DRAFT

The Post Hurricane
Short Range Transportation Plan

Technical Report #4 Summary of Pre- and Post-Hurricane Data

Prepared For
The Dade County Metropolitan Planning Organization
April 6, 1994

The Dade County Post Hurricane Short Range Transportation Study

Technical Report #4
Summary of Pre - and Post Hurricane Data

Prepared For

The Dade County Metropolitan Planning Organization
111 NW 1st Street, Suite 910
Miami, Florida

By

Barton-Aschman Associates
Ft. Lauderdale, Florida

April 6, 1994

This study was prepared for the Dade County Metropolitan Planning Organization and funded by the Florida Department of Transportation and Federal Highway Administration, U.S. Department of Transportation.

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose of The Study

This technical report consolidates and summarizes the data collection efforts of the Post Hurricane Short Range Study. This report also contains in summary form pertinent observations about the database that will be used in assessing the travel impacts of and any unaddressed needs that have resulted from Hurricane Andrew. Specifically, this technical report consolidates the data previously compiled in Technical Report 2: "Compilation of New Data: Land Use, Socio-Economic, Transit and Highway Data" and in Technical Report 3: "Results of the Dade County General Household Travel and Hurricane Impact Survey", and presents it in summary form.

In the technical report, data is compiled and presented in a form that allows comparison and analysis between pre- and post-hurricane conditions. The key areas of interest are population, employment and travel patterns. Population and employment changes are examined in the next section. This is followed by a section describing changes in traffic counts and transit counts. Travel origins and destinations, travel path changes and temporal and modal shifts are also examined in the last section.

2.0 LAND USE AND SOCIO-ECONOMIC DATA

Socio-economic trends prove good indicators of travel demand pattern changes. Therefore, land use and socio-economic trends are analyzed when developing forecasts of future traffic volumes and transit ridership. These forecasts of future traffic volumes and transit ridership are then used to identify transportation improvements and to prioritize them.

This chapter summarizes the population, employment and land use data obtained from Dade County Planning Department. The data is organized in terms of pre-hurricane and post-hurricane conditions and the changes noted. These changes are observed at the countywide, traffic analysis district (TAD) and traffic analysis zone (TAZ) levels. Land use patterns are summarized only at the countywide level.

2.1 Population

Population data provides information on trip productions or the origins of the vast majority of trips made in Dade County. Between 1990 and 1993, total population in Dade County increased by 15,258 from 1,937,097 to 1,952,369. Although the Dade County population did increase during this period, a substantial redistribution of population occurred as a result of Hurricane Andrew which struck south Dade County in August of 1992.

2.1.1 County-Wide Population Shifts

Table 1 provides a comparison of county-wide population for Dade County during the years 1990 (pre-Hurricane Andrew), 1993 (post-Hurricane Andrew) and the year 2000 (the planning horizon for this study as well as for the update of the County's Transportation Improvement Program and the Transit Development Plan).

Table 1 Change in County Wide Population

Year	Total Population	Change from 1990	Percent Change
Post Hurricane 1990	1,937,097		
Post Hurricane 1993	1,952,369	15,258	0.8%
Post Hurricane 2000	2,221,331	284,240	14.7%

It has been determined that 213 TAZs (traffic analysis zones) or 18 percent of all TAZs experienced a decrease in population during the 1990 to year 1993 period. This redistribution of population has significantly changed short-term travel patterns particularly in the South Dade area.

Although long term impacts on residential land use patterns are difficult to project at this time, the Dade County Planning Department has estimated both short-term (1990 to year 2000) and long term (1990 to year 2015) forecasts for both population and employment.

Projected total population for the year 2000 (the planning horizon for this study) is 2,221,331. This represents a population increase of 284,240 or 15 percent from 1990 levels. Even with this substantial increase, some 230 TAZs or 20 percent of all TAZs in the county are forecast to have lost population from 1990 to the year 2000.

2.1.2 Population Changes by TAD

From 1990 to 1993, 20 percent of the TADs experienced a decline in population. In order to evaluate the socio-economic conditions and travel patterns at the sub-area level, the county has been divided into 89 Traffic Analysis Districts. These TADs were cooperatively developed by the MPO, Dade County Planning Department, and Dade County Public Works Department by aggregating a number TAZs together to form mid-size geographical areas.

The districts which showed the most significant level of decline in population were:

- 85 (the City of Homestead),
- 77 (Cutler Ridge),
- 86 (Princeton and Leisure City),
- 84 (Florida City) and
- 76 (Richmond Heights).

Districts which experienced the most growth in total population were:

- 18 (Miami Springs),
- 63 (Kendall Lakes),
- 13 (Opa-Locka),
- 7 (Aventura) and
- 43 (Sweetwater).

From 1990 to the year 2000, districts:

- 85 (City of Homestead),
- 84 (Florida City),
- 86 (Princeton and Leisure City)

- 37 (Star Island)
- 27 (North Shore)

are expected to experience the largest decreases in total population. Six (6) percent of the TADs are projected to experience negative growth in population during this period.

Areas which are projected to incur the highest level of population growth are:

- 64 (West Tamiami Trail near Krome Avenue),
- 13 (Opa-Locka),
- 61 (West Tamiami Trail),
- 45 (West Tamiami Trail) and
- 18 (Miami Springs)

2.1.3 Population Change By TAZ

Tables 2 and 3 summarize the change in population at the TAZ level between 1990 and 1993 and identify the TAZs and general areas of the county which recently experienced the most significant increase or decrease in total population during the period. Tables 4 and 5 identify the areas which are projected to experience the most significant increases or decreases over the ten year period.

Table 2 TAZs with A Significant Decline in Population from 1990-1993

TAZ	General Location	Change in Population	Percent Change
1078	Homestead Air Force Base	-5,153	-100%
1142	east of Fl. Turnpike & north of SW 288 St.	-3,233	-67%
1142	south of SW 296th St. & west of SW 152 Ave.	-2,873	-67%
1001	west of Fl. Turnpike & north of SW 184th St.	-2,659	-34%
1002	west of Fl. Turnpike & south of SW 184th St.	-2,346	-34%

Table 3 TAZs with Significant Increases in Population from 1990-1993

TAZ	General Location	Change in Population	Percent Change
179	Hialeah - NW 122nd St. & 87th Ave.	3,860	193%
60	Downtown Miami	2,537	48%
857	Kendall Drive and SW 147th Ave.	2,529	38%
475	W of the Florida Turnpike & S.R. 836 Interchange	2,408	52%
478	SE of the Florida Turnpike & S.R. 836 Interchange	1,609	18%

Table 4 TAZs with Significant Decreases in Population from 1990-2000

TAZ	General Location	Change in Population	Percent Change
1078	Homestead Air Force Base	-3,663	-71%
1084	Princeton-W Florida Turnpike & SW 137th Ave.	-1,754	-63%
1142	Cutler Ridge Mall	-1,508	-31%
1144	U.S. 1 south of Cutler Ridge Mall	-1,362	-100%
1137	Homestead-East of U.S. 1 & N of SW 296th St.	-1,168	-24%

Table 5 TAZs with Significant Increases in Population from 1990-2000

TAZ	General Location	Change in Population	Percent Change
475	W of Florida Turnpike & S.R. 836 Interchange	15,334	334%
853	West Kendall- Kendall & SW 147th Ave.	11,473	1000%
465	E of Fl. Turnpike & S of NW 58th St.	10,104	1000%
843	S of Bird Road & W of 157th Ave.	8,031	1000%
844	S of Miller Drive & W of 157th Ave.	8,031	1000%

2.2. Employment

Employment data is used to identify the areas of the county which attract trips or the destinations of trips, especially home-based work trips.

2.2.1 County-Wide Employment Trends

Recently total employment in Dade County has decreased from 1,105,330 in 1990 to the current level of 1,032,374 in 1993. This is loss of 72,976 jobs is a combination of Hurricane Andrew and national economic trends. 1,066 TAZs or 91 percent of all TAZs in the county have shown a decrease in total jobs. Table 6 provides a comparison of county wide employment for Dade County.

Projections indicate that Dade County's total employment will increase by 31,219 to 1,136,561 by the year 2000. This represents a 2.8 percent increase over a 10 year period. 187 TAZs or 16 percent of all TAZs are projected to sustain a loss of employment during this period.

Table 6 Change in Employment Countywide

Year	Total Employment	Change from 1990	Percent Change
Post Hurricane 1990	1,105,330		
Post Hurricane 1993	1,032,374	-72,976	6.6%
Post Hurricane 2000	1,136,561	31,219	2.8%

2.2.2 Employment Changes By TAD

From 1990 to 1993 all but two districts, (District 7 and 38) experienced a loss in total employment. This represents 98 percent of all the planning districts in Dade County. Projections provided by the DCPD indicate that from 1990 to the year 2000, 22 percent of all districts will experience a decline in employment.

The districts most significantly impacted by negative growth in employment are:

- 86 (Princeton and Leisure City),
- 84 (Florida City),
- 77 (Cutler Ridge),
- 85 (City of Homestead) and
- 65 (South Kendall Lakes).

