2	30-60	3	2,584	
4	91	203	24.8	16.76	88.8	60.0	2.0		24.8	18.60	80.0	60.0	2.0		22.9	14.30	96.1	60	2	22.9	14.30	96.1	60	2	752	
4	Brickel	205	2.6	8.48	18.4	12.0	2.0		2.6	11.89	13.1	179.0	1.0		1.7	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	*
4	Koger	206	12.8	10.08	76.2	60.0	2.0		no service						10.6	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	*
4	TCR-MIA	207	4.9	6.79	43.3	60.0	1.0		no service						7.3											*
5	Metrorail	1	41.2	30.52	81.0	7.5	12.0		41.2	30.67	80.6	15.0	6.0		42.2											
6	95X	1	13.7	21.08	39.0	10.0	5.0		no service						13.9	27.80	30.0	5-15		no service					1,592	
6	95X	2	18.6	20.82	53.6	30.0	2.0		no service						16.2	(a)	(a)	(a)		no service						*
6	95X	3	17.1	21.42	47.9	120.0	1.0		no service						15.3	(a)	(a)	(a)		no service						*
6	95X	4	15.6	26.59	35.2	40.0	2.0		no service						13.1	(a)	(a)	(a)		no service						*
6	95X	5	25.3	22.76	66.7	120.0	1.0		no service						25.0	19.48	77.0	(a)		no service						
6	95X	6	22.0	20.99	62.9	120.0	1.0		no service						21.7	21.70	60.0	(a)		no service						
6	95X	7	18.9	25.54	44.4	55.0	1.0		no service						18.6	27.90	40.0	55		no service						
6	95X	8	12.1	21.74	33.4	120.0	1.0		no service						13.0	(a)	28.0	(a)		no service						
6	95X	9	21.5	20.67	62.4	40.0	2.0		no service						22.3	21.58	62.0	20-45		no service						
6	95X	10	20.4	21.40	57.2	60.0	2.0		no service						21.2	21.93	58.0	70		no service						
6	38	11	25.4	23.48	64.9	20.0	4.0		no service						26.2	29.11	54.0	20		no service					348	
6	12KAT	12	10.1	23.13	26.2	15.0	3.0		no service						9.5	(a)	(a)	(a)		no service						
6	13KAT	13	20.0	23.86	50.3	7.5	9.0		20.0	25.53	47.0	60.0	1.0		20.0	(a)	(a)	(a)		20.0	(a)	(a)	(a)			
6	14KAT	14	20.0	20.17	59.5	10.0	7.0		20.0	21.51	55.8	60.0	2.0		18.2	(a)	(a)	(a)		18.2	(a)	(a)	(a)			
6	15ZOO	15	no service						19.0	31.23	36.5	84.0	1.0		no service					21.1	(a)	(a)	(a)			*
6	46X	20	20.9	20.26	61.9	20.0	4.0		no service						21.5	(a)	86.0	20		no service					147	
7	TriRail	100	14.1	38.63	21.9	27.0	1.0		14.1	38.63	21.9	60.0	1.0													
7	TriRail	101	14.1	38.63	21.9	40.0	1.0		14.1	38.63	21.9	60.0	1.0													
7	TriRail	102	14.1	38.63	21.9	24.0	1.0		no service																	
8	M-mover	1	2.0	11.01	10.9	2.5	5.0		2.0	11.01	10.9	7.0	2.0												2,111	
8	M-mover	2	2.0	11.43	10.5	1.7	7.0		2.0	11.43	10.5	7.0	2.0												2,111	

(a) information not available
(b) This route is a leg of another route, separate statistics are not available.
(c) a single trip, headway not available
(d) All Mode 6 data represent one-way statistics.

EXTERNAL TRIP

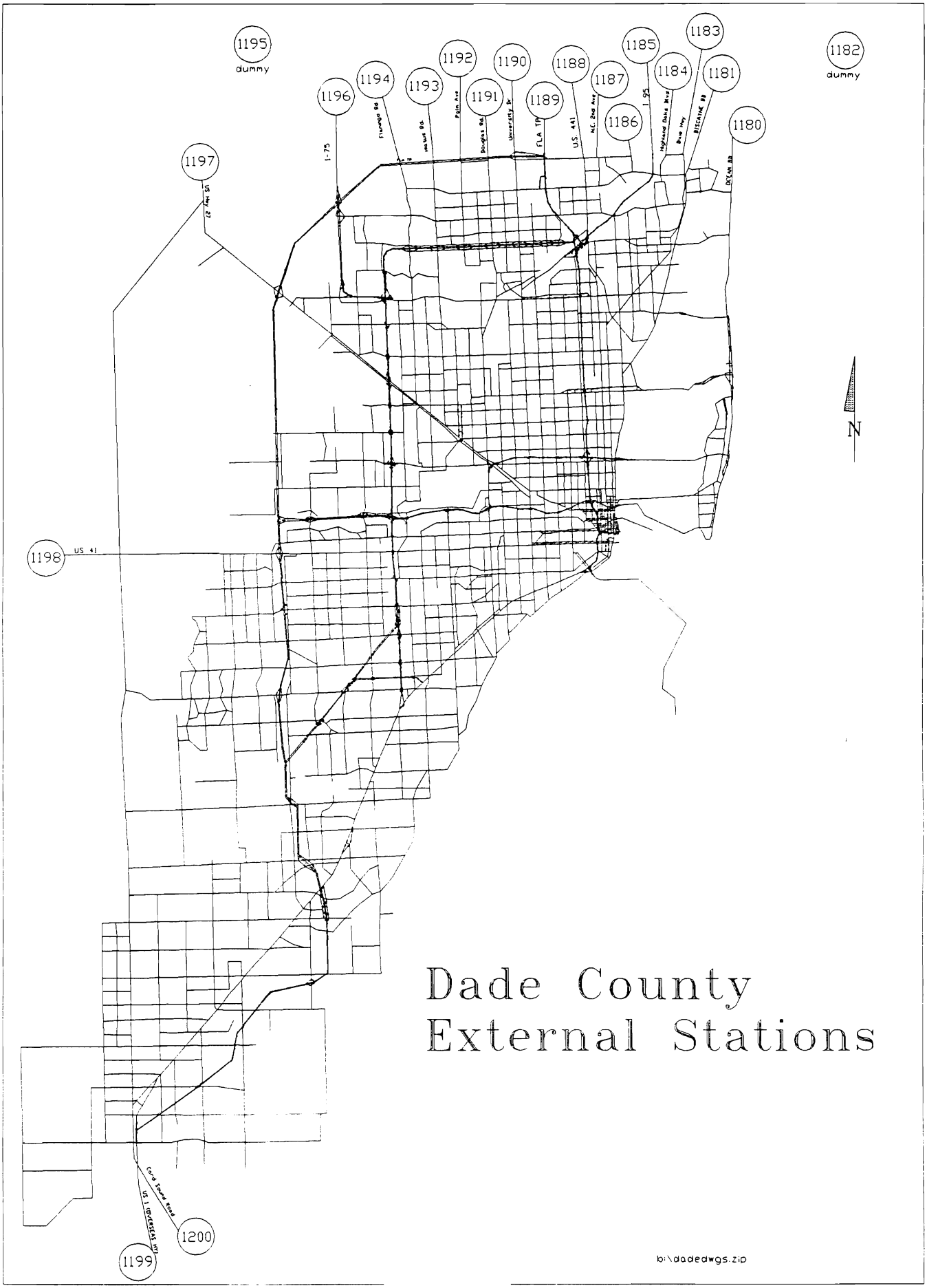
EXTERNAL TRIP

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

ZDATA4 FILE
EXTERNAL/INTERNAL TRIP PRODUCTIONS

District No.	Zone Number	AWDT	Description
89	1165	0	Dummy Zone
89	1166	0	Dummy Zone
89	1167	0	Dummy Zone
89	1168	0	Dummy Zone
89	1169	0	Dummy Zone
90	1180	21600	Collins Ave/A1A
91	1181	35400	Biscayne Blvd/U.S. 1 - North
91	1182	0	----------
91	1183	7350	Dixie Highway
91	1184	6300	Highland Oaks Blvd
91	1185	146700	I-95
92	1186	5900	N.E. 12 Ave
92	1187	6100	N.E. 2 Ave/S.W. 56 Ave
92	1188	40700	N.W. 2 Ave/U.S. 441/S.R. 1
92	1189	61200	Florida's Turnpike
93	1190	45400	N.W. 27 Ave/University Dr
93	1191	9400	N.W. 37 Ave/Douglas Rd
93	1192	13500	N.W. 47 Ave/Palm Ave
93	1193	17200	N.W. 57 Ave/Hiatus Rd
93	1194	12200	N.W. 67 Ave/Flamingo Rd
93	1195	0	----------
94	1196	53600	I-75
94	1197	7600	U.S. 27
95	1198	4300	U.S. 41/Tamiami Trail
96	1199	12100	U.S. 1 - South
96	1200	3100	Card Sound Rd



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	-	106,083	59,514	165,597
Dade	106,083	-	6,720	112,803
Palm Beach	59,514	6,720	-	66,234
Total	**165,597**	**112,803**	**66,234**	**344,634**

HOMEBASED NON-WORK TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	210,713	116,980	327,693
Dade	210,713	-	783	211,496
Palm Beach	116,980	783	-	117,763
Total	**327,693**	**211,496**	**117,763**	**656,952**

NON-HOMEBASED TRIPS

	Broward	Dade	Palm Beach	Total
Broward	-	98,972	49,998	148,970
Dade	98,972	-	359	99,331
Palm Beach	49,998	359	-	50,357
Total	**148,970**	**99,331**	**50,357**	**298,658**

TRIP GENERATION

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRIP PRODUCTION RATES
HOMEBASED WORK (HBW) TRIPS

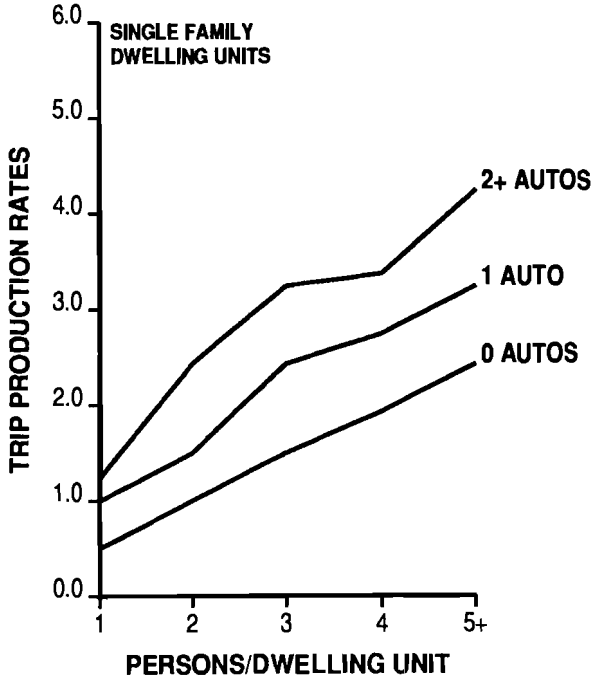
SINGLE FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.45	1.01	1.53	1.93	2.45
1	1.01	1.60	2.36	2.72	3.22
2 or more	1.35	2.45	3.30	3.44	4.25

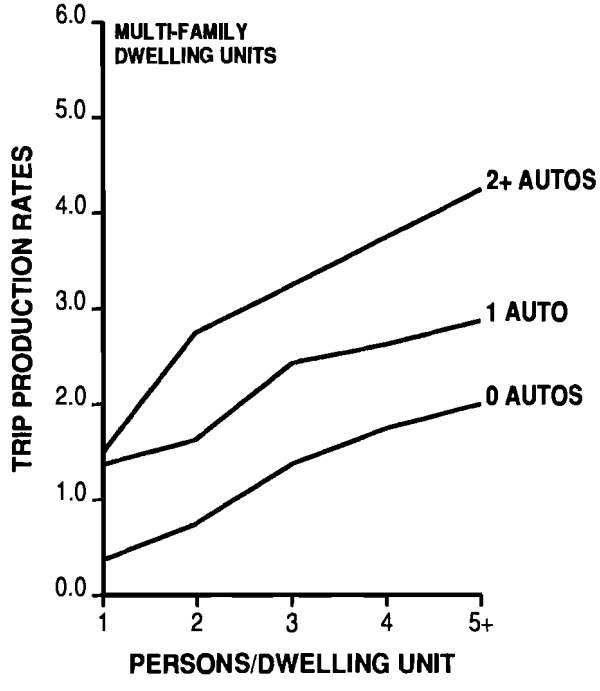
MULTI-FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.40	0.70	1.40	1.67	1.89
1	1.21	1.55	2.36	2.61	2.88
2 or more	1.48	2.75	3.20	3.71	4.18

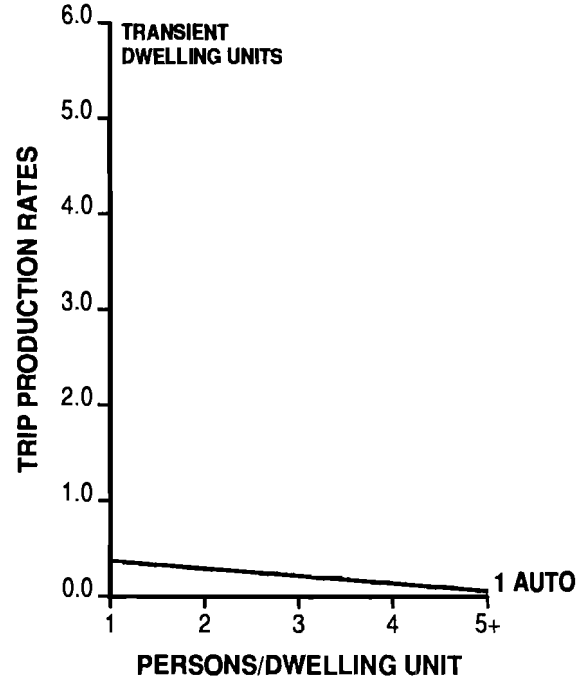
TRANSIENT DWELLING UNITS					
AUTOS/ DU	PERSONS / DWELLING UNIT (DU)				
	1	2	3	4	5+
1	0.25	0.20	0.15	0.10	0.10

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED WORK (HBW) TRIPS







METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRIP PRODUCTION RATES
HOMEBASED SHOPPING (HBSH) TRIPS

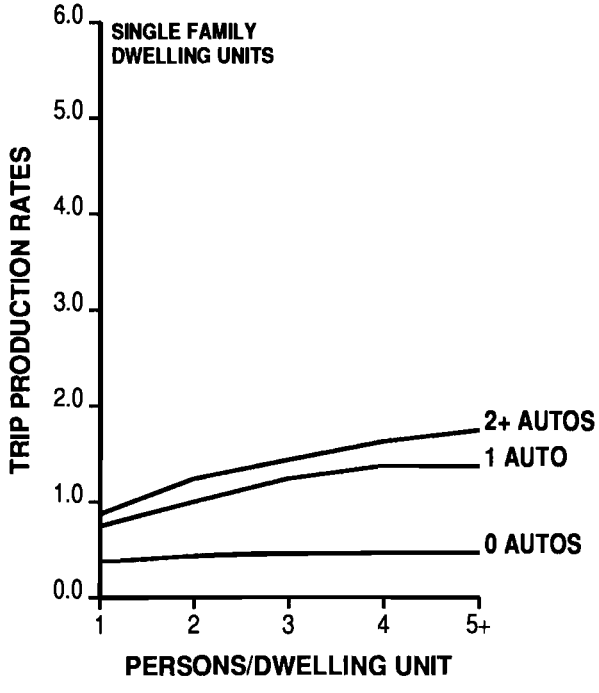
SINGLE FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.30	0.35	0.40	0.45	0.45
1	0.80	1.05	1.20	1.30	1.30
2 or more	0.90	1.25	1.45	1.60	1.70

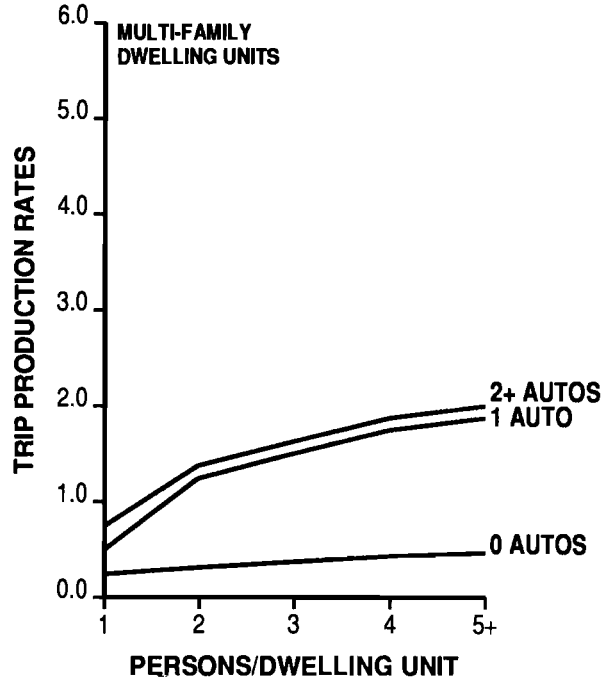
MULTI-FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.30	0.35	0.40	0.45	0.45
1	0.50	1.25	1.50	1.65	1.70
2 or more	0.65	1.40	1.65	1.85	1.95