The districts which will experience the largest amount of growth in total employment are:

- 38 (Omni area),
- 30 (Fountainebleau),
- 56 (North Coral Gables),
- 42 (Miami International Airport)
- 2 (South Beach).

2.2.3 Employment Change By TAZ

Tables 7 and 8 identify those areas of the county that experienced the most severe shift in total employment between the years 1990 and 1993. Tables 10 and 11 list those TAZs with the most notable levels of change in employment over the planning horizon of the study.

Table 7 TAZs with a Significant Decline in Employment from 1990-1993

TAZ	General Location	Change in Employment	Percent Change
1078	Homestead Air Force Base	-8,986	-99%
1042	Cutler Ridge Mall	-3,903	-96%
812	Bird Road & 127th Ave.	-1,812	-98%
892	Baptist Hospital Area	-1,353	-27%
1005	S. Dixie north of Fl. Turnpike	-1,134	-82%

Table 8 TAZs with Significant Increases in Employment from 1990-1993

TAZ	General Location	Change in Employment	Percent Change
811	W of the Fl. Turnpike & N of Bird Road	1,785	1000%
654	E of Downtown Miami	1,114	169%
903	Dadeland Mall Area	156	3%
483	International Mall Area	154	5%

Table 9 TAZs with Significant Decreases in Employment from 1990-2000

TAZ	General Location	Change in Employment	Percent Change
1078	Homestead Air Force Base	-4,088	-45%
812	Bird Road & SW 127th Ave.	-1,089	-98%
1041	U.S. 1 north of Cutler Ridge Mall	-719	-39%
969	SW 147th Ave. & 120th St.	-580	-72%
1006	U.S. 1 & SW 186th St.	-455	-17%

Table 10 TAZs with Significant Increases in Employment from 1990-2000

TAZ	General Location	Change in Employment	Percent Change
811	W of the Fl. Turnpike & N of Bird Road	1,888	1000%
517	Miami International Airport	818	4%
516	NW 36th St. N of the Airport	715	5%
587	Civic Center	585	4%
890	SW 104th St. & 87th Ave.	568	1000%

2.3 County-Wide Land Use Patterns

Land use and neighborhood plans for the various areas of Dade County also influence travel patterns and travel demand. The redevelopment planning efforts to date have either been developed by the Dade County Planning Department (DCPD) or by consulting teams and then reviewed by DCPD and the Dade County Development Impact Committee (DIC). As a result, those redevelopment plans which were completed by mid-1993 have been incorporated into the population and employment projections provided by the DCPD staff. The rate of rebuilding is monitored in part by the County through the recording of building permits and certificates of occupancy.

3.0 TRAFFIC AND TRANSIT COUNTS

The functional classification of arterial highways in Dade County is illustrated in Figure 1. Hurricane Andrew has changed the functional classification of several highways in South Dade County. A revised functional classification map will be complete next year and will reflect changes due to the new functional classification procedure as well as the effects of the hurricane.

3.1 Traffic Counts

The FDOT has over 350 traffic count stations located throughout the county. Average Annual Daily Traffic (AADT) counts at these stations before and after the hurricane are an indication of how traffic patterns have shifted due to the hurricane. Traffic counts have been supplied by FDOT for 1990 through 1993, by direction. A pre- and post-hurricane comparison at ten strategic count stations has been prepared by the FDOT District 6 staff. A summary of this comparison is provided in Figure 2.

Another source of traffic data to document the traffic pattern shift is the Metro-Dade County Average Weekday Daily Traffic (AWDT) count list compiled by the Dade County Public Works Department. The county monitors traffic volumes at over 600 locations throughout the county. The FDOT counts will be converted to AWDT counts to provide a common and consistent database which will allow for comparisons between State and County facilities. Conversion factors to be used in this conversion are as follows:

Mainland AADT * 1.06 * 1.02
= Peak Season AWDT

Beach AADT * 0.98 * 1.10
= Peak Season AWDT

Where 1.06 and .98 represent the AADT-AWDT conversion factors and 1.02 and 1.10 are the peak season average weekday factors.

3.1.1 External Trips

Table 11 shows the growth in traffic entering Dade County at the external stations. Figure 3 illustrates the variation in traffic between the external stations and the change in traffic volume between 1990 and 1992.

FIGURE 1

DADE COUNTY FUNCTIONAL CLASSIFICATION MAP

LEGEND

- PRINCIPAL ARTERIAL
- MINOR ARTERIAL
- COLLECTOR

0 1 2 3 4 5

GRAPHIC SCALE

ATLANTIC OCEAN

BISCAYNE BAY

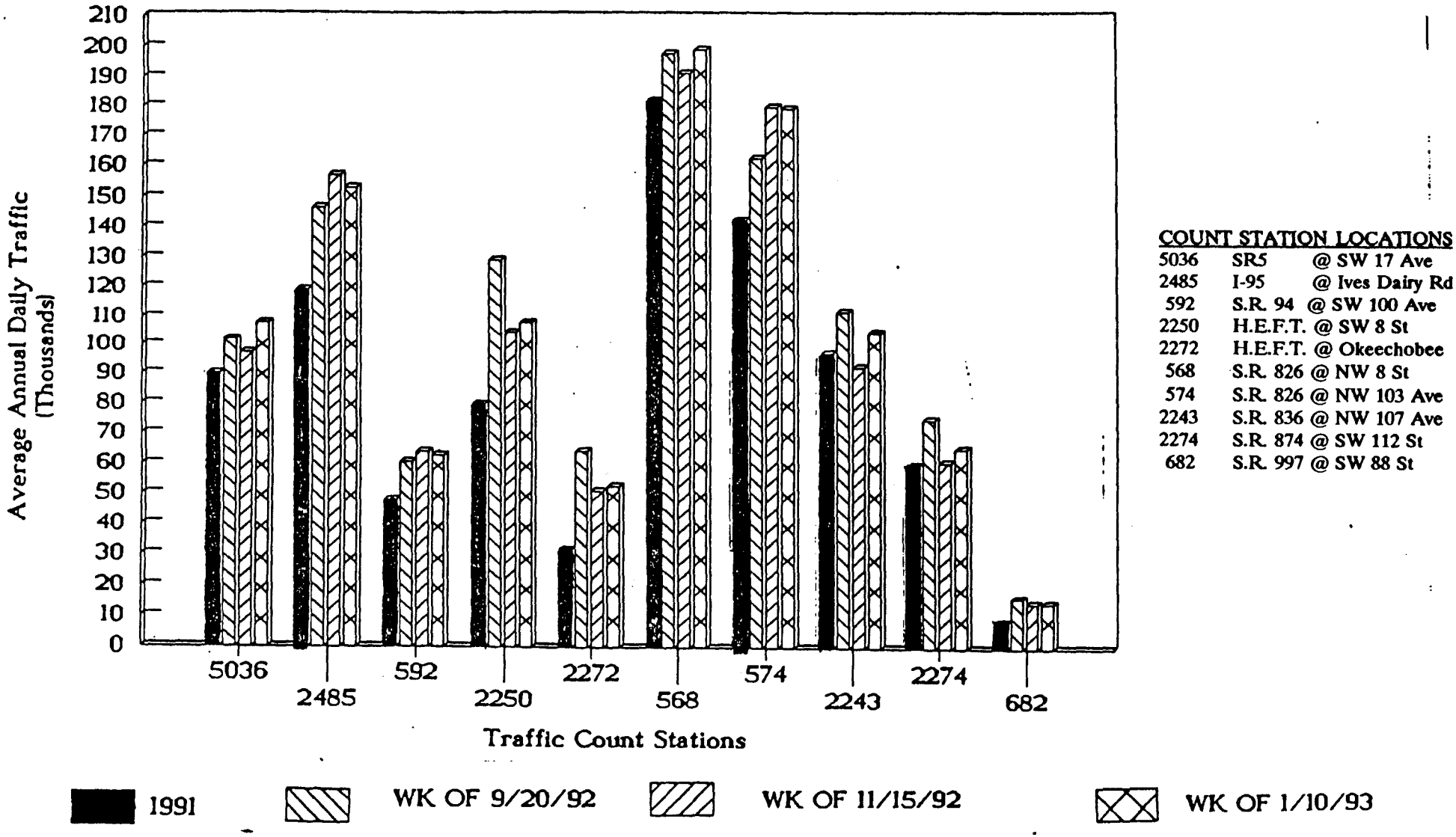
OCEAN BLVD. S.R. A1A COLLINS AV. SUNNY ISLES BLVD. BISCAYNE BLVD. W DIXIE HWY. BROAD CY. ALTON RD. S.R. A1A NE 79TH ST. CY. JULIA TUTTLE CY. I-195 VENETIAN CY. MAC ARTHUR CY. RICKENBACKER CY. CRANDON BLVD. HARBOR DR. I-95 S.R. 915 NE 6TH AV. NE 2ND AV. N MIAMI AV. NE 71ST ST. NE 20TH ST. BRICKELL AV. US-1 S.R. 933 NW 17TH AV. SW 16TH ST. SW 22ND ST. US 441 TURNPIKE S.R. 9 OPA LOCKA BLVD. NW 7TH AV. NW 103RD ST. NW 87TH ST. NE 82ND ST. NW 54TH ST. S.R. 934 S.R. 112 S.R. 25 S.R. 91 FLORIDA NW 22ND AV. S.R. 817 NW 27TH AV. NW 32ND AV. NW 37TH AV. S.R. 847 NW 47TH AVE. S.R. 823 NW 57TH AV. NW 67TH AVE. LUDLAM RD. PALMETTO EXPWY S.R. 826 NW 183RD ST. NW 175TH ST. NW 135TH ST. NW 138 ST. NW 173RD DR. OPA-LOCKA AIRPORT GRATIGNY PKWY S.R. 932 S.R. 953 LEJEUNE RD. E 4TH AV. PALM AV. W 4TH AV. W 8TH AV. W 12TH AV. NW 67TH AV. NW 72ND AV. S.R. 869 S.R. 948 MIAMI INTERNATIONAL AIRPORT PERIMETER RD. NW 7TH ST. W FLAGLER ST. S.R. 90 SW 8TH ST. CORAL WAY SW 37TH AV. SW 62ND AV. SW 67TH AV. SW 72ND AV. S.R. 878 S.R. 94 SW 82ND AV. GALLOWAY RD. SW 87TH AV. SW 92ND AV. SW 97TH AV. SW 102ND AV. SW 107TH AV. SW 112TH AV. SW 117TH AV. SW 122ND AV. SW 127TH AV. SW 132ND AV. SW 137TH AV. SW 147TH AV. MILLER DR. SW 104TH ST. SW 112TH ST. SW 120TH ST. CORAL REEF DR. S.R. 992 METRO ZOO LINDGREN RD. SW 200TH ST. SW 216TH ST. SW 232ND ST. SW 248TH ST. SW 268TH ST. SW 288TH ST. SW 312TH ST. SW 320TH ST. SW 328TH ST. SW 344TH ST. SOUTH DIXIE HWY. OLD CUTLER RD. SUNSET DR. SW 88TH ST. SW 104TH ST. SW 112TH ST. SW 120TH ST. SW 124TH ST. SW 136TH ST. SW 144TH ST. SW 152ND ST. SW 168TH ST. SW 184TH ST. CARIBBEAN BLVD. FRANJO RD. QUAIL ROOST DR. WALDIN DR. HOMESTEAD AIR FORCE BASE NARANJA RD. NEWTON RD. CAMPBELL DR. FLORIDA TURNPIKE W PALM DR. CARD SOUND RD. U.S. 1 OVERSEAS HWY. N KROME AV. SW 177TH AV. SW 187TH AV REDLAND RD. BISCAYNE DR. INGRAHAM HWY. S.R. 9336 S.R. 93 I-75 HOMESTEAD EXTENSION OF FLORIDA TURNPIKE S.R. 25/U.S. 27 OKEECHOBEE RD. NW 106TH ST. NW 36TH ST. NW 1071H AVE. NW 25TH ST. S.R. 836 S.R. 968 S.R. 821 NW 58TH ST. NW 79TH AV. NW 87TH AV. NW 169TH ST. NE 82 AV. NE 87 AV. NW 154 ST. W 68TH ST. MIAMI GARDENS DR. US 27 KROME AV. S.R. 997 TAMIAMI TR. US 41 S.R. 90 S.R. 986 SW 177TH AV.

SOURCE: 1992 FEDERAL FUNCTIONAL CLASSIFICATION, FDOT

C:\JUAN\WORKS\JOHN\DADE\MASTER1 (UPDATE 4-5-94)

FIGURE 2

Normal 1991 AADT vs Post-Hurricane AADT



COUNT STATION LOCATIONS

5036	SR5	@ SW 17 Ave
2485	I-95	@ Ives Dairy Rd
592	S.R. 94	@ SW 100 Ave
2250	H.E.F.T.	@ SW 8 St
2272	H.E.F.T.	@ Okeechobee
568	S.R. 826	@ NW 8 St
574	S.R. 826	@ NW 103 Ave
2243	S.R. 836	@ NW 107 Ave
2274	S.R. 874	@ SW 112 St
682	S.R. 997	@ SW 88 St

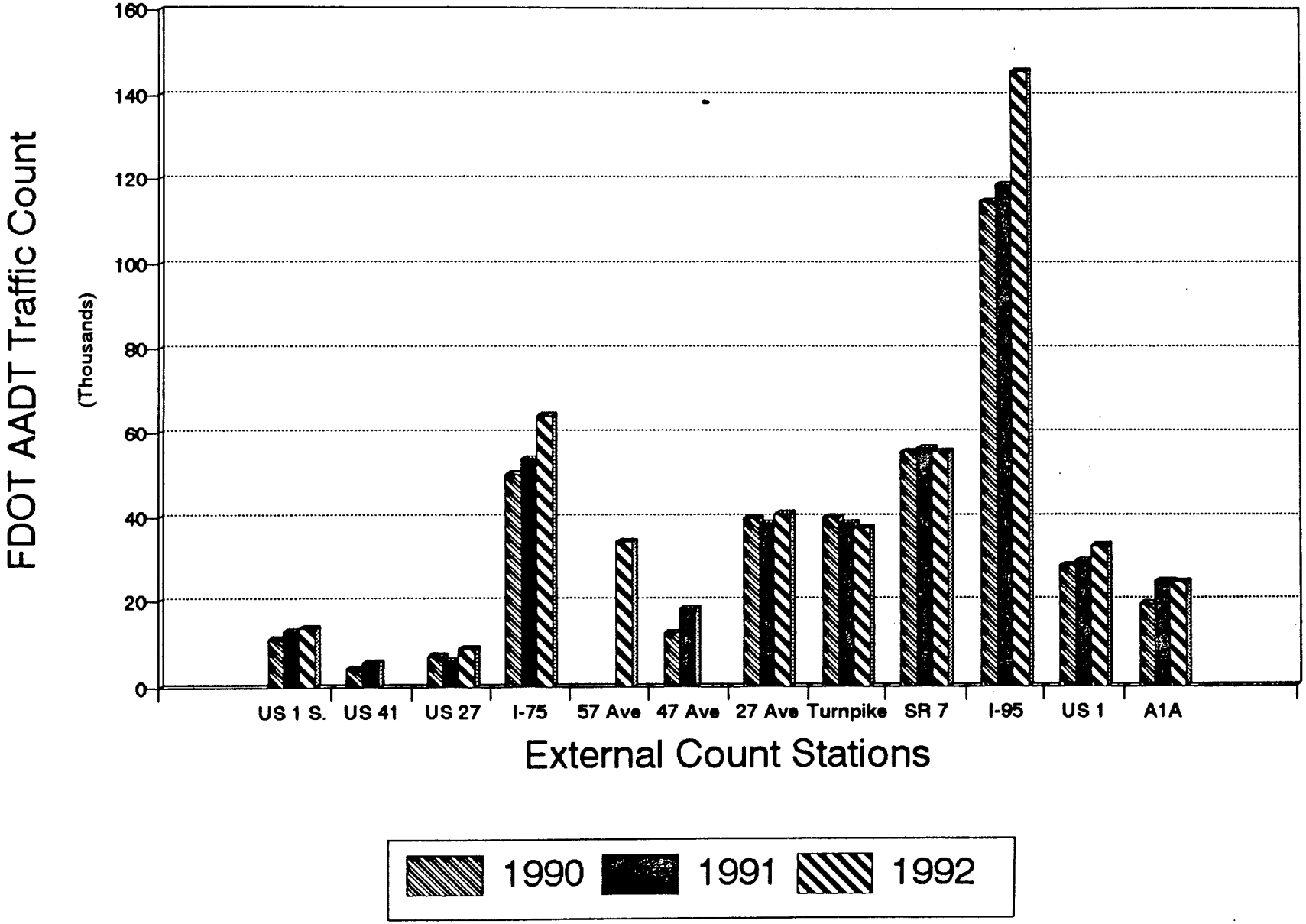
Source: Monitoring Post-Hurricane Traffic Data:
From FDOT District VI Planning and Programs

Table 11

Comparison of External Traffic Counts

Station	External Station	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
9	US 1 S.	11,247	13,125	13,653	11,100	17%	4%	-19%	-1%	1%
3	US 41	4,062	5,703		4,400	40%			8%	13%
584	US 27	7,182	6,055	8,877	12,200	-16%	47%	37%	70%	23%
2503	I-75	50,228	54,060	64,180	81,500	8%	19%	27%	62%	18%
2514	NW 57 Ave.			34,325	33,000			-4%		-1%
32	NW 47 Ave.	12,538	18,033		10,700	44%			-15%	15%
1167	NW 27 Ave.	39,648	38,587	40,570	44,000	-3%	5%	8%	11%	4%
2504	Turnpike	39,953	38,473	37,310	38,500	-4%	-3%	3%	-4%	-1%
365	SR 7	55,416	56,298	55,296	53,500	2%	-2%	-3%	-3%	-1%
2487	I-95	115,037	119,023	145,869	141,000	3%	23%	-3%	23%	8%
268	US 1	28,476	29,437	32,895	31,500	3%	12%	-4%	11%	4%
314	A1A	19,308	24,536	24,252	31,500	27%	-1%	30%	63%	19%
					Average	9%	8%	6%	17%	

Figure 3 Change in Traffic from Outside of Dade County



Broward County has recently experienced a substantial increase in population and employment. There has been a marked increase in travel between the two counties. To assist in the evaluation of internal to external (I-E) trips, estimated changes in population and employment from 1990 to 1993 (pre and post hurricane) as well as the projected change in population and employment for the year 2000 for Broward County will be obtained. This information is being provided by the Broward County Planning Department by TAZ.