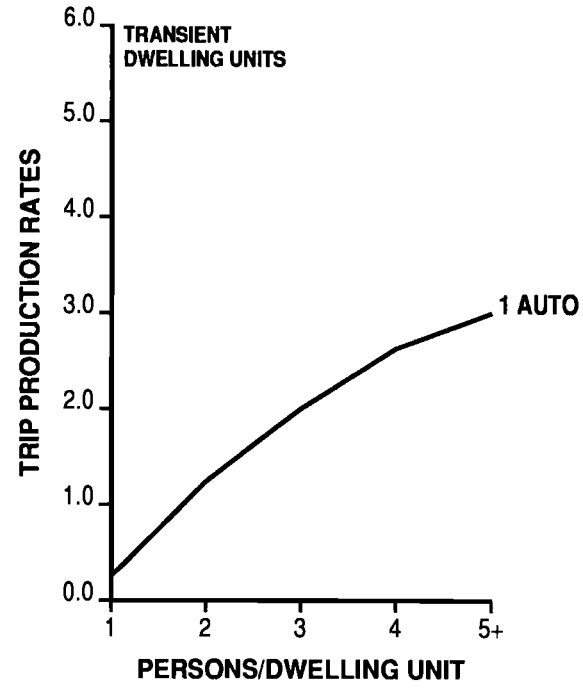
TRANSIENT DWELLING UNITS					
AUTOS/ DU	PERSONS / DWELLING UNIT (DU)				
	1	2	3	4	5+
1	0.30	1.30	2.00	2.50	2.90

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED SHOPPING (HBSH) TRIPS







METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

TRIP PRODUCTION RATES
HOMEBASED SOCIAL/RECREATION (HBSR) TRIPS

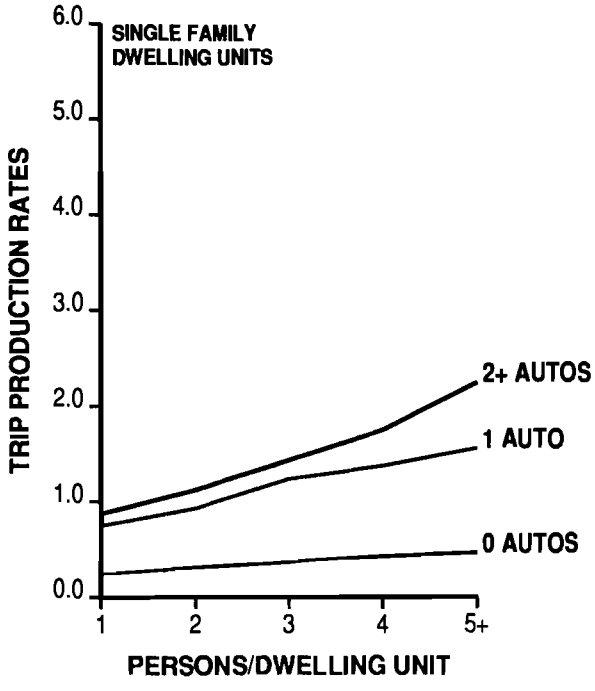
SINGLE FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.20	0.25	0.30	0.40	0.45
1	0.65	0.85	1.10	1.35	1.70
2 or more	0.85	1.05	1.30	1.65	2.10

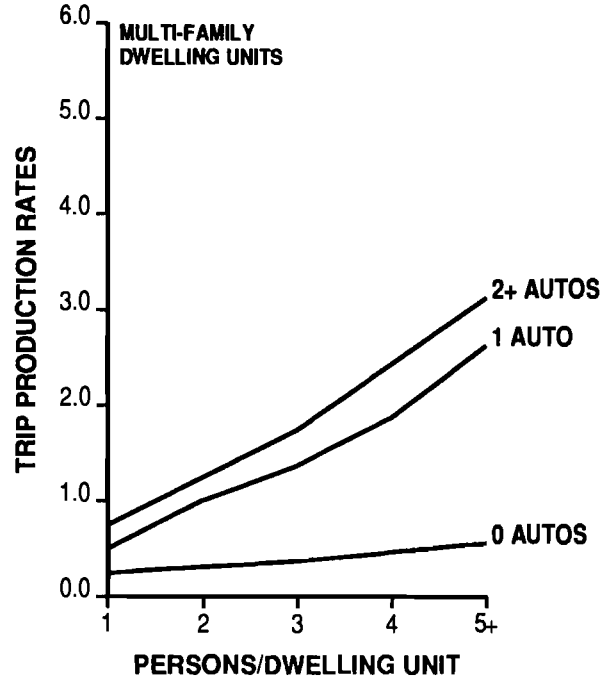
MULTI-FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.30	0.35	0.40	0.45	0.55
1	0.65	1.05	1.45	1.90	2.65
2 or more	0.75	1.20	1.65	2.20	3.05

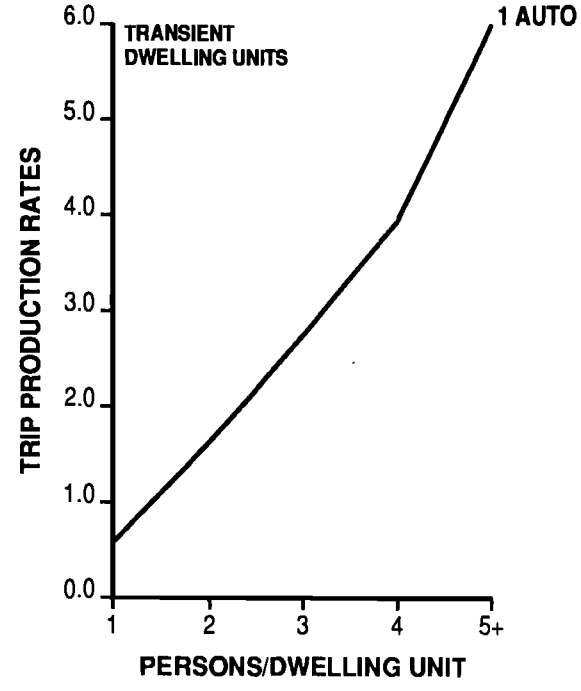
TRANSIENT DWELLING UNITS					
AUTOS/ DU	PERSONS / DWELLING UNIT (DU)				
	1	2	3	4	5+
1	0.60	1.65	2.70	3.90	5.90

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

TRIP PRODUCTION RATES
HOMEBASED SOCIAL/RECREATIONAL (HBSR) TRIPS







METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

HOMEBASED OTHER (HBO) TRIPS

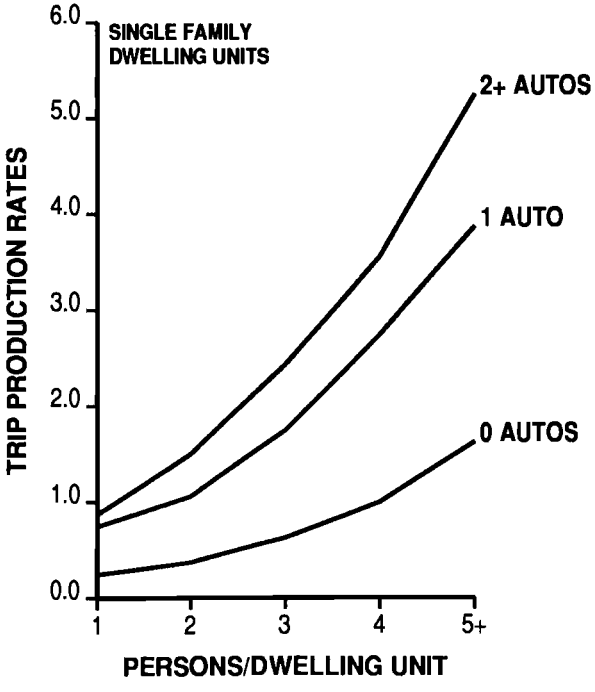
SINGLE FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.20	0.30	0.55	1.00	1.60
1	0.60	1.10	1.85	2.75	3.95
2 or more	0.70	1.20	2.20	3.55	5.35

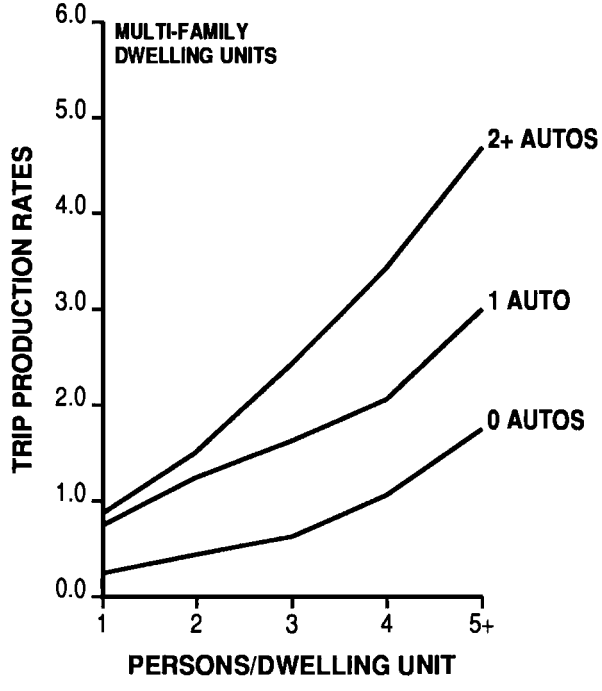
MULTI-FAMILY DWELLING UNITS					
AUTOS/ DU	PERSONS/DWELLING UNIT (DU)				
	1	2	3	4	5+
0	0.25	0.45	0.70	1.10	1.70
1	0.80	1.20	1.60	2.10	3.00
2 or more	0.95	1.50	2.30	3.40	4.65

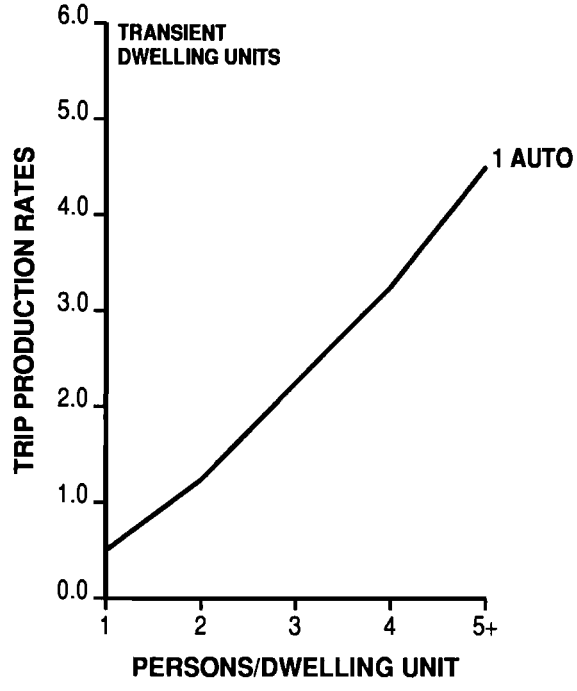
TRANSIENT DWELLING UNITS					
AUTOS/ DU	PERSONS / DWELLING UNIT (DU)				
	1	2	3	4	5+
1	0.50	1.20	2.10	3.30	4.40

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

		(1) PRODUCTIONS	(2) UNADJUSTED ATTRACTIONS	(2)/(1)
PERSON TRIPS				
HBW		1,590,907	1,993,768	1.25
HBNW	HBSH	823,707	4,225,189	5.13
	HBSR	869,195	2,133,070	2.45
	HBO	1,335,898	1,988,886	1.49
	SUBTOTAL	3,028,800	8,347,145	2.76
NHB		2,009,108	2,009,108	N/A
TOTAL		**6,628,815**	**12,350,021**	**N/A**
VEHICLE TRIPS				
TRUCK & TAXI		728,285	728,285	N/A
I/E		509,650	509,650	N/A
TOTAL		**1,237,935**	**1,237,935**	**N/A**

N/A NOT APPLICABLE

NOTE:

PERMANENT POPULATION	=	1,901,856
TRANSIENT POPULATION	=	97,164
TOTAL POPULATION	=	1,999,020
PERMANENT OCCUPIED DU	=	691,447
TRANSIENT DU	=	5,944
TOTAL DU	=	747,391
INDUSTRIAL EMPLOYMENT	=	
COMMERCIAL EMPLOYMENT	=	
SERVICE EMPLOYMENT	=	678,289
TOTAL EMPLOYMENT	=	1,104,788

METRO-DATE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

TRIP GENERATION RATES PER OCCUPIED DWELLING UNIT

		MIAMI MODEL		(1) QRS	(2) ITE
		1986	1990		
HBW		2.02	2.12	1.90	1.80
HBNW	HBSR	1.07	1.10	-	1.10
	HBSR	1.12	1.16	-	1.30
	HBO	1.70	1.79	-	1.80
	SUBTOTAL	3.89	4.05	4.10	4.20
NHB		2.20	2.68	1.60	1.60
TOTAL		8.11	8.85	7.60	7.60

(1) NCHRP REPORT 187, PP. 13-14.
(2) VALUES DERIVED FROM TABLE 10-13, TRANSPORTATION AND TRAFFIC ENGINEERING HANDBOOK, ITE, 1982.

METRO-DATE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRIP GENERATION -- PERCENT BY TRIP PURPOSE

		MIAMI MODEL		(1) QRS	(2) ITE
		1986	1990		
HBW		25%	24%	25%	24%
HBNW	HBSR	13%	12%	-	14%
	HBSR	14%	13%	-	17%
	HBO	21%	20%	-	24%
	SUBTOTAL	48%	45%	54%	55%
NHB		27%	30%	21%	21%

(1) NCHRP REPORT 187, PP. 13-14.
(2) VALUES DERIVED FROM TABLE 10-13, TRANSPORTATION AND TRAFFIC ENGINEERING HANDBOOK, ITE, 1982.

TRIP DISTRIBUTION

METRO-DATE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

TRIP DISTRIBUTION MODEL EQUATION

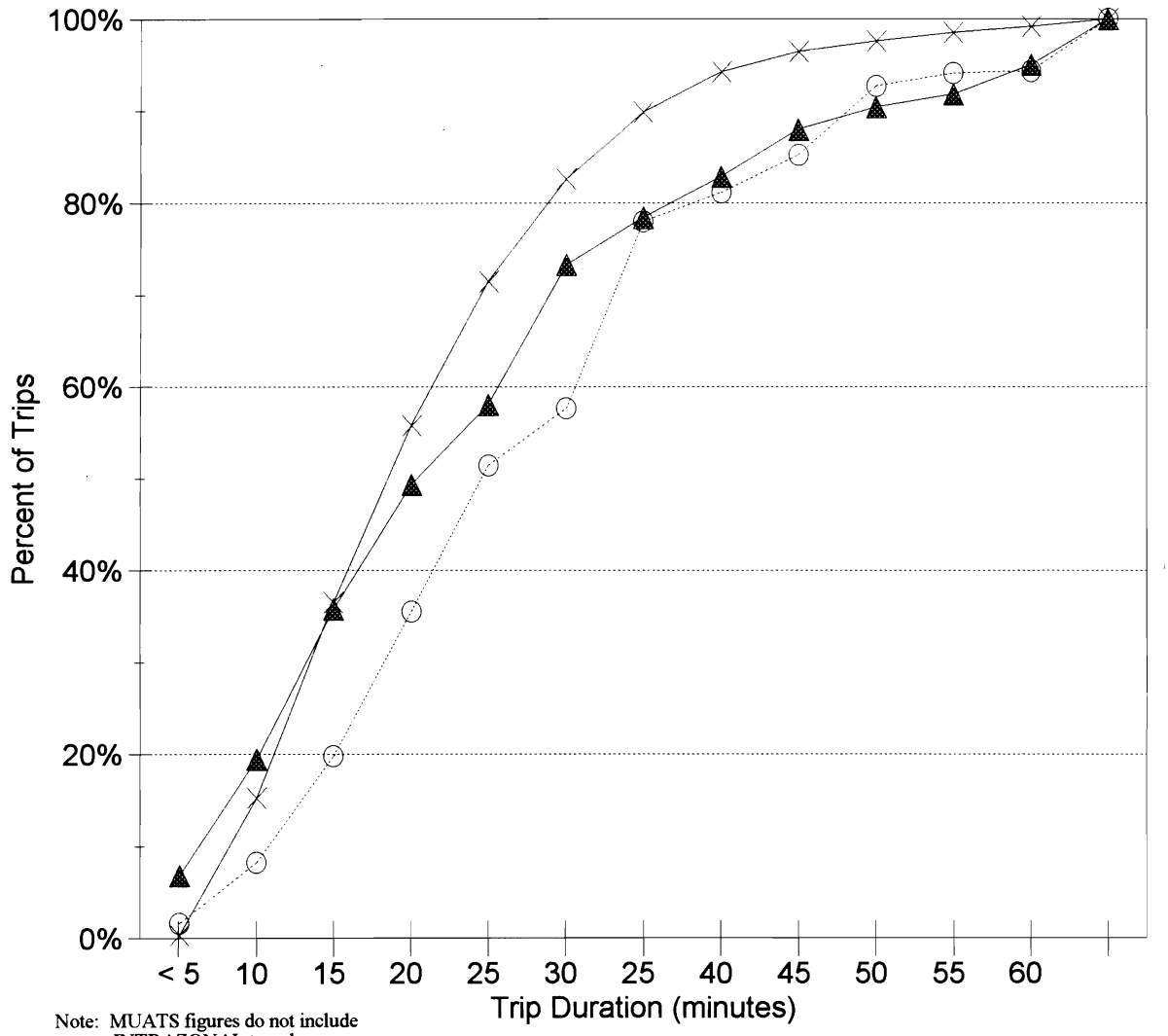
$$T_{ij} = P_i \; A_j \; F_{ij} \; / \sum_{j=1}^{n} A_j \; F_{ij}$$

where:
- T_{ij} = number of trips from zone i to zone j
- P_i = number of trips produced in zone i
- A_j = attractiveness of zone j
- F_{ij} = friction factor for zone i to zone j; and
- n = number of zones within the study area