3.1.2 Screenlines

Figure 4 is a map showing the location of highway screenlines which will be used to determine historical trends in traffic and to project year 2000 traffic levels. Table 12 indicates the shift in traffic volumes at these screenlines. Table 13 lists the volumes at specific count locations on each screenline.

3.1.3 Corridors

U.S. 1 (South Dixie Highway) is a major north-south arterial serving the South Dade area most effected by Hurricane Andrew. Figure 5 shows the change in traffic along the U.S. 1 corridor before and after the hurricane, based upon FDOT AADT traffic counts.

The Florida Turnpike has experienced significant increases in travel demand since the hurricane. The Turnpike was one of the only major highways that connected South Dade with the rest of the County. Figure 6 shows the change in traffic on the Florida Turnpike from 1990 through 1993.

METRO-DADE MPO
LONG RANGE TRANSPORTATION PLAN UPDATE

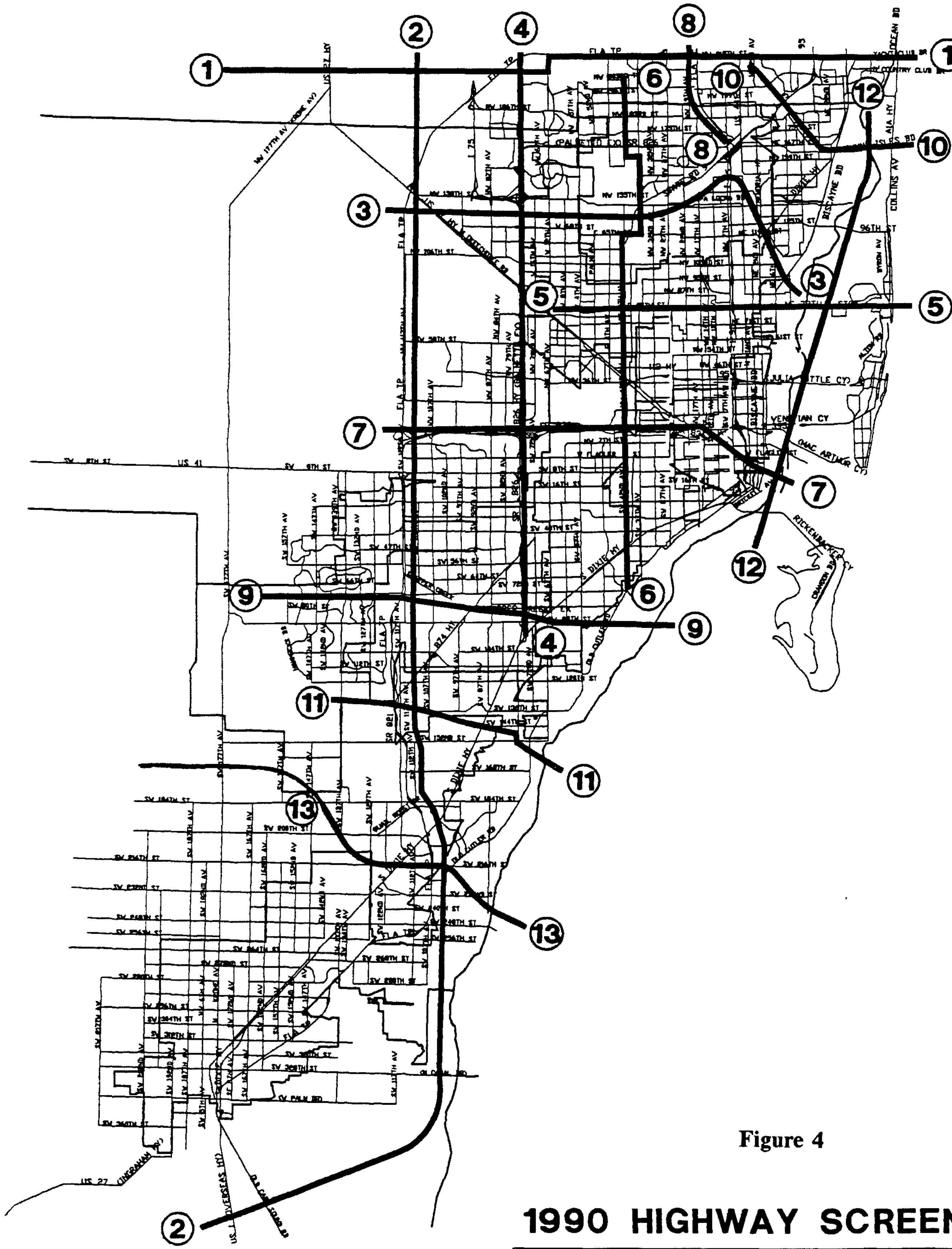


Figure 4

1990 HIGHWAY SCREENLINES

Figure 5 Change in Traffic on U.S. 1 (South Dixie Highway)