FRICTION FACTORS							
TRAVEL TIME	HBW	HBSH	HBSR	HBO	NHB	T/T	I/E
1	939180	923732	999945	999884	999201	999735	939180
2	856783	826139	902589	894790	912900	911068	856783
3	774386	728547	805234	789698	826599	822400	774386
4	536427	640954	707878	684605	740297	733733	691989
5	428175	563361	610522	579512	693997	665066	609592
6	406244	485768	513166	474418	667696	576398	527195
7	294855	408176	415810	369325	551395	467731	444798
8	231231	320583	318455	264232	475093	379063	362401
9	190472	252990	221099	159139	358791	290396	280004
10	162004	155098	159610	107363	287390	220315	213643
11	124782	95646	117425	74221	174616	169230	165013
12	103069	74884	87970	52524	110186	131558	128981
13	92012	55804	67054	38013	95420	103468	101994
14	75821	31982	51963	28107	82721	82294	81571
15	71939	19523	40905	21211	75242	66166	65960
16	63588	12388	32683	16322	61656	53759	53911
17	59007	8280	26484	12793	51000	41120	44525
18	51185	7008	21747	10205	42568	33563	37146
19	46454	3516	18081	8275	35840	30583	31295
20	41748	2632	15210	6815	25427	25810	26617
21	38375	1939	12934	5695	18038	21969	22848
22	34775	1257	11109	4824	15552	18853	19789
23	31405	930	9630	4138	13500	16304	17286
24	30033	817	8418	3590	10054	14205	15226
25	265285	790	7415	3148	8012	12463	13520
26	23779	728	6576	2787	7297	11007	12097
27	21090	656	5867	2489	6846	9782	10904
28	19901	623	5261	2240	5611	8745	9899

FRICTION FACTORS							
TRAVEL TIME	HBW	HBSH	HBSR	HBO	NHB	T/T	I/E
29	18478	599	4739	2029	3554	7860	9048
30	16378	580	4284	1848	2143	7100	8324
31	15206	479	3882	1692	1553	6445	7705
32	13944	394	3526	1554	904	5874	7174
33	13236	320	3205	1431	859	5376	6717
34	12092	256	2915	1320	826	4937	6323
35	10627	200	2649	1219	752	4549	5982
36	10502	150	2405	1125	629	4202	5685
37	10098	105	2178	1037	549	3891	5427
38	8977	85	1967	954	505	3611	5202
39	8575	68	1770	874	482	3356	5005
40	8493	54	1586	798	456	3123	4832
41	6865	42	1413	725	423	2908	4680
42	5754	32	1251	654	399	2710	4546
43	5150	24	1100	586	373	2525	4427
44	5076	18	959	521	361	2352	4321
45	4929	12	830	459	283	2190	4226
46	4875	8	711	400	275	2036	4140
47	4572	5	603	345	238	1891	4061
48	4397	0	506	294	190	1752	3987
49	4208	0	419	247	170	1621	3918
50	4032	0	343	205	158	1495	3852
51	3922	0	277	167	133	1374	3788
52	3831	0	221	134	124	1260	3724
53	3720	0	173	106	103	1150	3660
54	3593	0	133	82	97	1046	3594
55	3438	0	101	63	78	947	3526
56	3425	0	76	47	66	853	3454
57	3291	0	55	34	59	764	3378
58	3224	0	40	24	49	680	3297
59	3155	0	28	17	36	603	3211
60	2983	0	19	12	29	530	3119
61	2954	0	13	8	18	463	3022
62	2892	0	9	5	14	402	2918
63	2658	0	6	3	8	346	2808
64	2574	0	4	2	3	295	2691
65	2297	0	2	1	2	250	2570
66	2284	0	1	1	1	210	2443
67	2280	0	1	1	1	175	2311
68	2154	0	1	1	1	144	2176
69	2008	0	1	1	1	117	2038
70	1945	0	1	1	1	95	1898

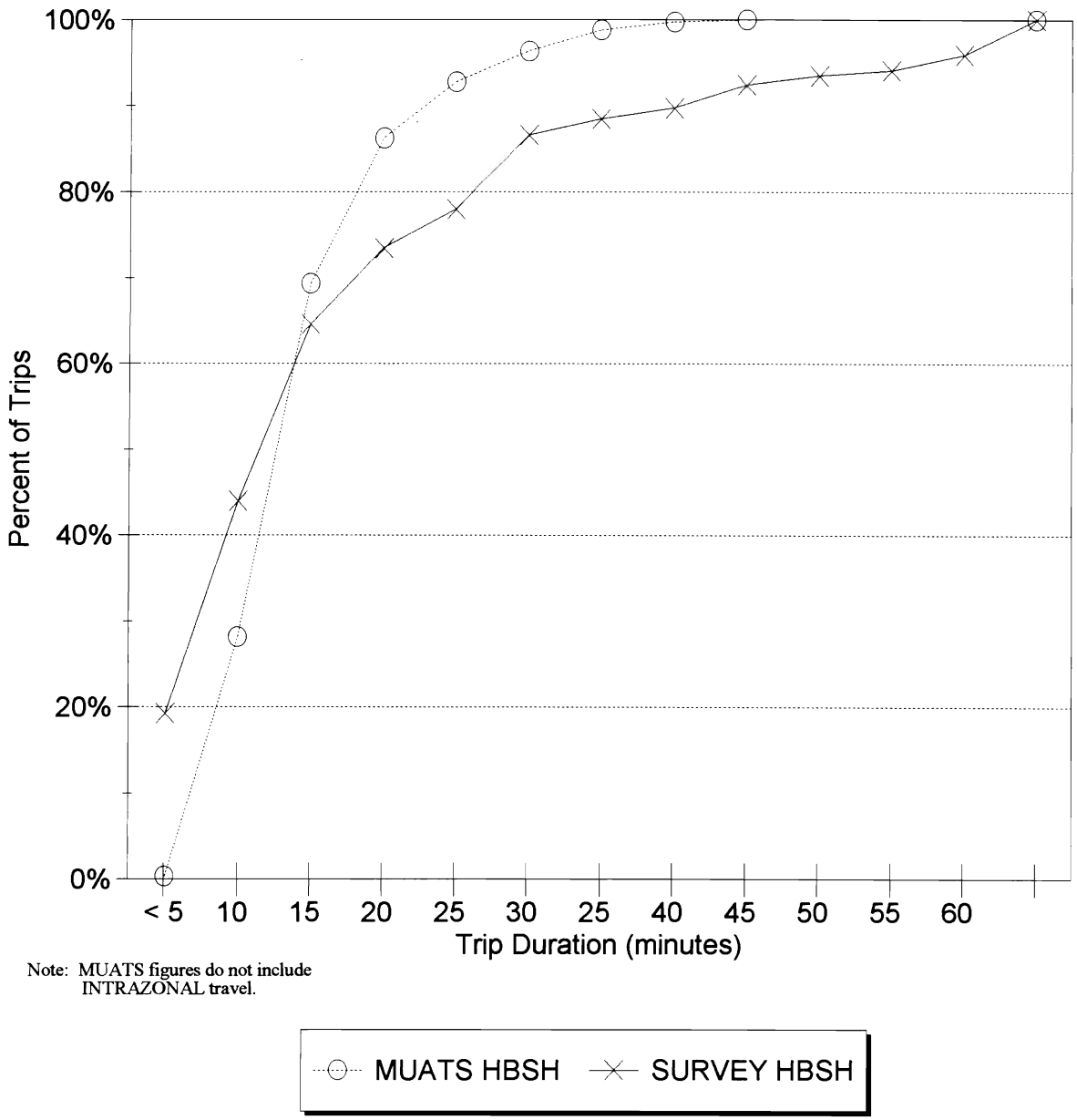
Cumulative Trip Length Distribution
Home-Based Work Auto Trips



Note: MUATS figures do not include INTRAZONAL travel.

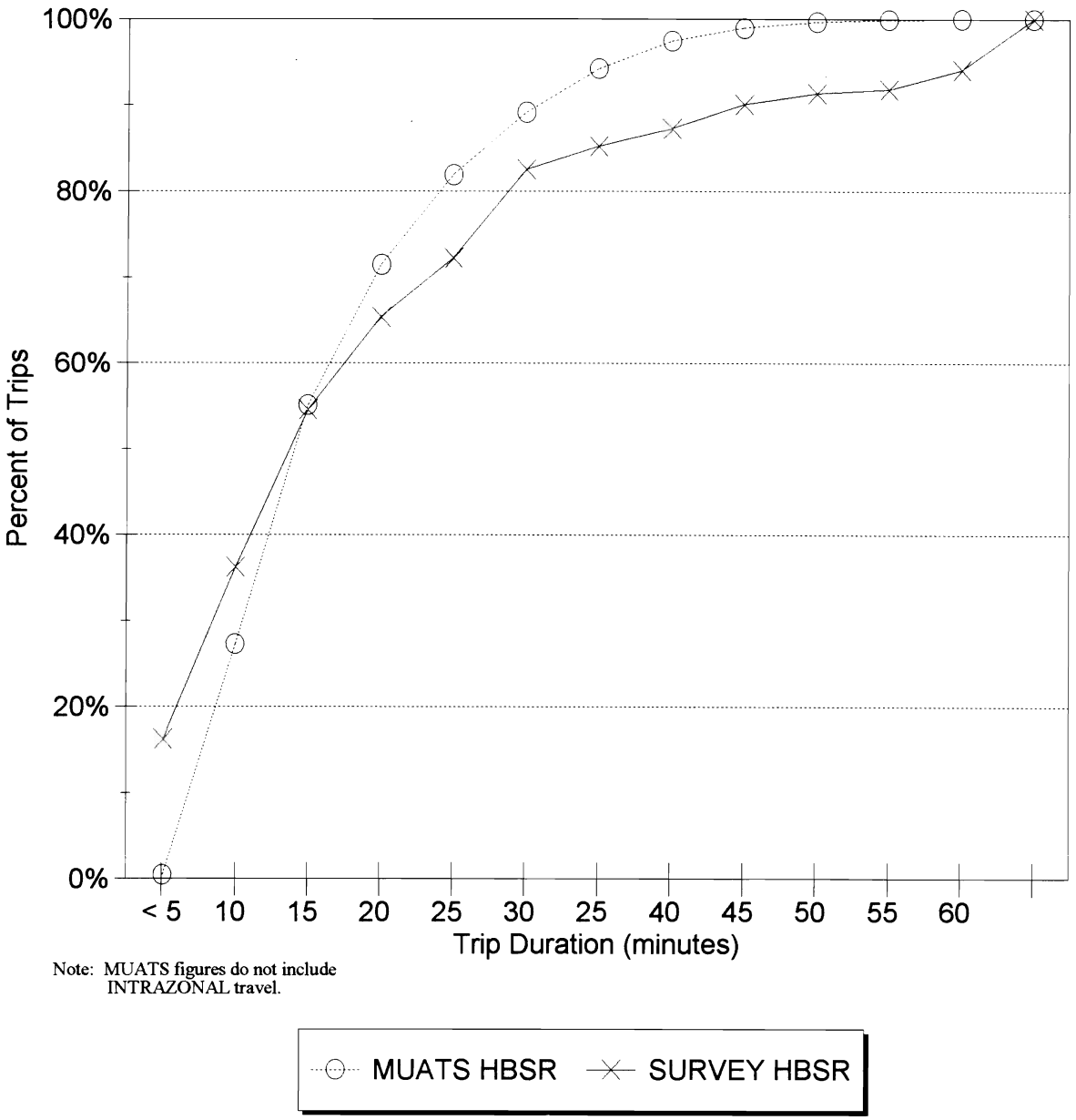
1990 CTPP (avg 24.3) — 1990 MUATS (avg 20.13) — 1994 Survey (avg 21.18 min)

Cumulative Trip Length Distribution
Home-Based Shop Auto Trips



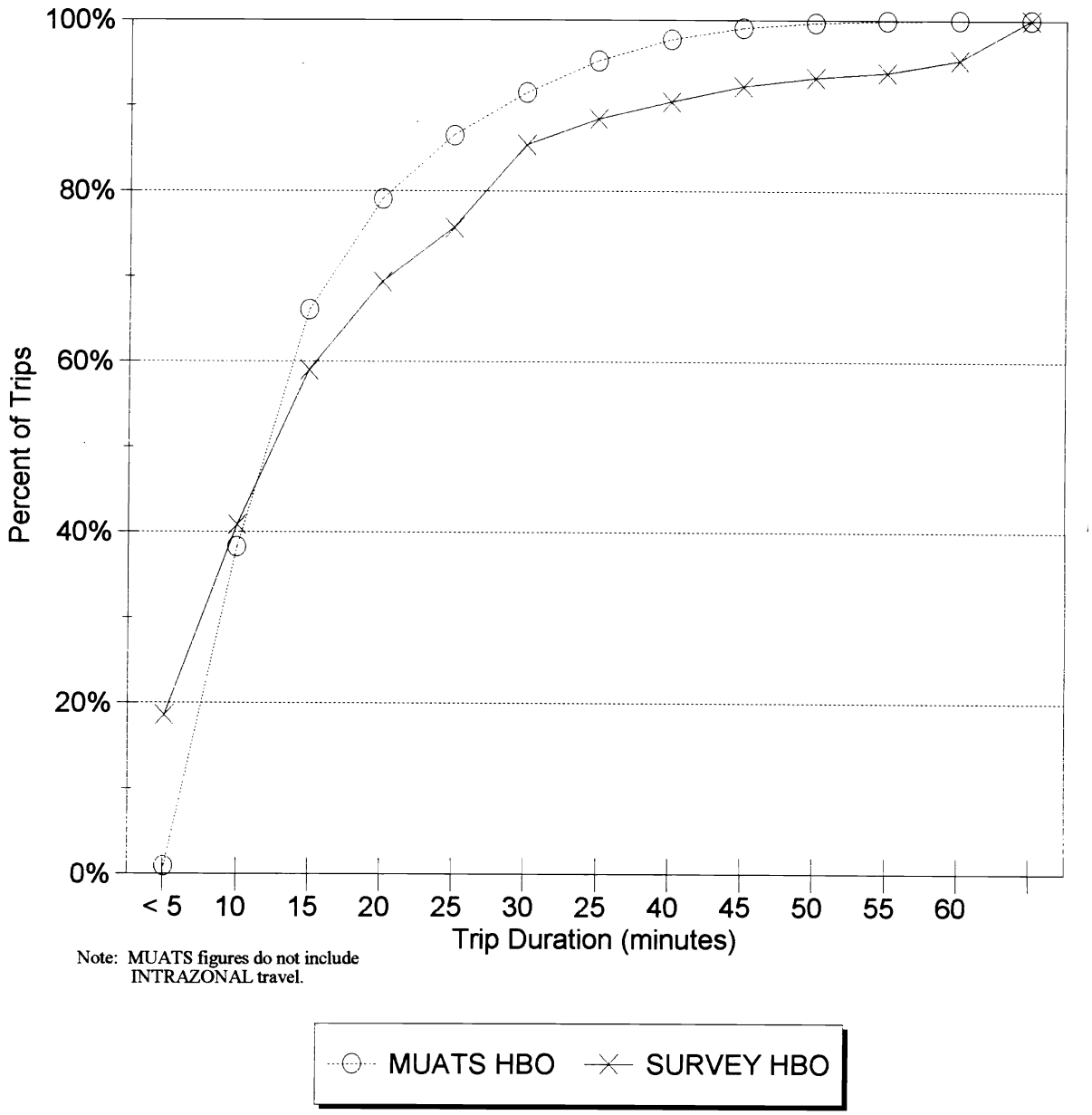
Note: MUATS figures do not include INTRAZONAL travel.