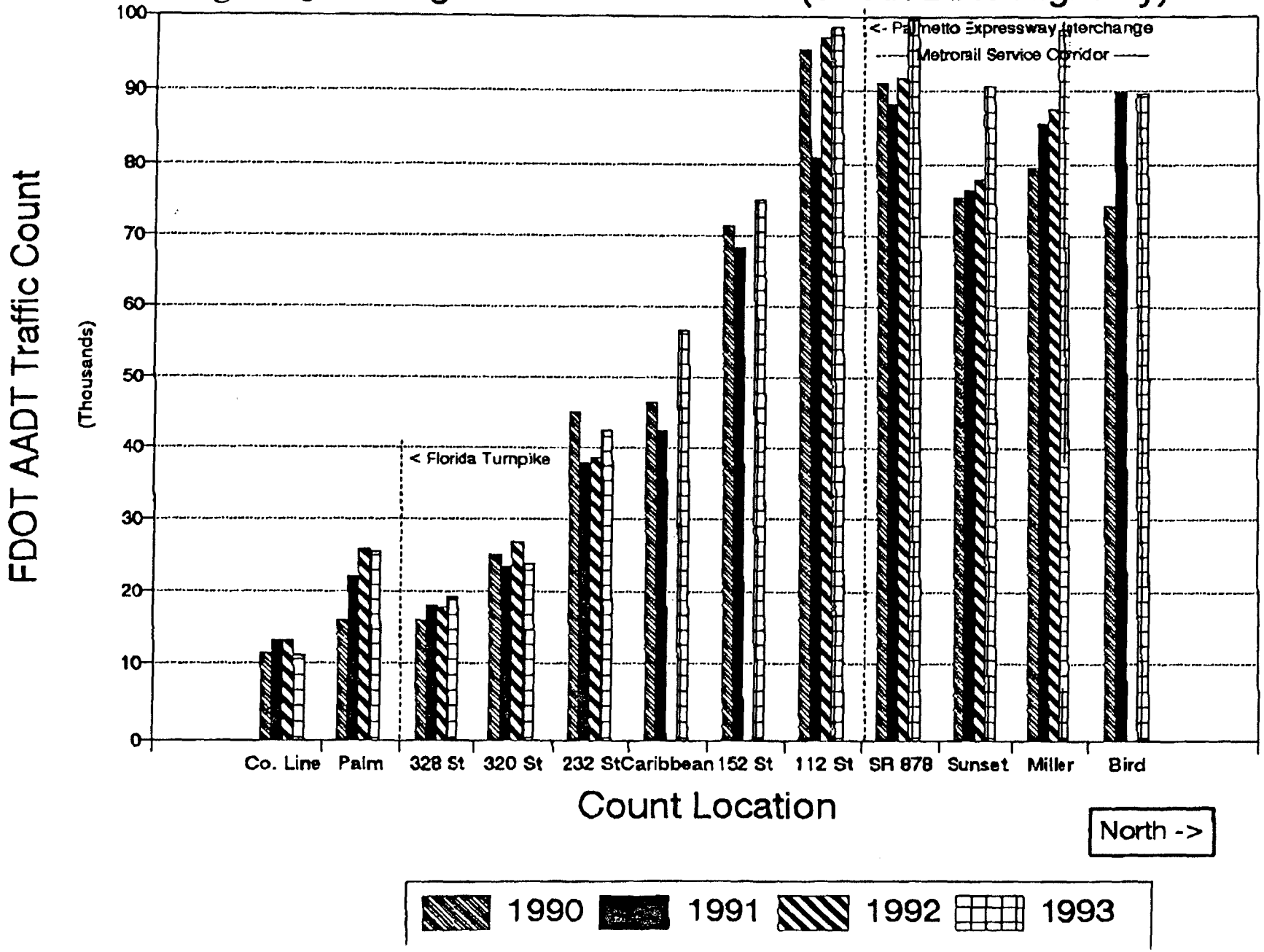


Figure 6 Change in Traffic on the Florida Turnpike

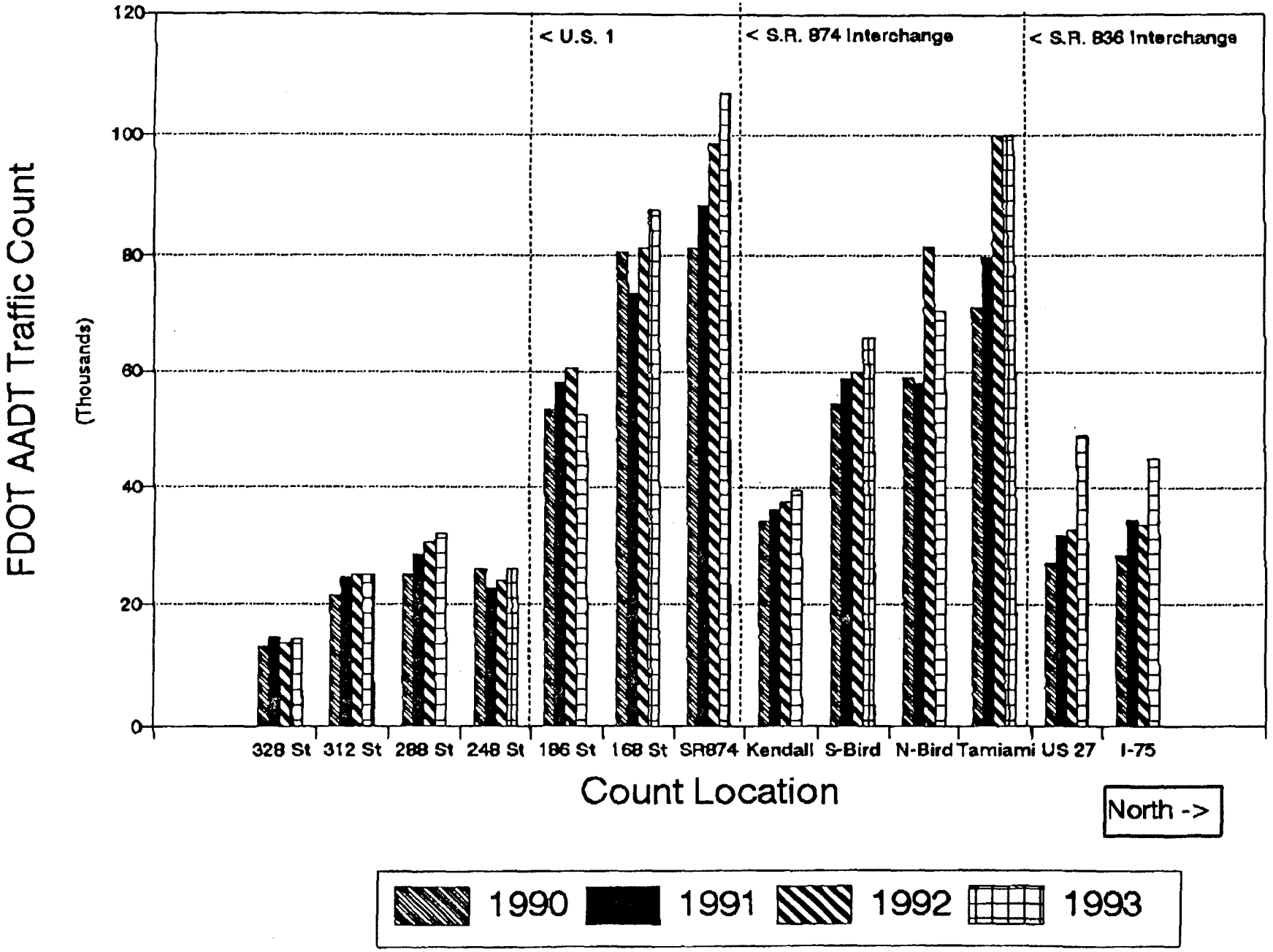


Table 12 Change In Traffic Volumes by Screenline

Screen Line	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
1	348,478	359,966	431,327	445,900	3%	20%	3%	28%	9%
2	339,920	343,310	296,252	408,000	1%	-14%	38%	20%	8%
3	474,883	457,250	274,400	380,100	-4%	-40%	39%	-20%	-2%
4	509,352	540,525	415,500	589,000	6%	-23%	42%	16%	8%
5	358,307	358,249	256,000	359,500	0%	-29%	40%	0%	4%
6	448,261	451,431	256,000	460,400	1%	-43%	80%	3%	12%
7	553,249	542,451	514,500	593,000	-2%	-5%	15%	7%	3%
8	103,125	97,650	98,500	106,500	-5%	N/A	8%	3%	1%
9	165,112	163,419	141,000	191,500	-1%	-14%	36%	16%	7%
10	235,314	224,760	282,000	306,000	-4%	25%	9%	30%	10%
11	75,125	70,804	37,500	81,500	-6%	-47%	117%	8%	22%
12	266,293	285,570	181,000	306,500	7%	-37%	69%	15%	13%
13	130,489	127,390	62,500	61,500	-2%	-51%	-2%	-53%	-18%
				Average	0%	-20%	38%	6%	

Table 13 Screenline Traffic Volumes by Count Station

Screen Line	Count Station	Location	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
1	584	US 27	7,182	6,055	8,877	12,200	-16%	47%	37%	70%	23%
1	2503	I-75	50,228	54,060	64,180	81,500	8%	19%	27%	62%	18%
1	2514	NW 57 Ave.	N/A	N/A	34,325	33,000	N/A	N/A	-4%	N/A	-1%
1	32	NW 47 Ave.	12,538	18,033	11,400	10,700	44%	-37%	-6%	-15%	0%
1	1167	NW 27 Ave.	39,648	38,587	40,570	44,000	-3%	5%	8%	11%	4%
1	2504	Turnpike	39,953	38,473	37,310	38,500	-4%	-3%	3%	-4%	-1%
1	365	SR 7	55,416	56,298	55,296	53,500	2%	-2%	-3%	-3%	-1%
1	2487	I-95	115,037	119,023	145,869	141,000	3%	23%	-3%	23%	8%
1	268	US 1	28,476	29,437	33,500	31,500	3%	14%	-6%	11%	4%
1	314	A1A	19,308	24,536	24,252	31,500	27%	-1%	30%	63%	19%
2	2248	Turnpike	28,138	34,525	33,500	45,000	23%	-3%	34%	60%	18%
2	90	US 41 TamiamiTrail	34,554	35,165	28,500	30,000	2%	-19%	5%	-13%	-4%
2	72	SW 40 St. Bird Road	35,798	32,930	46,500	45,500	-8%	41%	-2%	27%	10%
2	1070	SW 72 Ave.Sunset	40,564	41,775	24,000	48,000	3%	-43%	100%	18%	20%
2	592	KendallDrive	48,064	47,812	51,000	61,500	-1%	7%	21%	28%	9%
2	2274	SR 874	57,966	59,615	59,500	60,500	3%	0%	2%	4%	1%
2	56	SW 152St.	29,000	24,415	29,000	29,500	-16%	19%	2%	2%	2%
2	346	US 1 northof Carribean	46,528	42,537	N/A	56,500	-9%	N/A	N/A	21%	-3%
2	9	US 1 south county-line	11,247	13,125	13,100	11,100	17%	0%	-15%	-1%	0%

Table 1 3 Screenline Traffic Volumes by Count Station (Continued)

Screen Line	Count Station	Location	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
3	109	US 27 OkeechobeeRd	32,313	18,964	20,300	29,000	-41%	7%	43%	-10%	3%
3	575	SR 826 PalmettoXway	134,286	127,918	133,500	14,000	-5%	4%	-90%	-90%	-30%
3	5372	SW 57 AvRed Rd	28,510	28,580	N/A	32,000	0%	N/A	N/A	12%	0%
3	30	NW 42 AvLeJuneRd	28,126	33,137	31,000	32,500	18%	-6%	5%	16%	5%
3	519	NW 27 Ave.	49,752	41,940	45,500	57,500	-16%	8%	26%	16%	6%
3	436	SR 7/441	26,703	23,487	31,000	26,000	-12%	32%	-16%	-3%	1%
3	2134	I-95	163,946	170,099	N/A	178,000	4%	N/A	N/A	9%	1%
3	524	US 1-Biscayne Blvd.	34,464	33,717	26,500	32,500	-2%	-21%	23%	-6%	0%
4	137	SR 826 PalmettoXway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	2511	NW 135 St.	N/A	N/A	36,500	40,500	N/A	N/A	11%	N/A	4%
4	1216	NW 103 St.	50,178	54,819	53,500	47,000	9%	-2%	-12%	-6%	-2%
4	534	NW 74 St.	36,042	37,306	36,000	33,500	4%	-4%	-7%	-7%	-2%
4	1173	NW 36 St.	48,176	62,947	N/A	67,000	31%	N/A	N/A	39%	10%
4	2188	SR 826 PalmettoXway	165,594	158,621	141,000	165,500	-4%	-11%	17%	0%	1%
4	1140	FlaglerSt.	36,742	40,537	54,000	54,000	10%	33%	0%	47%	15%
4	5	US 41 TamiamiTrail	42,155	44,402	42,500	41,500	5%	-4%	-2%	-2%	0%
4	1050	SW 40 St. Bird Road	60,757	72,242	25,500	69,500	19%	-65%	173%	14%	42%
4	1067	SW 72 Ave.Sunset Dr	35,244	35,934	N/A	38,000	2%	N/A	N/A	8%	1%
4	193	SR 878	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	683	KendallDrive	27,811	27,995	N/A	39,000	1%	N/A	N/A	40%	0%

Table 13 Screenline Traffic Volumes by Count Station (Continued)

Screen Line	Count Station	Location	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
5	324	NW 57 Ave.	31,801	32,742	33,500	34,500	3%	2%	3%	8%	3%
5	1180	NW 42 Av LeJuneRd	32,248	34,140	N/A	41,000	6%	N/A	N/A	27%	2%
5	20	NW 27 Ave.	33,270	33,838	32,000	34,000	2%	-5%	6%	2%	1%
5	5144	SR 7/441	22,861	21,202	N/A	21,000	-7%	N/A	N/A	-8%	-2%
5	2036	I-95	210,316	208,332	190,500	190,000	-1%	-9%	0%	-10%	-3%
5	5065	US 1 BiscayneBlvd.	36,642	39,237	N/A	42,500	7%	N/A	N/A	16%	2%
6	1223	NW 135 St.	18,068	18,011	N/A	20,400	0%	N/A	N/A	13%	0%
6	2512	Grant.Parkway	N/A	N/A	29,000	32,500	N/A	N/A	12%	N/A	4%
6	1215	NW 103 St.	40,586	43,165	41,500	37,500	6%	-4%	-10%	-8%	-2%
6	537	NW 79 St.	22,993	25,957	28,000	27,000	13%	8%	-4%	17%	6%
6	541	NW 54 St.	16,377	17,760	N/A	20,000	8%	N/A	N/A	22%	3%
6	107	NW 36 St.	21,055	13,366	16,500	26,500	-37%	23%	61%	26%	16%
6	2207	SR 826 PalmettoXway	132,719	129,964	129,000	143,000	-2%	-1%	11%	8%	3%
6	1138	FlaglerSt.	30,889	31,535	33,500	35,000	2%	6%	4%	13%	4%
6	82	SW 40 St. Bird Road	37,100	38,687	39,500	43,000	4%	2%	9%	16%	5%
6	521	US 1 South Dixie	79,556	85,442	87,500	98,000	7%	2%	12%	23%	7%

Table 13 Screenline Traffic Volumes by Count Station (Continued)

Screen Line	Count Station	Location	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
7	2250	Turnpike	71,144	79,707	100,000	100,000	12%	25%	0%	41%	12%
7	1218	SW 107 Ave.	55,113	62,797	N/A	61,500	14%	N/A	N/A	12%	5%
7	1211	SW 87 Ave.Galloway	50,924	53,581	57,000	49,000	5%	6%	-14%	-4%	-1%
7	569	SR 826 PalmettoXway	196,422	166,902	166,500	180,500	-15%	0%	8%	-8%	-2%
7	1201	SW 72 Ave.Sunset Dr	23,732	21,650	27,500	25,000	-9%	27%	-9%	5%	3%
7	1189	SW 57 Ave.Red Rd	39,258	33,685	36,500	36,000	-14%	8%	-1%	-8%	-2%
7	27	SW 42 Ave.LeJune	51,965	49,761	51,500	57,500	-4%	3%	12%	11%	4%
7	552	SW 27 Ave.	51,160	47,889	47,000	49,000	-6%	-2%	4%	-4%	-1%
8	148	NW 183 St.	31,192	28,959	N/A	41,000	-7%	-100%	N/A	31%	-36%
8	2113	SR 826 PalmettoXway	28,560	28,641	28,500	30,000	0%	0%	5%	5%	2%
9	2252	Turnpike	54,444	58,695	60,000	66,000	8%	2%	10%	21%	7%
9	45	SW 107 Ave.	26,852	23,792	26,500	28,500	-11%	11%	8%	6%	3%
9	1076	SW 87 Ave.Galloway	24,064	23,332	26,000	26,000	-3%	11%	0%	8%	3%
9	563	SR 826 PalmettoXway	68,986	64,955	75,000	70,500	-6%	15%	-6%	2%	1%
9	163	US 1 South Dixie	N/A	N/A	N/A	56,500	N/A	N/A	N/A	N/A	0%

Table 13 Screenline Traffic Volumes by Count Station (Continued)

Screen Line	Count Station	Location	1990 AADT	1991 AADT	1992 AADT	1993 AADT	90-91 Change	91-92 Change	92-93 Change	90-93 Change	Average Change
10	2485	I-95	123,917	119,225	164,000	139,500	-4%	38%	-15%	13%	6%
10	1229	NW 183St.	42,411	40,580	43,000	39,500	-4%	6%	-8%	-7%	-2%
10	5219	US 1	39,173	37,787	N/A	40,500	-4%	N/A	N/A	3%	-1%
10	269	A1A	35,952	33,017	37,500	41,000	-8%	14%	9%	14%	5%
11	2266	Turnpike	81,188	88,294	98,500	107,000	9%	12%	9%	32%	10%
11	33	US 1 South Dixie	71,478	68,320	N/A	75,000	-4%	N/A	N/A	5%	-1%
12	152	NE 183St.	19,185	27,832	25,000	24,000	45%	-10%	-4%	25%	10%
12	556	NE 167St.	37,953	42,553	N/A	39,500	12%	N/A	N/A	4%	4%
12	1023	NE 123St.	19,983	22,536	21,500	23,000	13%	-5%	7%	15%	5%
12	142	NE 79St.	36,506	36,035	36,000	38,000	-1%	0%	6%	4%	1%
12	108	I-95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%
12	31	Mc ArtherCauseway	66,805	69,611	N/A	N/A	4%	N/A	N/A	-100%	1%
13	1095	SW 112Ave.	23,266	20,039	24,000	19,000	-14%	20%	-21%	-18%	-5%
13	8	US 1 South Dixie	40,418	37,740	38,500	42,500	-7%	2%	10%	5%	2%
13	2264	Turnpike	13,092	22,704	24,000	26,000	73%	6%	8%	99%	29%
13	1116	SW 184St. Quail Roost Drive	5,282	6,654	8,200	5,700	26%	23%	-30%	8%	6%

3.2 Transit Counts

Approximately 315 square miles or three-quarters of the urbanized area of Dade County is served by MDTA fixed route service based upon a 1/4 mile service area (the transit level of service standard as defined in the Dade County Comprehensive Master Plan). It is estimated that 96 percent of the Dade County's pre-hurricane population and 94 percent of the county's pre-hurricane employment are within that 1/4 mile service area. Ridership Technical Reports, produced by MDTA Management Information Services, are published on a monthly basis. These reports document system performance and provide detailed information by route about ridership as well as productivity. These monthly reports are the source for the ridership trend analysis summarized in this report. Similar monthly ridership reports are also produced by the Tri-County Rail Authority, which operates commuter rail service connecting Dade, Broward and Palm Beach Counties. A ridership trend analysis of the Tri-Rail system is also provided.

3.2.1 County Wide Transit Counts

The Metro-Dade Transit Agency (MDTA) currently operates a 20 mile heavy rail system carrying 50,000 passengers a day, a 1.9 mile downtown people mover system which serves 10,000 passengers a day and a fixed route bus system of 491 buses during the peak period which carries 210,000 riders a day. Construction of the north and south leg extensions of the downtown people mover were recently completed and are in the pre-revenue testing phase, with revenue service scheduled to begin in May, 1994.

In addition to the standard fixed route transit service, some 200 private jitneys are also currently operating in Dade County. These jitneys and taxi cabs are regulated by the County.