Cumulative Trip Length Distribution
Home-Based Social/Rec Auto Trips



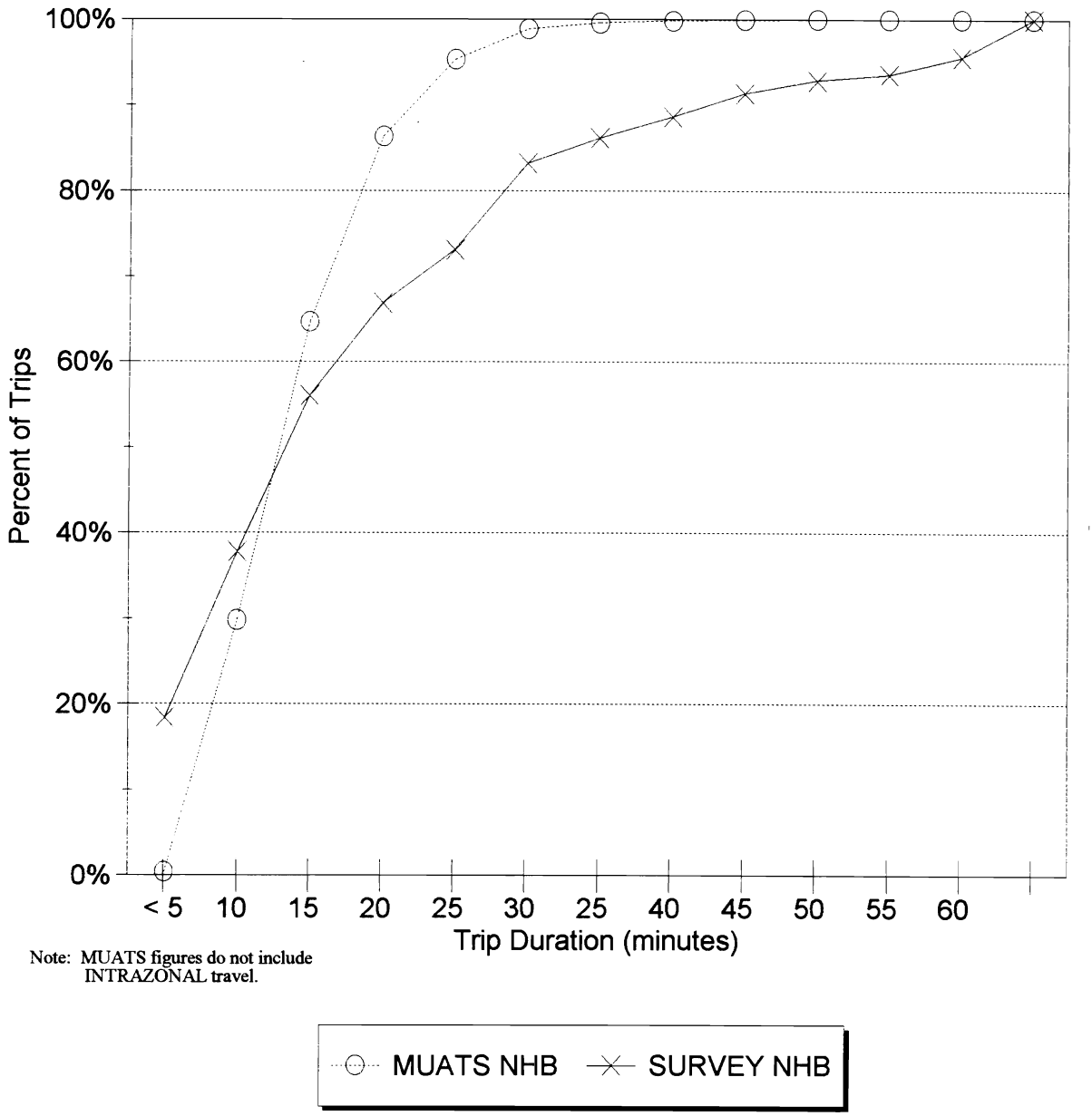
Note: MUATS figures do not include INTRAZONAL travel.

Cumulative Trip Length Distribution
Home-Based Other Auto Trips



Note: MUATS figures do not include INTRAZONAL travel.

Cumulative Trip Length Distribution
Non Home-Based Auto Trips



Note: MUATS figures do not include INTRAZONAL travel.

METRO-DATE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

INTRA ZONAL TRIPS AND TRIP LENGTH BY PURPOSE

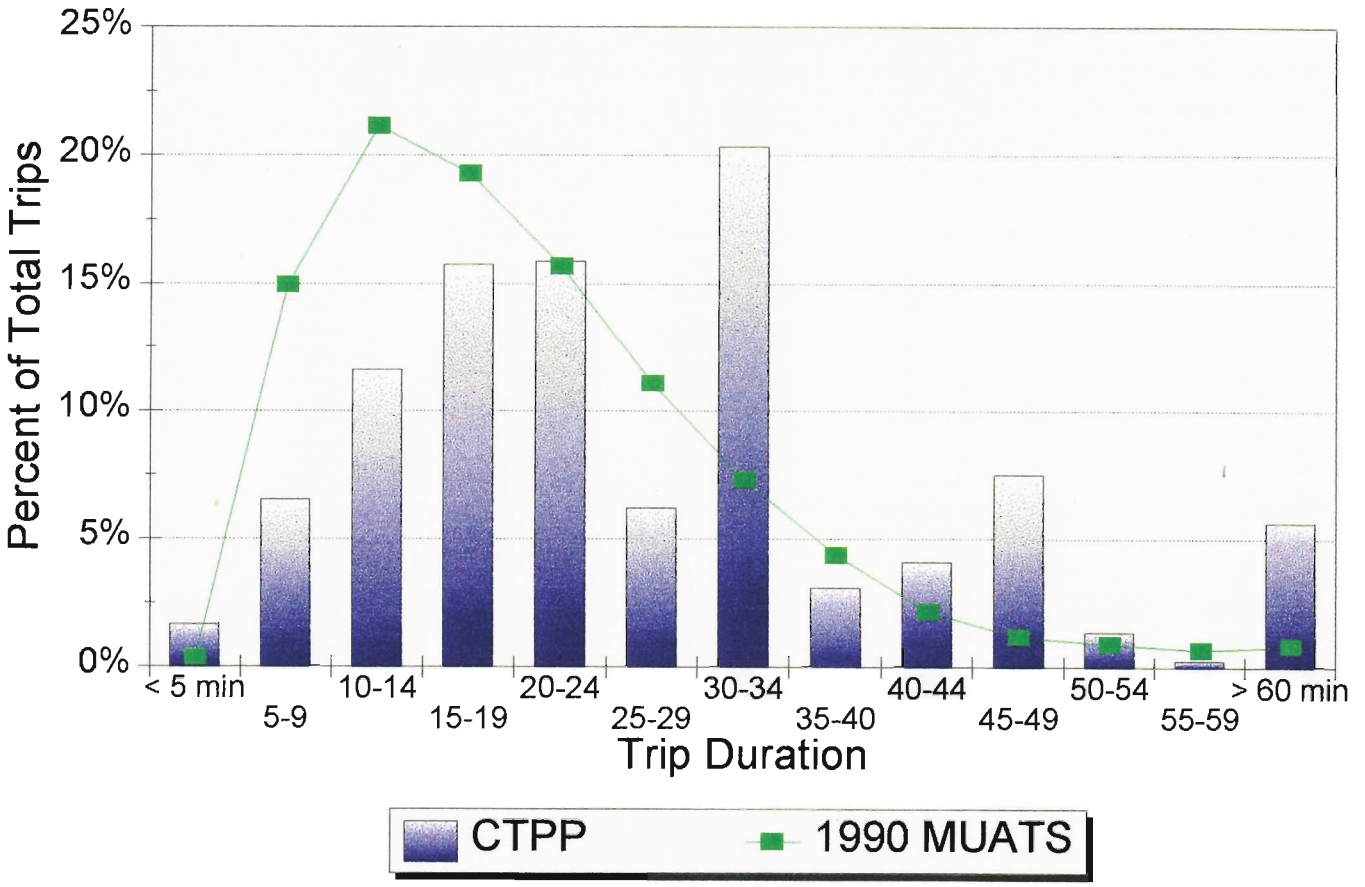
YEAR 1986

	TOTAL PERSON TRIPS	INTRA ZONAL TRIPS		TRIP LENGTH IN MIN.
		TRIPS	PERCENTAGE	
HBW	1,461,700	20,900	1.4	18.3
HBSH	769,000	12,400	1.6	12.0
HBSR	805,000	23,000	2.9	16.2
HBO	1,224,300	48,500	4.0	14.2
NHB	1,589,900	74,300	4.7	13.8
T/T	619,900	23,300	3.8	14.0
I-E	403,400	-	-	-

YEAR 1990

	TOTAL PERSON TRIPS	INTRA ZONAL TRIPS		TRIP LENGTH IN MIN.
		TRIPS	PERCENTAGE	
HBW	1,590,900	20,200	1.3	16.7
HBSH	823,700	8,500	1.0	9.7
HBSR	869,200	23,800	2.7	12.7
HBO	1,335,900	52,800	4.0	11.0
NHB	2,009,100	118,300	5.9	9.0
T/T	728,300	30,500	4.2	10.9
I-E	509,650	-	-	-

Trip Duration Comparison
1990 MUATS Validation



CENSUS DATA

A. Workers traveling between Planning Areas (Raw Data)

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	71,126	38,242	32,992	3,133	3,348	21,943	170,784
GREEN	28,357	50,059	19,606	1,224	2,410	7,175	108,831
RED	28,713	19,231	51,457	1,687	7,477	17,365	125,930
BLUE	12,561	8,345	22,481	33,040	11,738	10,157	98,322
DK BLUE	33,469	23,807	58,462	9,795	36,243	24,144	185,920
YELLOW	31,257	14,941	33,919	1,549	6,259	46,191	134,116
TOTAL	205,483	154,625	218,917	50,428	67,475	126,975	823,903

B. Transposed

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	71,126	28,357	28,713	12,561	33,469	31,257	205,483
GREEN	38,242	50,059	19,231	8,345	23,807	14,941	154,625
RED	32,992	19,606	51,457	22,481	58,462	33,919	218,917
BLUE	3,133	1,224	1,687	33,040	9,795	1,549	50,428
DK BLUE	3,348	2,410	7,477	11,738	36,243	6,259	67,475
YELLOW	21,943	7,175	17,365	10,157	24,144	46,191	126,975
TOTAL	170,784	108,831	125,930	98,322	185,920	134,116	823,903

C. Balanced (summed and factored by .90)

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	128,027	59,939	55,535	14,125	33,135	47,880	338,640
GREEN	59,939	90,106	34,953	8,612	23,595	19,904	237,110
RED	55,535	34,953	92,623	21,751	59,345	46,156	310,362
BLUE	14,125	8,612	21,751	59,472	19,380	10,535	133,875
DK BLUE	33,135	23,595	59,345	19,380	65,237	27,363	228,056
YELLOW	47,880	19,904	46,156	10,535	27,363	83,144	234,982
TOTAL	338,640	237,110	310,362	133,875	228,056	234,982	1,483,025

D. Converted to Percent of Whole Table

	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%	3.11%	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%	3.11%	0.71%	1.85%	5.61%	15.84%
TOTAL	22.83%	15.99%	20.93%	9.03%	15.38%	15.84%	100.00%

1990 MUATS DISTRIBUTION MODEL

A. Raw FSUTMS distributed HBW person Trips

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	147,015	79,419	56,595	1,755	5,758	55,614	346,156
GREEN	71,597	107,286	40,823	1,380	4,265	22,848	248,199
RED	42,052	40,828	92,919	2,737	14,477	38,776	231,789
BLUE	14,808	16,945	28,417	74,332	31,009	22,162	187,673
DK BLUE	33,300	35,266	80,850	27,153	88,434	72,944	337,947
YELLOW	49,879	25,699	46,346	2,814	13,452	100,946	239,136
TOTAL	358,651	305,443	345,950	110,171	157,395	313,290	1,590,900

B. Transposed

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	147,015	71,597	42,052	14,808	33,300	49,879	358,651
GREEN	79,419	107,286	40,828	16,945	35,266	25,699	305,443
RED	56,595	40,823	92,919	28,417	80,850	46,346	345,950
BLUE	1,755	1,380	2,737	74,332	27,153	2,814	110,171
DK BLUE	5,758	4,265	14,477	31,009	88,434	13,452	157,395
YELLOW	55,614	22,848	38,776	22,162	72,944	100,946	313,290
TOTAL	346,156	248,199	231,789	187,673	337,947	239,136	1,590,900

C. Balanced ([A+B]/2)

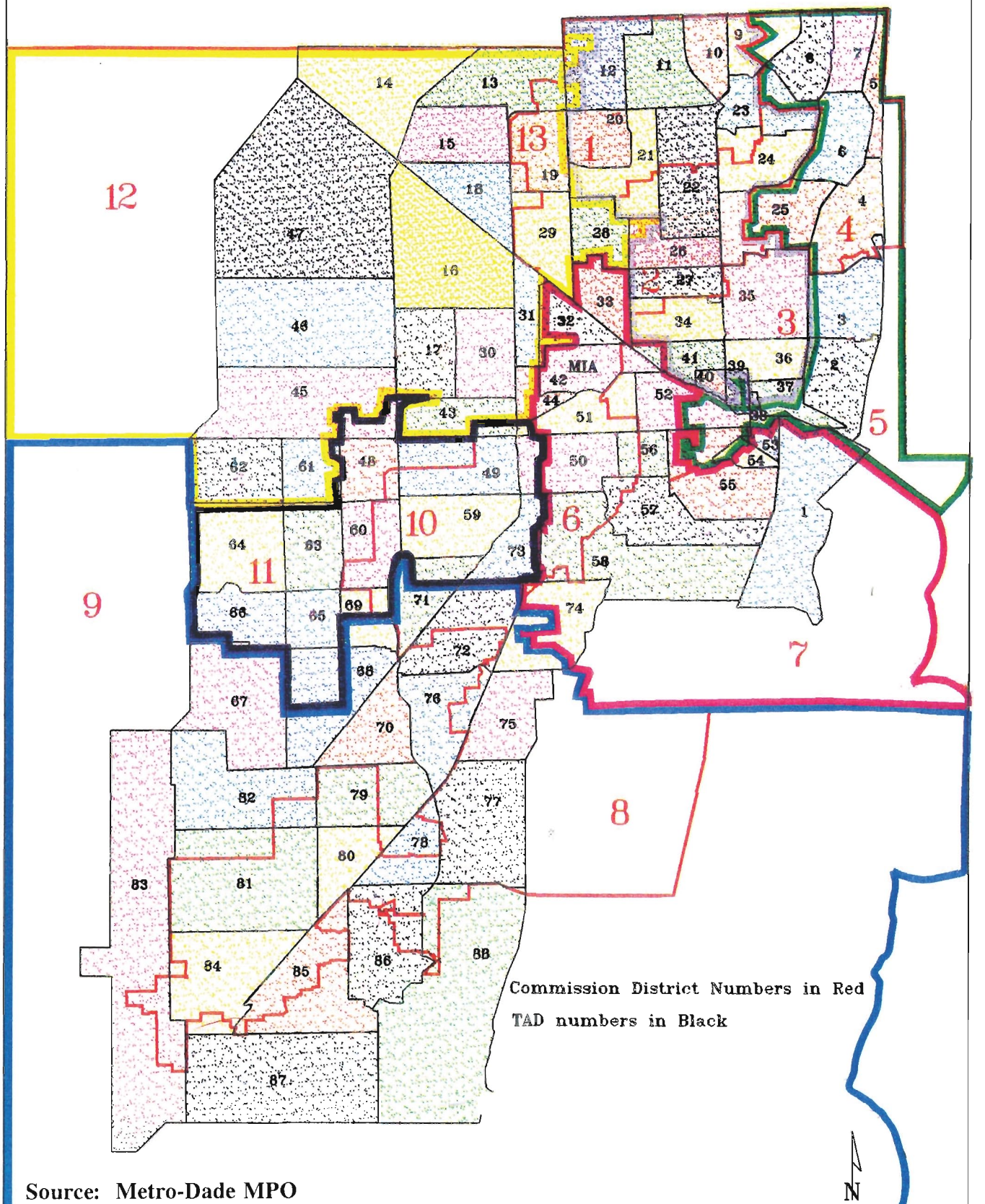
	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	147,015	75,508	49,324	8,282	19,529	52,747	352,404
GREEN	75,508	107,286	40,826	9,163	19,766	24,274	276,821
RED	49,324	40,826	92,919	15,577	47,664	42,561	288,870
BLUE	8,282	9,163	15,577	74,332	29,081	12,488	148,922
DK BLUE	19,529	19,766	47,664	29,081	88,434	43,198	247,671
YELLOW	52,747	24,274	42,561	12,488	43,198	100,946	276,213
TOTAL	352,404	276,821	288,870	148,922	247,671	276,213	1,590,900

D. Converted to Percent of Whole Table

	GREY	GREEN	RED	BLUE	DK BLUE	YELLOW	TOTAL
GREY	9.24%	4.75%	3.10%	0.52%	1.23%	3.32%	22.15%
GREEN	4.75%	6.74%	2.57%	0.58%	1.24%	1.53%	17.40%
RED	3.10%	2.57%	5.84%	0.98%	3.00%	2.68%	18.16%
BLUE	0.52%	0.58%	0.98%	4.67%	1.83%	0.78%	9.36%
DK BLUE	1.23%	1.24%	3.00%	1.83%	5.56%	2.72%	15.57%
YELLOW	3.32%	1.53%	2.68%	0.78%	2.72%	6.35%	17.36%
TOTAL	22.15%	17.40%	18.16%	9.36%	15.57%	17.36%	100.00%

YEAR 2015 TRANSPORTATION PLAN
AREAS OF ANALYSIS

TADs Aggregated by County Commission Districts



Commission District Numbers in Red

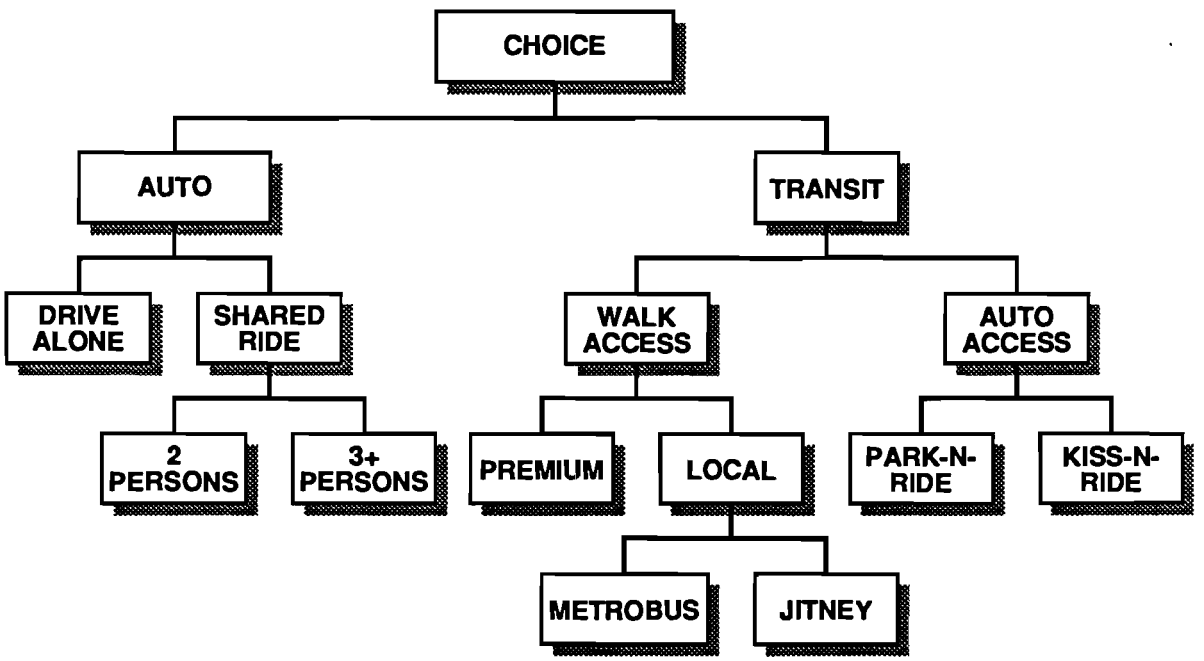
TAD numbers in Black

Source: Metro-Dade MPO

NESTED LOGIT MODEL

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MODE CHOICE MODEL NESTING STRATEGIES



HOME-BASED WORK (HBW) MODEL COEFFICIENTS

In-Vehicle Time (IVT). The range of coefficients calibrated and/or estimated for in-vehicle time in the past is between -0.015 to -0.03. The Minneapolis model has a coefficient of -0.017 for the in-vehicle time. The Florida standard model has a coefficient of -0.015. A coefficient of -0.02 has been assumed for the SE regional HBW model.

Out of Vehicle Time (OVT). Usually, the OVT coefficient represents walk, first wait and transfer wait times. For the purpose of being consistent with the Minneapolis model specification, the first wait component of the OVT is assumed to have separate coefficients -- i.e., for the first wait times of less than and greater than 7 minutes. Furthermore, auto access time is also assumed to have a similar coefficient to that of OVT coefficient. The range of OVT coefficients (based on models calibrated and /or estimated in the past in the US) is usually between 2.0 to 3.0 times of the IVT coefficient. This ratio is 4.4 in the Minneapolis model and 5.3 in the Florida standard model. A more conservative ratio of 2.5 (between OVT and IVT coefficients) which results in an OVT coefficient of -0.05 has been assumed for the SE regional HBW model.

First Wait (> 7 min.). The relative ratio between the coefficients for the "First Wait" variables (i.e., > 7 and < 7 minutes) from the Minneapolis model is used to determine the "First Wait" coefficient for the wait time of greater than 7 minutes. The resulting ratio which is 0.2 (i.e., 0.015/0.0747) times -0.05 (OVT coefficient) provides a coefficient of -0.011 for the "First Wait" of greater than 7 minutes in the SE regional HBW model.

Costs. The parking costs coefficients in the Minneapolis and Florida standard models are respectively twice and four times of other cost (i.e., fares and auto operating costs) coefficients. For the SE regional model all cost coefficients are assumed to be equal. Furthermore, it is also assumed that the implied value of time (in the SE regional model) should be 40 percent of average wage rate in the HBW model and 30 percent of average wage rate in the HBO and NHB models. The formulae for determination of cost coefficients are as follows:

(1) Cost Coeff (In-Vehicle Time Coefficient) (0.6) / (0.4 x Avg. Wage Rate) (HBW Model)

(2) Cost Coeff (In-Vehicle Time Coefficient) (0.6) / (0.3 x Avg. Wage Rate) (HBO and NHB Models)

The average wage rate was estimated based on 1990 annual average household income values in Dade, Broward, and Palm Beach Counties. The weighted average annual household income is about $21,700 for these three counties. The average hourly wage rate is thus about $10.50. Using the equation (1) in conjunction with average wage rate, the cost coefficient in the HBW model becomes -0.0029.

Formal Park-and-Ride. Further discussions are required to determine the initial value for this variable for the SE regional model.

Dummy and Density Variables. Further discussions are required to determine initial values for these variables (e.g., CBD Dummies). Also, we need to discuss how many of these variable should be used in the SE regional model.

Modal Constants. Modal constants will be determined based on the aggregate magnitude of trips by each mode for the base year conditions. These aggregate values are required by car ownership class as specified in the Minneapolis mode choice model.

HOME-BASED OTHER (HBO) MODEL COEFFICIENTS

In-Vehicle Time (IVT). The IVT coefficient for HBO is determined based on multiplication of the IVT for HBW (i.e., -0.02) times relative ratio of the IVT coefficients from the Minneapolis HBO and HBW models. This produces an IVT coefficient of -0.01 (i.e., -0.02 x (0.0081/0.0171)) for the SE regional HBO model.

Out of Vehicle Time (OVT). Similar to the HBW model, the OVT coefficient is assumed to be 2.5 times of the IVT coefficient. This produces an OVT coefficient of -0.025.

First Wait (> 7 min.). The relative ratio between the coefficients for the "First Wait" variables (i.e., > 7 and < 7 minutes) from the Minneapolis model is used to determine the "First Wait" coefficient for the wait time of greater than 7 minutes. The resulting ratio which is 2.69 (i.e., 0.0872/0.0324) times -0.025 provides a coefficient of -0.07 for the "First Wait" of greater than 7 minutes in the SE regional HBO model.

Costs. Cost coefficients are the same in the Minneapolis HBO model. they are different, however, in the Florida standard model with parking cost coefficient being over three times of other costs (i.e., fares and auto operating costs) coefficients. For the SE regional model all cost coefficients are assumed to be equal. As discussed before, cost coefficient was determined based on an implied value of time from HBO model. Using the equation (2) in conjunction with average wage rate, the cost coefficient becomes -0.0019.

Formal Park-and-Ride. Further discussions are required to determine the initial value for this variable for the SE regional model.

Dummy and Density Variables. Further discussions are required to determine initial values for these variables (e.g., CBD Dummies). Also, we need to discuss how many of these variable should be used in the SE regional HBO model, if any.

Modal Constants. Modal constants will be determined based on the aggregate magnitude of trips by each mode for the base year conditions. These aggregate values are required for each car ownership class as specified in the Minneapolis mode choice model.

NON-HOME-BASED (NHB) MODEL COEFFICIENT

In-Vehicle Time (IVT). The IVT coefficient for NHB is assumed to be the same as that of HBO (i.e., -0.01). Note that the IVT coefficients in the Minneapolis HBO and NHB models are the same.

Out of Vehicle Time (OVT). Similar to the HBW model, the OVT coefficient is assumed to be 2.5 times of the IVT coefficient. This produces an OVT coefficient of -0.025.

First Wait (> 7 min.). The relative ratio between the coefficients for the "First Wait" variables (i.e., > 7 and < 7 minutes) from the Minneapolis NHBNW model is used to determine the "First Wait" coefficient for the wait time of greater than 7 minutes. The resulting ratio which is 1.94 (i.e., 0.0478/0.0251) times -0.025 provides a coefficient of -0.05 for the "First Wait" of greater than 7 minutes in the SE regional NHB model.

Costs. Cost coefficients are the same in the Minneapolis NHB model. they are different, however, in the Florida standard model with parking cost coefficient being over five times of other costs (i.e., fares and auto operating costs) coefficients. For the SE regional model all cost coefficients are assumed to be equal. As discussed before, cost coefficient was determined based on an implied value of time from NHB model. Using the equation (2) in conjunction with average wage rate, the cost coefficient becomes -0.0019.

Dummy and Density Variables. Further discussions are required to determine initial values for these variables (e.g., CBD Dummies). Also, we need to discuss how many of these variable should be used in the SE regional NHB model, if any.

Modal Constants. Modal constants will be determined based on the aggregate magnitude of trips by each mode for the base year conditions. These aggregate values are required for each car ownership class as specified in the Minneapolis mode choice model.

Table 1
SUGGESTED PRELIMINARY MODE CHOICE MODELS COEFFICIENTS FOR SE REGIONAL MODEL
(In Multinomial Logit Form)

	HBW			HBO			NHBW	NHBNW	NHB	
Variable Name	Minneapolis Model*	Standard Model	Suggested	Minneapolis Model	Standard Model	Suggested	Minneapolis Model	Minneapolis Model	Standard Model	Suggested
In-Vehicle/Run Time	-0.0171	-0.0150	-0.0200	-0.0081	-0.0100	-0.0100	-0.0074	-0.0063	-0.0100	-0.0100
Walk Time	-0.0747	-0.0800	-0.0500	-0.0324	-0.0850	-0.0250	-0.0295	-0.1172	-0.1200	-0.1000
Highway Out of vehicle Time	-0.0747		-0.0500	-0.0324		-0.0250	-0.0295	-0.0251		-0.0250
First Wait (<7min)	-0.0747	-0.1400	-0.0500	-0.0324	-0.0600	-0.0250	-0.0295	-0.0251	-0.0300	-0.0250
First Wait (>7min)	-0.0150	-0.1400	-0.0110	-0.0872	-0.0600	-0.0700	-0.0295	-0.0478	-0.0300	-0.0500
Transfer Time	-0.0747		-0.0500	-0.0305		-0.0250	-0.0295	-0.0099		-0.0250
Number of Transfers	0.0000		0.0000	-0.1397		0.0000	-0.2015	-0.7584		0.0000
Auto-Access Time	-0.0747		-0.5000	-0.0853		-0.0250	0.0000	0.0000		-0.0250
Transit Fare	-0.0016	-0.0050	-0.0029	-0.0013	-0.0030	-0.0019	-0.0014	-0.0011	-0.0020	-0.0019
Parking Cost	-0.0033	-0.0200	-0.0029	-0.0013	-0.0100	-0.0019	-0.0014	-0.0011	-0.0100	-0.0019
Auto Operating Costs	-0.0016	-0.0050	-0.0029	-0.0013	-0.0030	-0.0019	-0.0014	-0.0011	-0.0020	-0.0019
Formal P&R Lot Dummy	0.2703		(?)	0.7144		(?)				
Minn (or Miami) CBD Dummy (t)	0.8892		1.0000	2.0400			1.3720	3.1190		
St. Paul (or Palm Beach)CBD Dummy (t)	0.6254		0.7500	1.6890			1.2250	2.0440		
Ft. Lauderdal CBD Dummy(t)			0.5000							
Outlying CBD Dummy (t)	-2.6544			0.2284			-0.0868	-0.4423		
Emp. Density (t)	0.0020			0.0040						
Minn (or Miami)CBD Dummy (sr)	0.3904		0.7500	-0.0407			0.1423	-0.0328		
St. Paul(or Palm Beach) CBD Dummy (sr)	0.5889		0.5000	0.1102			-0.1502	0.1502		
Ft. Lauderdale CBD Dummy(sr)			0.4000							
Outlying CBD Dummy (sr)	-0.2556			0.0575			-0.0242	-0.0023		
Residential Density (sr)				-0.0145						
Transit Log Sum Coeff	0.4867									

* "Calibration of the Mode Choice Models for the Mineapolis St. Paul Region," Draft Report Prepared by PBQ&D, Inc. September 1993.

LEGENDS: (t) for transit mode, and (sr) for shared ride mode.

NOTE:

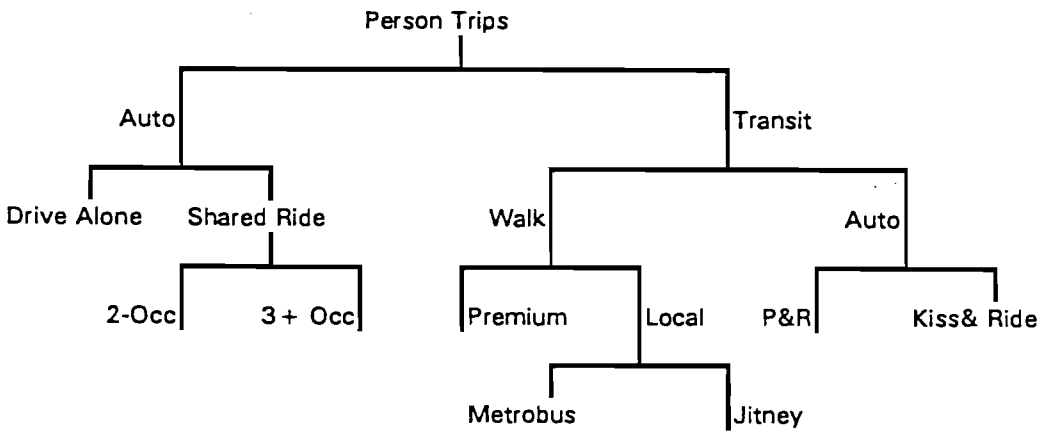
Distance, time, and cost are in miles, minutes and cents, respectively.

DRAFT PROCEDURES FOR CALIBRATION OF MODAL CONSTANTS IN A NESTED LOGIT MODE CHOICE MODEL USING AGGREGATE TRIPS

(June 23, 1994)

A worksheet has been prepared for calibration (and not statistical estimation) of modal constants in a nested logit mode choice model structure. The mode choice model structure for the SE Regional Model in Florida is assumed to be comparable to the nested mode choice model structure developed for the Miami metropolitan area by KPMG Peat Marwick (1992). The Miami home-based work (HBW) mode choice model structure is shown in Figure 1.

Figure 1: Miami Mode Choice Model Nested Structure (Developed by KPMG Peat Marwick, 1992)



Using the above structure for HBW trips, seven modal constants would need to be calibrated using observed and estimated aggregate trips. They are defined as follows:

1. Constant for the shared ride nest describing 2 vs. 3+ occupant auto trips -- enter constant in the utility of 3+occupant shared ride [note that it does not matter in which utility modal constant enters under a nest];

2. Constant for the auto ride nest describing drive alone vs. shared ride (i.e., 2+ occupant auto trips) -- enter constant in the utility of shared ride;

3. Constant for the primary split between auto and transit modes -- enter constant in the utility of primary transit mode;

4. Constant for the transit nest describing walk vs. auto -- enter constant in the utility of auto access to transit;

5. Constant for the auto-access to transit nest describing Park-and-Ride vs. Kiss-and-Ride -- enter constant in the utility of Kiss-and-Ride to transit;

6. Constant for the walk-access to transit nest describing Premium vs. Local -- enter constant in the utility of walk to Premium transit; and

7. Constant for the walk-access to local transit nest describing Metrobus vs. Jitney -- enter constant in the utility of Jitney.

The worksheet can be easily modified to implement procedures required for calibration of modal constants under other trip purposes with a nested logit model form. Following is the process used to derive a simple formula for calibration of modal constant in a nested logit model. For the ease of presentation, assume a nest comprising primary auto and transit modes. The standard logit model equation is:

$$(1) \quad P_a = \frac{\exp(U_a)}{\exp(U_a) + \exp(U_t)}$$

where,

P_a = estimated share of auto mode.

U_a = utility of auto mode.

U_t = utility of transit mode inclusive of modal constant, C.