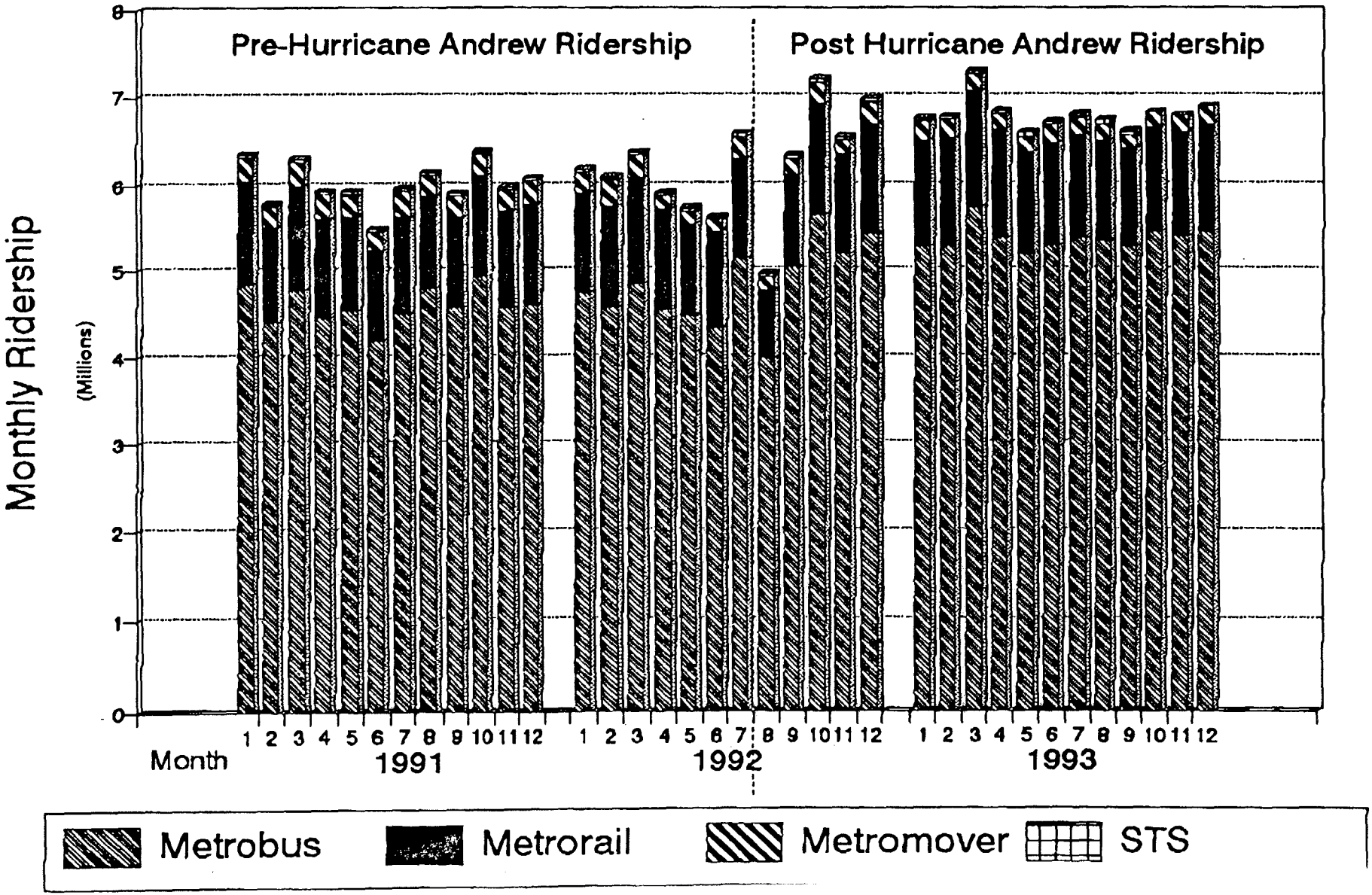
In addition to Dade County Transit, Tri-County Commuter Rail provides regional transit service from Dade to Broward and Palm Beach Counties, serving some 15,000 riders day. Table 14 summarizes and compares the total MDTA transit ridership. Figure 8 graphically compares countywide pre- hurricane and post-hurricane ridership trends.

Table 14 Comparison of Total MDTA Transit Ridership

Month	1991	1992	1993	91-92 Change	92-93 Change	91-93 Change
January	6,399,224	6,249,411	6,829,510	-2%	9%	7%
Feburary	5,819,485	6,160,758	6,851,379	6%	11%	18%
March	6,330,200	6,440,976	7,359,442	2%	14%	16%
April	5,972,306	5,989,669	6,919,192	0%	16%	16%
May	5,941,603	5,796,770	6,671,605	-2%	15%	12%
June	5,534,964	5,708,475	6,794,248	3%	19%	23%
July	6,003,918	6,646,922	6,889,129	11%	4%	15%
August	6,189,183	5,046,859	6,793,056	-18%	35%	10%
September	5,949,940	6,405,835	6,692,836	8%	4%	12%
October	6,453,116	7,281,476	6,847,307	13%	-6%	6%
November	6,050,765	6,611,905	6,815,401	9%	3%	13%
December	6,157,853	7,046,051	6,912,499	14%	-2%	12%
Average	6,066,880	6,282,092	6,864,634	4%	9%	13%

Figure 8

Total MDTA Monthly Ridership



3.2.2 Metrobus

Metrobus operates a total of 73 routes. Total buses in the MDTA fleet is 574, with a peak vehicle requirement of 505 buses. Figure 9 shows the monthly ridership on Metrobus from August 1991 to September 1993. Table 15 identifies the change in monthly ridership by both the number of passengers and the percentage change from the previous year.

Figure 9 Metrobus Ridership Trends

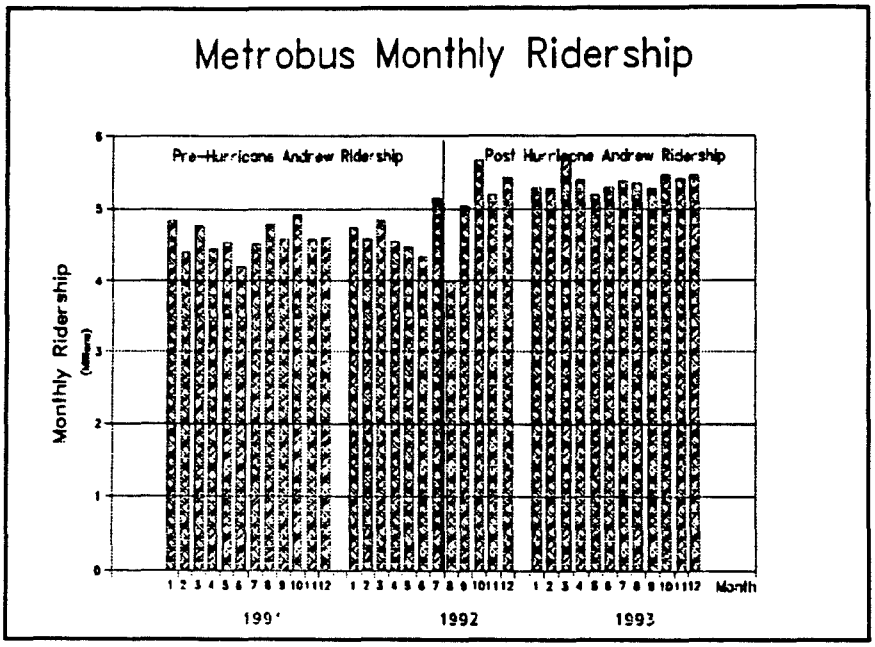


Table 15 Metrobus Monthly Ridership Comparison

	Metrobus Monthly Transit Ridership			Change from Previous Year	
Month	1991	1992	1993	91-92	92-93
January	4,844,476	4,739,783	5,280,972	-2%	11%
February	4,398,571	4,575,278	5,275,448	4%	15%
March	4,774,129	4,842,440	5,743,302	1%	19%
April	4,454,998	4,540,896	5,389,713	2%	19%
May	4,527,307	4,458,965	5,186,160	-2%	16%
June	4,196,116	4,332,272	5,289,640	3%	22%
July	4,508,990	5,138,290	5,376,494	14%	5%
August	4,796,836	3,987,657	5,345,229	-17%	34%
September	4,573,085	5,037,710	5,273,412	10%	5%
October	4,925,978	5,659,240	5,457,947	15%	-4%
November	4,574,978	5,190,938	5,406,532	13%	4%
December	4,596,834	5,431,301	5,446,134	18%	0%
Average	4,597,692	4,827,898	5,372,582	5%	11%

3.2.3 Metrorail

Metrorail is a 20 mile long heavy-rail system with 20 stations. Headways are 7.5 minutes during the peak period and 20 minutes in the off-peak hours. Figure 10 below, shows the change in monthly metrorail ridership from August 1991 through September 1993 (one year prior to Hurricane Andrew and one year after Andrew). Ridership by month and the change in ridership from the previous year is listed in Table 16.