Note that we can decompose U_t into $U_{t'}$ (all explanatory variables) and C (modal) constant:

$$(2) \quad U_t = U_{t'} + C$$

Substitute Equation (2) into (1) for $U_{t,,}$

$$(3) \quad P_a = \frac{\exp(U_a)}{\exp(U_a) + \exp(U_{t'} + C)}$$

or,

$$(4) \quad P_a = \frac{\exp(U_a)}{\exp(U_a) + \exp(U_{t'}) \times \exp(C)}$$

Divide both numerator and denominator of the right hand side of Equation (4) by $[\exp(U_a) + \exp(U_t)]$, then Equation (4) becomes:

$$(5) \quad P_a = \frac{P_a}{P_a + P_t \times \exp(C)}$$

The idea here is to have the estimated and observed aggregate modal shares as comparable (close) as possible, then:

$$(6) \quad Pa = \frac{OBS_a \text{ (observed auto trips)}}{OBS_a + OBS_t \text{ (observed transit trips)}}$$

or,

$$(7) \quad \frac{OBS_a}{OBS_a + OBS_t} = \frac{P_a}{P_a + P_t \times \exp(C)}$$

In Equation (7), estimated shares of auto (P_a) and transit (P_t) can be expressed in terms of aggregate number of estimated trips for these two modes, i.e.,

$$(8) \quad P_a = \frac{\text{est. auto trips}}{\text{est. auto trips} + \text{est. transit trips}}$$

and,

$$(9) \quad P_t = \frac{\text{est. transit trips}}{\text{est. auto trips} + \text{est. transit trips}}$$

Note that an initial set of modal constants (e.g., borrowing modal constants from the Miami nested logit models) is required to run the SE Regional Model for the purpose of generating aggregate trip estimates. Expressions (8) and (9) are substituted into Equation (7); and exp(C) can be deduced as follows:

$$(10) \quad \exp(C) = \frac{\text{est. auto trips} \times OBS_t}{OBS_a \times \text{est. transit trips}}$$

or,

$$(11) \quad C_{i=1} \text{ (Constant)} = LN\left[\frac{\text{est. auto trips} \times OBS_t}{OBS_a \times \text{est. transit trips}}\right]$$

For subsequent iterations, one should take advantage of modal constants calibrated in an earlier iteration. Equation (11) is modified below to reflect information from an earlier iteration:

$$(12)\quad C_{i=2,..\,n}\ (\text{Constant}) = LN\left\{\left[\frac{\text{est. auto trips} \times OBS_t}{OBS_a \times \text{est. transit trips}}\right] \times \exp(C_{i=1,...n-1}\right\}$$

Equation (12) provides estimate of a modal constant under any given nested logit structure with only two modes or submodes under each nest. All the nestings shown in Figure 1 are in binary form. Therefore, Equation (12) is applicable for estimating modal constants under all nests shown in Figure 1. Usually, more than one iteration is required.

The input requirements for application of Equation (12) are:

- Base year observed aggregate person trips by mode and car ownership classification (i.e., 0, 1 and 2+);

- Initial modal constants (e.g., using modal constants from the Miami nested logit model); and

- Base year estimated aggregate person trips by mode and car ownership classification using the SE Regional Model based on calibrated modal constants from each iteration of Equation (12).

The process of using Equation (12) is repeated until the difference between the observed and estimated trips from the SE Regional Model become negligible.

Worksheets containing the above procedures (based on sample data) are included in Appendix A.

APPENDIX A

- Worksheets Containing Procedures for Calibrating Modal Constants in a Nested Mode Choice Model Structure

PROCEDURES FOR CALIBRATION OF MODAL CONSTANTS FOR A NESTED LOGIT MODE CHOICE MODEL USING AGGREGATE TRIPS
(REF: SE REGIONAL MODEL IN FLORIDA, June 23, 1994)

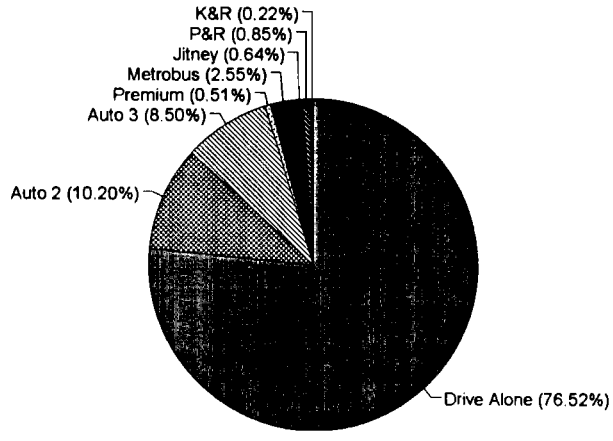
INSTRUCTIONS:

This worksheet includes procedures for calibration of modal constants required in the proposed nested logit model structure for the SE REGIONAL MODEL IN FLORIDA. The primary inputs are the base year observed aggregate person trips (see Table 1) and the initial estimates of modal constants (e.g., modal constants from the Miami nested logit model). The set-up also requires aggregate trip estimates (see Table 3). The aggregated person trip estimates must come from a run of the SE Regional Model using modal constants from a previous iteration. Usually, a number of iterations is required until modal constants are calibrated as illustrated below:

Step 1 - Prepare values for Tables 1 and 2.
Step 2 - Use modal constants (Table 2) and run the SE Reigional Model for the initial trip estimates.
Step 3 - Fill in Table 3 with the resulting person trip estimates from the SE Regional Model.
Step 4 - Update modal constants using this worksheet (Table 4) and rerun the SE Regional Model.
Step 5 - Fill in Table 3 with results from the new run of the SE Regional Model.
Step 6 - Check the difference between the observed and estimated person trips (from last iteration) in Table 5.
Step 7 - Iterate between Steps 3 through 6 until the difference between the observed and estimated trip aggregates are negligible.

6/30/94- Change made by Wade, values in cells have been modified to base nests on summation of subnests. Only input values required for this spreadsheet are in the shaded cells. All else is formula driven.

HBW Mode Shares



INPUT DATA REQUIREMENTS:

Table 1- Fill In Base Year Observed Person Trips for each Mode/Submode

	TOTAL (AUTO + TRANSIT)	PRIMARY AUTO MODE	Auto Submodes: drive alone	shared ride	auto 2-occ	auto 3+ occ	PRIMARY TRANSIT MODE	Transit Submodes: walk	premium	local	metrobus	jitney	auto	p&r	k&r
Zero Car	223,930	212,900	168,900	44,000	25,900	18,100	11,030	8,700	1,400	7,300	5,800	1,500	2,330	1,850	480
One Car	1,343,100	1,277,400	1,013,400	264,000	155,200	108,800	65,700	51,800	8,400	43,400	34,700	8,700	13,900	11,000	2,900
Two+ Car	671,500	638,700	506,700	132,000	77,600	54,400	32,800	25,900	4,200	21,700	17,300	4,400	6,900	5,500	1,400
Total	2,238,530	2,129,000	1,689,000	440,000	258,700	181,300	109,530	86,400	14,000	72,400	57,800	14,600	23,130	18,350	4,780
Percent Modal Share		95.11%	75.45%	19.66%	11.56%	8.10%	4.89%	3.86%	0.63%	3.23%	2.58%	0.65%	1.03%	0.82%	0.21%

Table 2: Initial Modal Constants Required to Estimate Initial Base Year Trips (See Table 3)

	PRIMARY AUTO MODE	Auto Submodes: drive alone	shared ride	auto 2-occ	auto 3+ occ	PRIMARY TRANSIT MODE	Transit Submodes: walk	premium	local	metrobus	jitney	auto	p&r	k&r
Zero Car			0.063300		0.172000	0.026000		(0.189000)			0.003850	0.073000		0.004800
One Car			0.063300		0.172000	0.026000		(0.189000)			0.003850	0.073000		0.004800
Two+ Car			0.063300		0.172000	0.026000		(0.189000)			0.003850	0.073000		0.004800

ESTIMATION OF MODAL CONSTANTS:

Table 3: Fill in Base Year Person Trip Estimates from each Iteration (Model Outputs – SE Reional Model Runs 1,2,3,... n)

	TOTAL (AUTO + TRANSIT)	PRIMARY AUTO MODE	Auto Submodes				PRIMARY TRANSIT MODE	Transit Submodes							
			drive alone	shared ride	auto 2-occ	auto 3+ occ		walk	premium	local	metrobus	jitney	auto	p&r	k&r
Zero Car	235,200	224,000	180,000	44,000	24,000	20,000	11,200	8,700	1,200	7,500	6,000	1,500	2,500	2,000	500
One Car	1,411,300	1,344,000	1,080,000	264,000	144,000	120,000	67,300	52,200	7,200	45,000	36,000	9,000	15,100	12,000	3,100
Two+ Car	705,700	672,000	540,000	132,000	72,000	60,000	33,700	26,100	3,600	22,500	18,000	4,500	7,600	6,000	1,600
Total	2,352,200	2,240,000	1,800,000	440,000	240,000	200,000	112,200	87,000	12,000	75,000	60,000	15,000	25,200	20,000	5,200
Percent Modal Share		95.23%	76.52%	18.71%	10.20%	8.50%	4.77%	3.70%	0.51%	3.19%	2.55%	0.64%	1.07%	0.85%	0.22%

Table 4: Modal Constants Updated after.each Iteration of this Worksheet

	PRIMARY AUTO MODE	Auto Submodes				PRIMARY TRANSIT MODE	Transit Submodes							
		drive alone	shared ride	auto 2-occ	auto 3+ occ		walk	premium	local	metrobus	jitney	auto	p&r	k&r
Zero Car			**0.126950**		**-0.004009**	**0.061529**		**-0.007821**			**0.037752**	**0.002578**		**0.041940**
One Car			**0.126950**		**-0.000882**	**0.052762**		**0.001354**			**0.006728**	**-0.002114**		**0.025120**
Two+ Car			**0.126950**		**-0.000882**	**0.049754**		**0.001354**			**0.021042**	**-0.015934**		**-0.041720**

Table 5: Difference between Observed and Estimated Person Trips (Table 1 minus Table 3)

	TOTAL (AUTO + TRANSIT)	PRIMARY AUTO MODE	Auto Submodes				PRIMARY TRANSIT MODE	Transit Submodes							
			drive alone	shared ride	auto 2-occ	auto 3+ occ		walk	premium	local	metrobus	jitney	auto	p&r	k&r
Zero Car	(11,270)	(11,100)	(11,100)	0	1,900	(1,900)	(170)	0	200	(200)	(200)	0	(170)	(150)	(20)
One Car	(68,200)	(66,600)	(66,600)	0	11,200	(11,200)	(1,600)	(400)	1,200	(1,600)	(1,300)	(300)	(1,200)	(1,000)	(200)
Two+ Car	(34,200)	(33,300)	(33,300)	0	5,600	(5,600)	(900)	(200)	600	(800)	(700)	(100)	(700)	(500)	(200)
Total	(113,670)	(111,000)	(111,000)	0	18,700	(18,700)	(2,670)	(600)	2,000	(2,600)	(2,200)	(400)	(2,070)	(1,650)	(420)

FLORIDA URBAN TRANSPORTATION PLANNING MODE CHOICE MODEL

Nested Logit Model Summary Results

Person Trip Totals for Home-Based Work

		Highway Trips			Transit Trips					
	Person Trips	Drive Alone	One Passenger	Two+ Passengers	Walk to Local	Walk to Jitney	Walk to Premium	Park-Ride	Kiss-Ride	Total Transit
Zero Car Households	116712.5	27978.9	32138.8	13297.0	24557.3	9268.0	9260.1	122.9	89.6	43297.8
One Car Households	527881.4	285309.4	155983.5	49214.7	18381.9	7282.6	7419.0	2319.4	1970.9	37373.8
Two+ Car Households	946306.1	718068.4	154037.8	49696.8	8904.9	3025.1	3590.5	5408.0	3574.5	24503.0
TOTAL	1590900.0	1031356.8	342160.1	112208.5	51844.1	19575.6	20269.5	7850.4	5635.0	105174.6
Short Walk-Short Walk	1135849.4	719589.3	244493.5	79608.4	46651.1	18255.6	18112.2	5233.1	3906.1	92158.2
Short Walk-Long Walk	53090.1	35144.8	12333.9	3528.1	1280.8	311.4	296.3	104.2	90.6	2083.2
Long Walk-Short Walk	246359.5	167539.3	51840.8	17382.2	3763.6	991.7	1820.9	1810.1	1210.9	9597.1
Long Walk-Long Walk	15930.6	11138.7	3513.6	1003.2	148.6	17.0	40.1	37.6	31.8	275.1
Auto Only-Short Walk	67369.9	47198.0	13905.7	5228.7	.0	.0	.0	652.6	385.0	1037.6
Auto Only-Long Walk	5530.6	3981.8	1169.7	355.7	.0	.0	.0	12.8	10.6	23.4
No Access to Transit	66770.0	46764.8	14903.0	5102.2	.0	.0	.0	.0	.0	.0
TOTAL	1590900.0	1031356.8	342160.1	112208.5	51844.1	19575.6	20269.5	7850.4	5635.0	105174.6
Productions:										
CBD	33415.0	21360.5	7323.5	2203.1	1417.5	934.7	174.9	.6	.2	2527.8
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	1557485.0	1009996.3	334836.6	110005.4	50426.6	18640.9	20094.7	7849.8	5634.9	102646.8
Attractions:										
CBD	111356.0	59344.5	32098.7	9240.6	6503.0	967.9	1128.5	1231.0	841.8	10672.2
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	1479544.0	972012.3	310061.4	102967.9	45341.1	18607.7	19141.0	6619.4	4793.3	94502.4
TOTAL	1590900.0	1031356.8	342160.1	112208.5	51844.1	19575.6	20269.5	7850.4	5635.0	105174.6
Average Car Occupancy:	1.201									
Revenue Potential Summary (Dollars):										
Fare Revenue					60054.	25272.	29481.	9366.	7291.	131466.
Average Fare					1.16	1.29	1.45	1.19	1.29	1.25
Parking Revenue								7614.		

FLORIDA URBAN TRANSPORTATION PLANNING MODE CHOICE MODEL

Nested Logit Model Summary Results

Person Trip Totals for Home-Based Non Work

		Highway Trips			Transit Trips					
	Person Trips	Drive Alone	One Pas-senger	Two+ Pas-sengers	Walk to Local	Walk to Jitney	Walk to Premium	Park-Ride	Kiss-Ride	Total Transit
Zero Car Households	160615.7	17532.6	47350.4	55296.1	30917.2	5355.3	4126.8	27.1	10.2	40436.7
One Car Households	1172237.8	198869.4	502055.2	434984.7	26479.3	4158.1	4069.8	1174.2	447.0	36328.6
Two+ Car Households	1695967.5	421213.1	1007460.3	245790.1	14451.4	1711.4	2869.6	1819.0	652.6	21504.0
TOTAL	3028821.0	637615.1	1556865.8	736070.9	71847.9	11224.9	11066.2	3020.4	1109.8	98269.2
Short Walk-Short Walk	2178511.4	451819.8	1101680.6	537467.2	64544.1	10550.7	9883.4	1829.8	735.9	87543.8
Short Walk-Long Walk	89790.7	18740.6	46161.5	22417.2	2086.6	102.1	160.1	87.6	34.9	2471.4
Long Walk-Short Walk	459823.8	101222.5	245906.9	105224.3	4999.1	564.9	994.9	685.0	226.2	7470.1
Long Walk-Long Walk	33137.5	7547.2	17981.9	7305.0	218.1	7.1	27.9	37.4	12.8	303.3
Auto Only-Short Walk	142777.6	31057.2	78091.3	33173.4	.0	.0	.0	360.8	94.8	455.6
Auto Only-Long Walk	12751.0	2945.8	7081.3	2699.0	.0	.0	.0	19.8	5.2	25.0
No Access to Transit	112029.0	24281.9	59962.4	27784.7	.0	.0	.0	.0	.0	.0
TOTAL	3028821.0	637615.1	1556865.8	736070.9	71847.9	11224.9	11066.2	3020.4	1109.8	98269.2
Productions:										
CBD	65632.0	13640.4	33182.5	15466.1	2809.7	444.4	87.4	1.1	.2	3342.9
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	2963189.0	623974.6	1523683.3	720604.7	69038.2	10780.5	10978.8	3019.2	1109.6	94926.3
Attractions:										
CBD	234044.0	41275.3	108362.9	66743.0	14070.1	812.8	1067.1	1275.6	437.2	17662.9
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	2794777.0	596339.8	1448503.0	669327.9	57777.8	10412.1	9999.1	1744.8	672.6	80606.4
TOTAL	3028821.0	637615.1	1556865.8	736070.9	71847.9	11224.9	11066.2	3020.4	1109.8	98269.2
Average Car Occupancy:	1.780									
Revenue Potential Summary (Dollars):										
Fare Revenue					80461.	12176.	14429.	3577.	1316.	111960.
Average Fare					1.12	1.08	1.30	1.18	1.19	1.14
Parking Revenue								2978.		

FLORIDA URBAN TRANSPORTATION PLANNING MODE CHOICE MODEL

Nested Logit Model Summary Results

Person Trip Totals for Non Home-Based

		Highway Trips			Transit Trips					
	Person Trips	Drive Alone	One Passenger	Two+ Passengers	Walk to Local	Walk to Jitney	Walk to Premium	Park-Ride	Kiss-Ride	Total Transit
Zero Car Households	114260.3	26288.4	52890.2	30659.1	3414.2	463.5	496.8	35.1	13.0	4422.6
One Car Households	838197.5	201441.2	398866.4	211545.4	21247.5	1967.8	2381.9	612.8	134.5	26344.6
Two+ Car Households	1056697.1	263485.5	515410.1	251271.0	21241.5	1858.5	2690.7	590.7	149.3	26530.6
TOTAL	2009155.0	491215.2	967166.6	493475.4	45903.2	4289.8	5569.4	1238.6	296.8	57297.8
Short Walk-Short Walk	1547938.9	373475.2	737425.1	384755.6	41891.0	4076.8	5313.4	781.7	220.1	52282.8
Short Walk-Long Walk	63832.6	15959.9	31081.4	15403.2	1225.5	63.6	70.6	22.7	5.7	1388.0
Long Walk-Short Walk	224301.4	58154.0	112432.9	50451.5	2668.3	144.0	182.2	226.3	42.2	3263.0
Long Walk-Long Walk	20301.8	5411.0	10264.5	4490.9	118.5	5.5	3.3	6.8	1.4	135.4
Auto Only-Short Walk	74072.6	18227.2	36316.7	19306.5	.0	.0	.0	195.4	26.7	222.1
Auto Only-Long Walk	7383.8	1923.8	3715.6	1738.1	.0	.0	.0	5.6	.8	6.4
No Access to Transit	71324.0	18064.0	35930.3	17329.6	.0	.0	.0	.0	.0	.0
TOTAL	2009155.0	491215.2	967166.6	493475.4	45903.2	4289.8	5569.4	1238.6	296.8	57297.8
Productions:										
CBD	149333.0	34949.6	69042.2	37227.8	7046.6	274.1	423.8	324.5	44.4	8113.4
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	1859822.0	456265.6	898124.4	456247.6	38856.6	4015.7	5145.6	914.1	252.4	49184.4
Attractions:										
CBD	149868.0	32035.1	63886.3	43883.5	8884.9	248.7	492.1	359.4	78.0	10063.2
Exurban	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other	1859287.0	459180.1	903280.3	449591.9	37018.3	4041.1	5077.3	879.2	218.8	47234.6
TOTAL	2009155.0	491215.2	967166.6	493475.4	45903.2	4289.8	5569.4	1238.6	296.8	57297.8
Average Car Occupancy:	1.729									
Revenue Potential Summary (Dollars):										
Fare Revenue					50316.	4498.	6744.	1451.	347.	63356.
Average Fare					1.10	1.05	1.21	1.17	1.17	1.11
Parking Revenue								1204.		

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

PERSON TRIPS

	HBW	HBNW	NHB	TOTAL
Drive Alone	1,030,906	637,538	491,099	2,159,543
2 Person	341,944	1,556,640	966,945	2,865,529
3+ Person	112,125	735,841	493,429	1,341,395
TOTAL	**1,484,975**	**2,930,019**	**1,951,473**	**6,366,467**
Vehicle Occupancy	1.20	1.78	1.74	1.59

HIGHWAY ASSIGNMENT

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

PERCENTAGE OF LINKS WITH COUNTS BY FACILITY TYPE AND BY AREA TYPE

	CBD	Fringe	Residential	OBD	Rural	Total
Freeway	0	7.63	18.04	17.17	30.26	16.89
Divided Arterial	7.69	17.78	21.63	24.09	23.4	22.49
Undivided Arterial	5.74	3.64	15.65	20.42	20.3	15.89
Collector	0	0	7.79	12.05	7.55	7.6
AVERAGE	**3.33**	**6.09**	**15.25**	**20.21**	**17.95**	**15.71**

NUMBER OF LINKS WITH COUNTS BY FACILITY TYPE AND BY AREA TYPE

	CBD	FRINGE	RESIDENTIAL	OBD	RURAL	TOTAL
Freeway	0	10	94	40	23	167
Divided Arterial	1	8	162	152	11	334
Undivided Arterial	7	4	143	87	40	281
Collector	0	0	69	27	12	108
TOTAL	**8**	**22**	**468**	**306**	**86**	**890**

VOLUME OVER CAPACITY RATIO BY FACILITY TYPE AND BY AREA TYPE

	CBD	FRINGE	RESIDENTIAL	OBD	RURAL	TOTAL
Freeway	0.71	1.05	0.87	1.32	0.51	0.92
Divided Arterial	1.13	1.44	1.03	1.25	0.43	1.11
Undivided Arterial	1.37	1.37	1.06	1.2	0.29	0.98
Collector	1.28	0.86	0.74	1.11	0.21	0.72
TOTAL	**1.2**	**1.15**	**0.94**	**1.24**	**0.37**	**0.97**

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

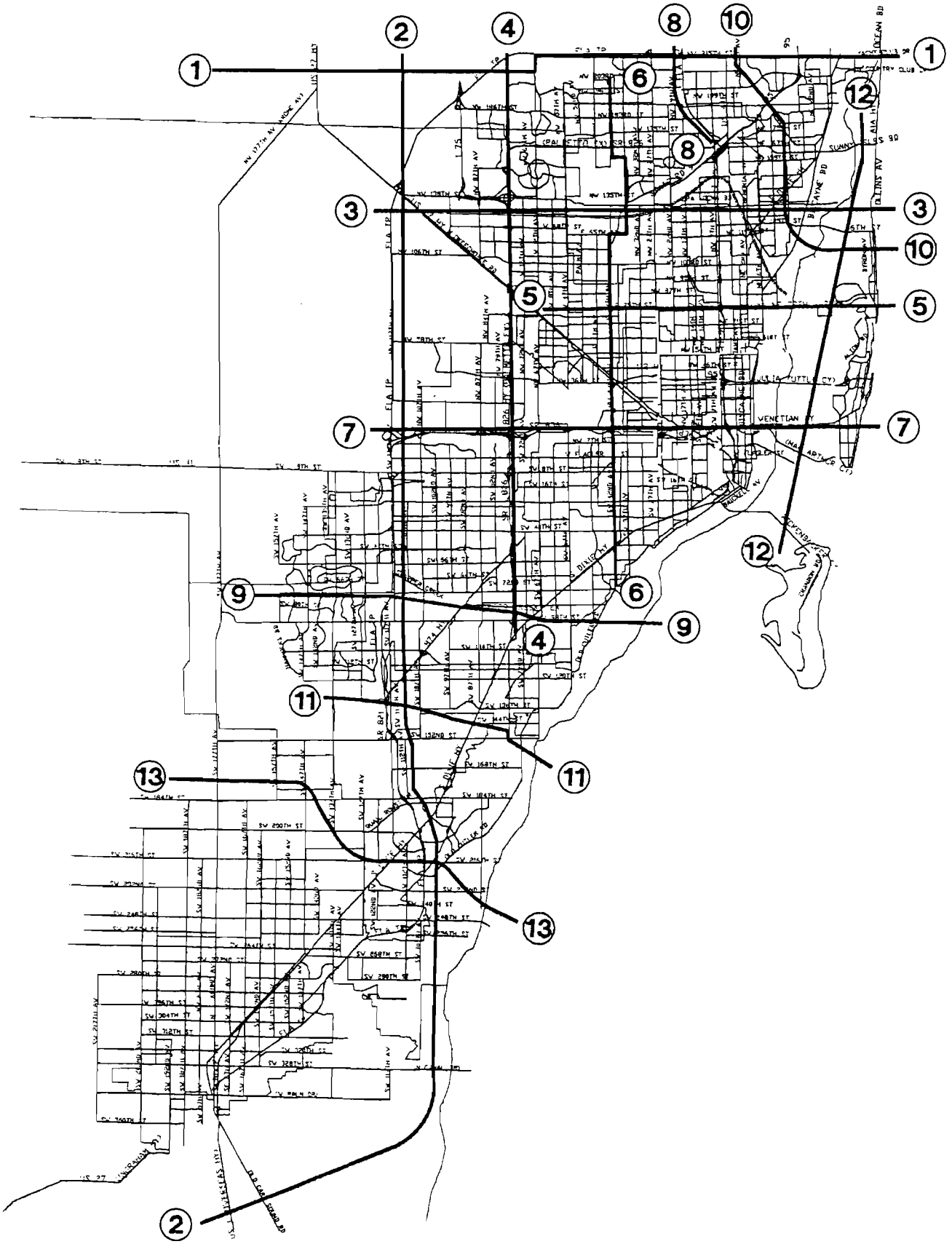
ESTIMATED HIGHWAY VOLUME/HIGHWAY COUNT RATIO
BY AREA TYPE AND BY FACILITY TYPE

AREA TYPE	FACILITY TYPE	ESTIMATED VOLUME	COUNT	VOLUME/ COUNT
1	1	-	-	N/A
	2	38,483	32,130	1.20
	3	113,723	119,004	0.96
	4	-	-	N/A
	SUBTOTAL	152,206	151,134	1.01
2	1	592,392	630,407	0.94
	2	320,382	277,407	1.15
	3	56,257	61,532	0.91
	4	-	-	N/A
	SUBTOTAL	969,031	969,346	1.00
3	1	4,846,456	5,085,970	0.95
	2	5,255,685	5,449,127	0.98
	3	2,493,413	2,469,882	1.01
	4	611,430	668,508	0.91
	SUBTOTAL	13,306,983	13,673,487	0.97
4	1	2,849,629	2,879,478	0.99
	2	6,397,540	5,908,171	1.08
	3	2,099,537	1,848,843	1.14
	4	441,130	385,613	1.14
	SUBTOTAL	11,787,836	11,022,105	1.07
5	1	636,548	700,385	0.91
	2	228,235	217,110	1.05
	3	259,297	274,062	0.95
	4	109,506	114,826	0.95
	SUBTOTAL	1,233,585	1,306,383	0.94
TOTAL	1	8,925,024	9,296,240	0.96
	2	12,340,324	11,883,945	1.04
	3	5,022,228	4,773,323	1.05
	4	1,162,065	1,168,947	0.99
	TOTAL	27,449,640	27,122,458	1.01

FACILITY TYPE 1: FREEWAY
FACILITY TYPE 2: DIVIDED ARTERIAL
FACILITY TYPE 3: UNDIVIDED ARTERIAL
FACILITY TYPE 4: COLLECTOR

AREA TYPE 1: CBD
AREA TYPE 2: FRINGE
AREA TYPE 3: RESIDENTIAL
AREA TYPE 4: OBD
AREA TYPE 5: RURAL

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE



1990 HIGHWAY SCREENLINES

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

ORIGINAL HIGHWAY SPEED VS. CONGESTED HIGHWAY SPEED

AREA TYPE (AT)	FACILITY TYPE (FT)	ORIGINAL SPEED (MPH)	CONGESTED SPEED (MPH)
1	1	30.00	28.37
	2	24.92	21.57
	3	23.07	16.64
	4	22.01	16.81
	6	-	-
2	1	33.99	29.20
	2	26.96	18.25
	3	26.04	19.81
	4	23.71	21.57
	6	-	-
3	1	37.03	30.29
	2	31.96	28.00
	3	31.02	26.13
	4	30.00	27.59
	6	-	-
4	1	38.02	30.59
	2	33.01	26.13
	3	31.95	25.70
	4	0.00	0.00
	6	-	-
5	1	39.92	31.28
	2	35.99	34.81
	3	35.01	34.55
	4	34.02	33.75
	6	-	-

FT 1: Freeway
FT 2: Divided Arterial
FT 3: Undivided Arterial
FT 4: Collector
FT 6: One-Way Street
AT 1: CBD
AT 2: CBD Fringe
AT 3: Residential
AT 4: OBD
AT 5: Rural

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

ESTIMATED VEHICLE MILES TRAVEL (VMT)
AND VEHICLE HOURS TRAVEL (VHT)

AREA TYPE (AT)	FACILITY TYPE (FT)	VMT	VHT
1	1	38,000	1,400
	2	45,000	2,100
	3	113,000	7,200
	4	38,000	2,400
	SUBTOTAL	233,000	13,000
2	1	892,000	31,700
	2	191,000	12,200
	3	171,000	10,800
	4	57,000	2,800
	SUBTOTAL	1,311,000	57,400
3	1	6,130,000	204,700
	2	6,256,000	203,700
	3	3,986,000	164,800
	4	2,277,000	90,200
	SUBTOTAL	18,649,000	693,400
4	1	3,221,000	111,200
	2	6,073,000	250,400
	3	2,206,000	90,600
	4	769,000	34,800
	SUBTOTAL	12,268,000	487,000
5	1	904,000	30,400
	2	246,000	7,600
	3	487,000	14,400
	4	195,000	6,300
	SUBTOTAL	1,832,000	58,700
TOTAL	1	11,186,000	379,400
	2	12,810,000	506,900
	3	6,963,000	287,800
	4	3,335,000	136,500
	TOTAL	34,293,000	1,309,700

FT 1: FREEWAY
FT 2: DIVIDED ARTERIAL
FT 3: UNDIVIDED ARTERIAL
FT 4: COLLECTOR

AT 1: CBD
AT 2: FRINGE
AT 3: RESIDENTIAL
AT 4: OBD
AT 5: RURAL

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.

TRANSIT ASSIGNMENT

MIAMI TRANSPORTATION PLANNING MODEL
YEAR 1990 VALIDATION

TRANSIT USAGE SUMMARY
DAILY WORK TRIPS

MODE	PASSENGER		
	TRIPS	MILES	HOURS
LOCAL BUS	117,211	404,791	20,767
METRORAIL	25,741	182,360	5,976
EXPRESS BUS	10,660	85,694	3,703
TRIRAIL	856	4,498	114
METROMOVER	6,025	3,385	341
TOTAL	**160,493**	**680,728**	**39,901**

TRANSIT USAGE SUMMARY
DAILY NON-WORK TRIPS

MODE	PASSENGER		
	TRIPS	MILES	HOURS
LOCAL BUS	194,455	582,498	36,612
METRORAIL	19,935	112,209	3,723
EXPRESS BUS	1,297	6,615	277
TRIRAIL	53	470	12
METROMOVER	2,814	1,632	164
TOTAL	**218,554**	**703,424**	**40,788**

TRANSIT USAGE SUMMARY
TOTAL TRIPS

MODE	PASSENGER		
	TRIPS	MILES	HOURS
LOCAL BUS	311,666	987,289	66,379
METRORAIL	45,676	294,569	9,699
EXPRESS BUS	11,957	92,309	3,980
TRIRAIL	909	4,968	126
METROMOVER	8,839	5,017	505
TOTAL	**379,047**	**1,384,152**	**80,689**

III. PROJECT EVALUATION METHODOLOGY

METRO DADE MPO
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EVALUATION CRITERIA

PURPOSE:

This evaluation criteria will be used to compare alternate Long Range Transportation Plans (LRTP) at an overall level and in relative terms to assess how the plans are meeting the MPO - adopted Goal and Objectives and the ISTEA Factors.

OBJECTIVE 1:

Plan for the provision of transportation services and facilities to serve the needs of the population in the metropolitan area, in accordance with federal and state transportation planning process requirements.

1) Number of highway lane miles per 1,000 population

   - ⏭ Freeways, expressways, and toll highways
   - ⏭ Arterial

2) Number of transit vehicle miles per 1,000 population

   - ⏭ Local Bus Routes
   - ⏭ Express Bus Routes
   - ⏭ Metrorail

3) Percent of population with transit service by planning area (MPO-designated six planning areas)

   - ⏭ Within a quarter-mile of bus stops
   - ⏭ Within a half-mile of Metrorail station

4) Continued development of Transportation, Services, Facility Management, and Technology Systems to Implement Transportation Improvements.

   - ⏭ Average travel time per capita
   - ⏭ Average travel time per trip

5) Conformance with the federal, state and local laws and planning process requirements (subjective).*

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* All subjective rankings will be assigned by the Consultant in concert with the Steering Committee.

OBJECTIVE 2:

Develop an integrated multimodal transportation system that emphasizes people movement by facilitating the transfer between modes, and the connectivity of the transportation network within and outside the metropolitan area.

1) Identify all major activity centers and

   - Measure relative accessibility of major activity centers by highway and transit to population.

2) Identify Internal and External trip movements into the metropolitan area and the connectivity of these trips with the transportation network within and outside the metropolitan area.

   - Measure speeds and calculate relative travel times for major activity centers on the transit and highway networks (congested and uncongested).

     The highway network should achieve the operating level of service adopted in the Comprehensive Development Master Plan and in the Florida Intrastate Highway System (FIHS). The Transit System should use miles of service operated, transit vehicle miles, and percent of trips by transit as measures of effectiveness in meeting the objective.

   - Minimize the number of transfers on the public transit system to major activity centers. Number of transfers, not including the access modes, is the measure.

OBJECTIVE 3:

Preserve rights-of-way in corridors anticipated to be heavily traveled in the future.

1) Number of miles of right-of-way preserved, and preserved miles as a percentage of total network miles to be improved.

2) Number of miles of right-of-way purchased or land banked for specific transportation projects.

OBJECTIVE 4:

To consider the effect of transportation policies on land use development in both the short and long range.

1) Impact on Land Use Development in terms of intensity and sprawl

2) Compliance with Dade County Comprehensive Development Master Plan (CDMP).

- ⏭ Coordination and compliance with the CDMP Land-Use Element.
- ⏭ Coordination and evaluation of the CDMP and the short- and long-range impacts of Transportation Services and facilities.
- ⏭ Coordination and compliance with the CDMP's Traffic Circulation Element.
- ⏭ Coordination and compliance with adopted mass transit and land-use related goals as set forth in the CDMP.
- ⏭ Coordination and Compliance with the CDMP's Capacity Improvement Element.

Note: Subjective scale of 0 to 10, zero represents no adverse impact and 10 represents the most adverse impact.

OBJECTIVE 5:

Preserve existing highway and transit facilities by improving efficiency and safety.

1) Amount of investment on TSM- type improvements in existing highway and transit facilities (Capital Costs).

2) Amount of investment on TSM type improvements in existing highway and transit facilities as percent of total investment on the Plan (Capital Costs):

$$\text{Percentage} = \frac{\text{Investment on TSM-type Improvements}}{\text{Total Investment on the LRTP}} \times 100$$

3) Operating and Maintenance Cost for the Highway and Transit System

4) Number of Accidents

5) Overall V/C improvement of the existing highway system (for selected links)

Facility	Volume/Capacity		Percent Improvement
	1990	2015	
Existing Freeways			
Existing Arterials			

6) Overall increase in utilization and efficiency of existing transit systems.

Facility	Farebox Recovery Ratio			Passengers/ Revenue Mile			Passengers/ Revenue Hours		
	1990	2015	Percent Improvement	1990	2015	Percent Improvement	1990	2015	Percent Improvement
Existing Local Bus									
Existing Express Bus									
Metrorail									
Metromover									

OBJECTIVE 6:

Achieve the operating levels of service standards adopted in the Comprehensive Development Master Plan (CDMP) and in the Florida Intrastate Highway System Plan (FIHS).

1) For selected highways links in the County

V/C = Volume/Capacity (by link)

Compare these V/C ratios with the CDMP and FIHS.

2) For selected freeway links in the County

V/C = Total Volume/Total Capacity (all links)

Compare with the CDMP & FIHS

3) For selected arterial links in the County

V/C = Total Volume/Total Capacity (all links)

Compare with the CDMP & FIHS

OBJECTIVE 7:

Plan for maximum utilization of the existing transportation capacity, relieve congestion, and prevent congestion from occurring where it does not yet occur.

1) For selected highway links in the existing highway system, compare V/C ratios of the Years 1990 and 2015.

2) Find the ratio of total volume in the year 2015 to total volume in the year 1990 for the existing.

   - Stations of Metrorail
   - Stations of Tri-rail
   - Stations of Metromover

3) Total delay time due to congestion.

OBJECTIVE 8:

Plan and develop a transportation system that preserves the social integrity of urban communities.

1) Additional new highway rights-of-way that might have adverse impacts on the social integrity of urban communities (subjective).

2) Additional new fixed transit facility rights-of-way of that might have adverse impacts on the social integrity of urban communities (subjective).

   Note: Subjective scale of 0 to 10, zero representing no adverse impact and 10 for the most adverse impact.

OBJECTIVE 9:

Plan for a transportation system that gives due consideration to air quality and other environmental considerations with applicable federal, state, and local energy conservation program goals and objectives.

1) Air Quality Conformity with USEPA and SIP Regulations and Standards.
2) Number of environmentally sensitive areas affected.
3) Percent of trips made by transit (high transit usage is considered to be energy conserving and environmentally desirable).
4) Auto Occupancy Factor for work trips (energy conserving and environmentally desirable).

OBJECTIVE 10:

Plan for transportation projects that enhance the quality of the environment.

1) Contribution to air quality monitoring and attainment plan.
2) Contribution to maintaining and noise abutment standards.

3) Recognition of and sensitivity to wildlife and vegetation.
4) Recognition of and sensitivity to aesthetics and community cultural values.
5) Recognition of and sensitivity to groundwater and waste management.

Note: Subjective scale of 0 to 10.

OBJECTIVE 11:

Define a sound funding base utilizing public and private sources that will assure operation and maintenance of existing facilities and services and timely implementation of new projects and services.

1) Private investment dollar amount and number of projects.
2) Potential for Joint Development opportunities (percent of private monies).
3) Number of facilities and land uses identified as potential joint development sites.
4) Conforming to the recommendations in the MPO's Road Pricing Feasibility Study.

OBJECTIVE 12:

Provide for and enhance the efficient movement of freight.

1) Miles of highways and percentage of highway network suitable for freight.
2) Average speeds on the highways suitable for freight.
3) Average congested speeds on the highways suitable for freight.
4) Conforming to the recommendations in the MPO's Freight Movement Study.

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ISTEA FACTORS

FACTOR 1:

Preservation of existing transportation facilities and, where practical, ways to meet transportation needs by using existing transportation facilities more efficiently,

Covered under Objective #5.

FACTOR 2:

The consistency of transportation planning with applicable Federal, State, and local energy conservation programs, goals, and objectives.

Degree of consistency with applicable Federal, State and local energy conservation programs, goals and objectives (Subjective scale of 10 representing maximum consistency and zero for no consistency).

Covered under Objective #1 and #6.

FACTOR 3:

The need to relieve congestion and prevent congestion from occurring where it does not yet occur.

Covered under Objective #7.

FACTOR 4:

The likely effect of transportation policy decisions on land use and development and the consistency of transportation plans and programs with the provisions of all applicable short- and long-term use and development plans.

Degree of consistency with this factor through the analysis of economic environmental, growth management, and land use activities consistent with metropolitan goals and objectives.

Covered under Objective #4.

FACTOR 5:

The programming of expenditures and Transportation enhancement activities as required by law.

Implementation of Transportation Projects as required by Federal, State, and local law.

Covered under Objective 1.

FACTOR 6:

The effects of all transportation projects to be undertaken within the metropolitan area without regard to whether such projects are publicly funded:

1) Number of privately funded projects
2) Number of jointly developed projects
3) Preparation of a Financial Feasibility Plan.

Covered under Objective #11

FACTOR 7:

International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations.

1) Prepare a list of major activity centers
2) Number of the activity centers served by the plan.

Covered under Objectives #2 and 10

FACTOR 8:

The need for connectivity of roads within the metropolitan area with roads outside the metropolitan area.

Covered under Objective #2

FACTOR 9:

The transportation needs identified through use of the management systems required under this Act.

Degree of needs served per ISTEA management systems (subjective).

FACTOR 10:

Preservation of rights-of-way for construction of future transportation projects, including identification of unused rights-of-way which may be needed for future transportation corridors and identification of those corridors for which action is most needed to prevent destruction or loss.

Covered under Objective #3

FACTOR 11:

Methods to enhance the efficient movement of freight.

Covered under Objective #12

FACTOR 12:

The use of life-cycle costs in the design and engineering of bridges, tunnels, or pavement.

Capital and operating costs of plan using life cycle cost analysis.

Covered under Objective #1

FACTOR 13:

The overall social, economic, energy, and environmental effects of transportation decisions.

Covered under Objectives # 8, 7 and 9

FACTOR 14:

Methods to expand and enhance transit services and to increase the use of such services.

Covered by Objectives # 1, 2, and 7

FACTOR 15:

Capital investments that would result in increased security in transit systems.

Amount of investment in increasing security of transit systems.

Covered under Objective # 5

METHODOLOGY FOR PRIORITIZING PROJECTS IN THE YEAR 2015 NEEDS PLAN

The Long Range Transportation Plan (LRTP) development process is shown in Figure 1. As shown in the flow diagram, the Year 2015 Needs Plan is a set of several projects to overcome the identified transportation system deficiencies in the year 2015. The projects included in the Needs Plan have to be prioritized and then subjected to financial constraints to arrive at the Year 2015 Cost Feasible Plan. The prioritized projects and the financial resource projections will be further used to scale down the Year 2015 Cost Feasible Plan to develop phasing, which will result in the interim plans for the Years 2000, 2005, and 2010.

The working paper documents the proposed methodology for prioritizing the projects included in the Needs Plan. The role of the methodology in the Plan Development Process is indicated in Figure 1 by highlighting the box.

The prioritization must be based on the goal and the 12 objectives adopted by the MPO Board. Each objective is represented by several evaluation criteria, as defined by the consultant and approved by the Study Steering Committee. These evaluation criteria, expressed in terms of measures in meeting the adopted objectives, are established to evaluate alternative transportation plans developed for the region and hence, many of them are inappropriate to evaluate projects within a plan to establish priorities among them. However, the adopted objectives should form a basis for prioritizing the projects in the Needs Plan. The 12 objectives developed by the Project Steering Committee, and adopted by the MPO Board, were grouped into the following five categories.

1) Contribute to Multi-modal Transportation System Development.
2) Improve traffic flow/mobility (highway and transit).
3) Preserve social integrity of urban communities.
4) Improve environment (noise, air quality, energy, etc.).
5) Achieve economic feasibility for operations and maintenance.

The above five categories will be used as evaluation criteria for prioritizing the projects in the Needs Plan. In a meeting, each member of the Steering Committee will be asked to weight the five criteria so that sum of the weights of the five criteria equals 100. The weights given by the members will be used to obtain average weights for the five criteria. These weights will be used to prioritize the projects.

The adopted Year 2010 LRTP will be used as a basis in prioritizing the projects in Year 2015 Needs Plan.

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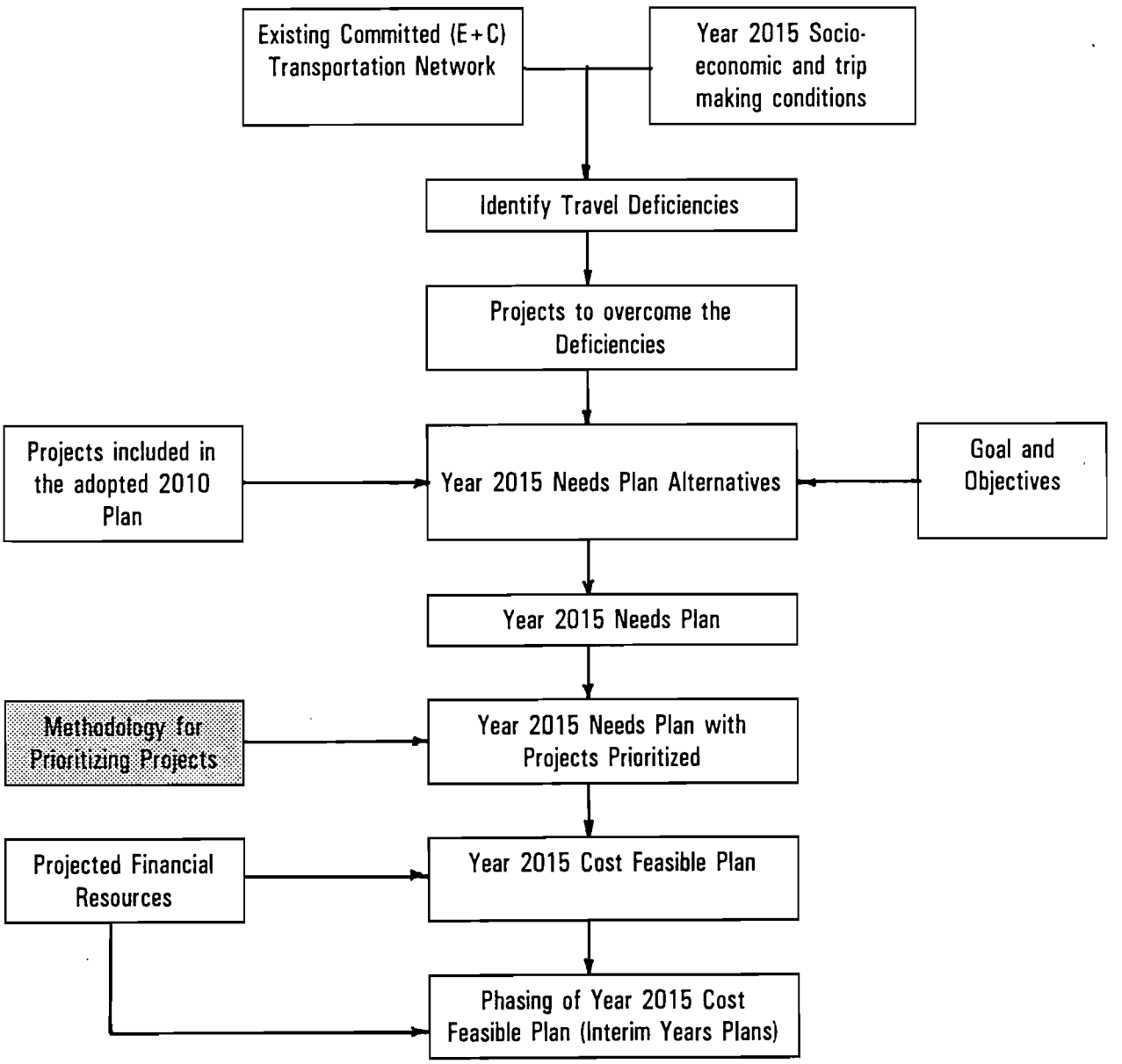
MIAMI TRANSPORTATION PLANNING MODEL YEAR 1990 VALIDATION

FIGURE 1
PLAN DEVELOPMENT PROCESS



Beyond the evaluation criteria discussed earlier, there are several aspects on which prioritization of projects should depend. An organized, rational, and systematic methodology is needed to comprehend the many projects included in a plan and prioritize them. The proposed methodology is an analytical technique to prioritize projects based on the following parameters:

1) Evaluation Criteria
2) Type of Project
3) Area of Impact.

Consideration of additional aspects, such as size of project and technology, makes the methodology more complex and cumbersome to apply. Cost of project is not an issue at this stage of a Needs Plan. The costs will be considered in developing a Cost Feasibility Plan from the Needs Plan with prioritized projects.

It is assumed that all the projects in the LRTP could be grouped into the following five types of projects.

1. Major improvements in the existing highways to relieve congestion and/or improve capacity such, as widening by adding lanes, IVHS, etc.

2. Building a new highway.

3. Major improvements in the existing transit service such as reducing headways during the peak periods which need additional rolling stock and/or personnel.

4. Building a new transit system such as a metrorail line in the SR 836 corridor.

5. Major intermodal improvements such as Miami Intermodal Center, adding new Metrorail Stations, a completely new bus route or HOV facility, etc.

Five possible areas of impact, as listed below, are assumed for each project.

1. County
2. City
3. Corridor
4. Neighborhood
5. Site specific.

A project might affect different areas under different evaluation criteria. For example, a major interchange construction might impact not only the site under the "Social Integration" evaluation criterion but also might impact a corridor under the "traffic flow/mobility" evaluation criterion. In concert with the Steering Committee, type of project and the area(s) of impact under different evaluation criteria for each of the projects included in the Needs Plan will be determined.

General scores are assumed for each type of project by area of impact and by evaluation criteria as shown in Table 1. Table 2 shows the scoring sheet for projects. For each project, based on the type of project, and area(s) of impact under each evaluation criteria, the appropriate score will be selected from Table 1 and entered in Table 2. The scores in Table 2 will be multiplied by the weights, (established by the Steering Committee) of the respective evaluation criteria and totaled to obtain a score for each project. Table 3 shows how the weighted scores computed for each project. The projects will be prioritized on the basis of the weighted scores; i.e., the project with the highest score will be the one with the highest priority, the second higher score will decide the second project, and so on.

This methodology is a purely analytical technique, based on the assigned weights and scores. It should be noted that this methodology is an analytical tool to narrow down the broad picture of a variety of projects into an understandable format. There will be several policy-related and political aspects that have to be considered in implementing certain projects even though they receive low priority in this technique. In concert with the Steering Committee, the consultant will develop a recommended list of priortized projects and submit to the MPO.

TABLE 1
GENERAL SCORES (BETWEEN 0 AND 10) UNDER
EVALUATION CRITERIA BASED ON TYPE OF PROJECT AND AREA

No.	Type of Project	Area of Impact	Evaluation Criteria				
			Multi-Modal	Traffic/ Mobility	Social Integrity	Environ-mental	Economic
1	Highway Improvement - Congestion/Capacity	County	0	5	1	1	5
		City	0	4	2	2	4
		Corridor	0	3	3	3	3
		Neighbor'd	0	2	4	4	2
		Site	0	1	5	5	1
2	New Highway	County	0	10	2	2	10
		City	0	8	3	3	8
		Corridor	0	6	6	6	6
		Neighbor'd	0	4	8	8	4
		Site	0	2	10	10	2
3	Improvements in Existing Transit	County	5	5	1	1	5
		City	4	4	2	2	4
		Corridor	3	3	3	3	3
		Neighbor'd	2	2	4	4	2
		Site	1	1	5	5	1
4	New Transit System	County	10	10	2	2	10
		City	8	8	4	4	8
		Corridor	6	6	6	6	6
		Neighbor'd	5	5	8	8	4
		Site	2	2	10	10	2
5	Intermodal	County	10	10	2	2	10
		City	8	8	4	4	8
		Corridor	6	6	6	6	6
		Neighbor'd	4	4	8	8	4
		Site	2	2	10	10	2

TABLE 2
PROJECT SCORING SHEET

No.	Project Description	Type of Project	Area(s) of Impact	Evaluation Criteria				
				Multi-Modal	Traffic/ Mobility	Social Integrity	Environ-mental	Economic
1								
2								
3								
4								
5								
.								
.								
.								
.								
.								

TABLE 3
PROJECT WEIGHTED SCORING SHEET

No.	Project Description	Type of Project	Area(s) of Impact	Evaluation Criteria					Total Score
				Multi-Modal	Traffic/ Mobility	Social Integrity	Environ-mental	Economic	
				W1	W2	W3	W4	W5	
1									
2									
3									
4									
5									
.									
.									
.									
.									
.									

NOTES