Figure 10 Metrorail Ridership Trends

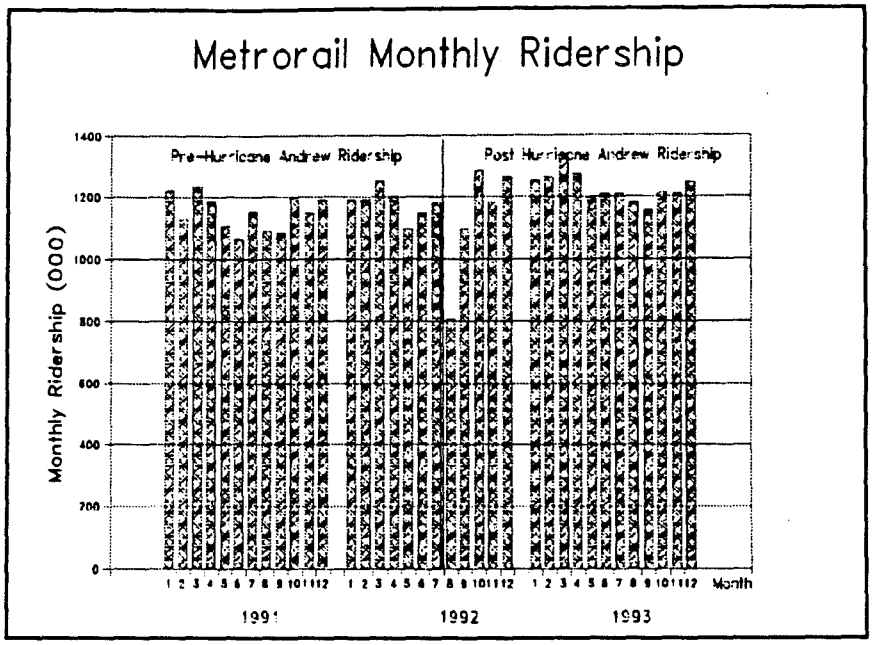


Table 16 Metrorail Monthly Ridership Comparison

	Metrorail Monthly Transit Ridership			Change from Previous Year	
Month	1991	1992	1993	91-92	92-93
January	1,222,029	1,189,587	1,251,303	-3%	5%
February	1,129,960	1,192,892	1,265,438	6%	6%
March	1,233,821	1,250,371	1,337,396	1%	7%
April	1,183,478	1,203,665	1,273,397	2%	6%
May	1,105,908	1,094,506	1,198,398	-1%	9%
June	1,065,327	1,148,590	1,209,370	8%	5%
July	1,151,248	1,181,230	1,208,217	3%	2%
August	1,090,637	806,986	1,181,522	-26%	46%
September	1,085,519	1,094,284	1,157,710	1%	6%
October	1,198,677	1,285,504	1,215,160	7%	-5%
November	1,149,608	1,182,942	1,210,175	3%	2%
December	1,191,210	1,266,706	1,245,684	6%	-2%
Average	1,150,619	1,158,105	1,229,481	1%	6%

3.2.4 Metromover

The Metromover is a 1.9 mile fully automated people-mover system which provides downtown circulation and acts as a distributer system for regional trips coming into the downtown area from Metrorail and Metrobus. The Metromover north and south leg extensions were just recently completed.

Figure 11 shows the monthly ridership for the downtown loop from 1991 through 1993. Table 17 lists the actual monthly ridership and percentage change in ridership from the previous year.

Figure 11 Metromover Ridership Trends

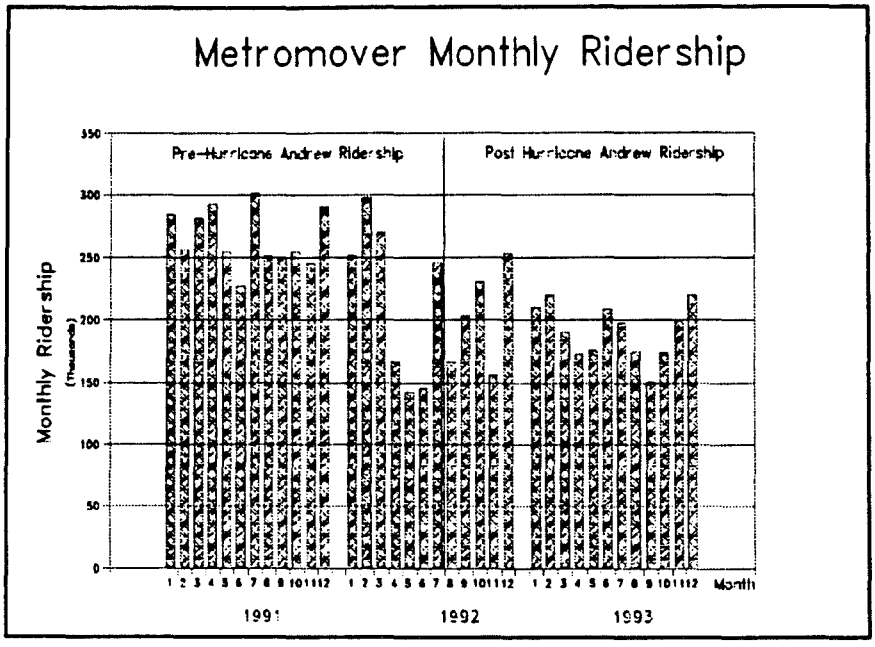


Table 17 Metromover Monthly Ridership Comparison

	Metromover Monthly Transit Ridership			Change from Previous Year	
Month	1991	1992	1993	91-92	92-93
January	283,898	251,580	210,345	-11%	-16%
February	256,004	298,016	220,386	16%	-26%
March	281,146	270,279	190,377	-4%	-30%
April	292,486	167,167	172,889	-43%	3%
May	255,220	142,721	176,462	-44%	24%
June	227,329	145,521	208,593	-36%	43%
July	301,789	246,305	197,982	-18%	-20%
August	251,721	166,669	174,982	-34%	5%
September	249,032	203,452	150,658	-18%	-26%
October	254,817	230,706	174,200	-9%	-26%
November	245,232	156,688	198,694	-36%	-24%
December	290,695	253,503	220,681	-13%	27%
Average	265,781	211,051	191,354	-21%	-9%

3.2.5 STS

The Special Transportation Services (STS) is a shared-ride, curb-to-curb, demand responsive transportation service for the mobility impaired riders who are unable to use the other fixed-route services. STS operates lift equipped vehicles county-wide seven days a week from 6 A.M. to midnight.

Figure 12 below shows the trends in STS usage between 1991 and the end of 1993. Table 18 lists the actual monthly ridership and percentage change by month from 1991 through 1993.

Figure 12 STS Ridership Trends

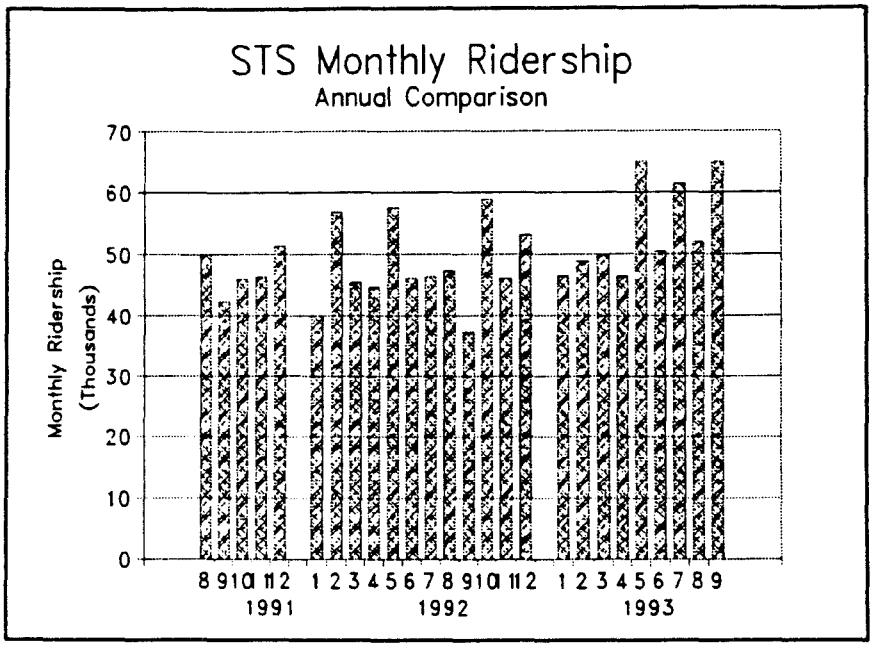


Table 18 STS Monthly Ridership Comparison

	STS Monthly Transit Ridership			Change from Previous Year	
Month	1991	1992	1993	91-92	92-93
January	48,821	40,031	46,651	N/a	17%
February	34,950	56,850	48,922	N/a	-14%
March	41,104	45,497	49,810	N/a	9%
April	41,344	44,866	46,632	N/a	4%
May	53,168	57,543	65,034	N/a	13%
June	46,192	46,172	50,425	N/a	9%
July	41,891	46,416	61,392	N/a	32%
August	49,989	47,249	51,890	-5%	10%
September	42,304	37,278	64,952	-12%	74%
October	46,083	58,853	N/A	28%	N/a
November	46,346	46,238	N/A	0%	N/a
December	51,393	53,172	N/A	3%	N/a
Average	45,299	48,347	53,968	7%	

3.2.6 Tri-County Commuter Rail Service

Tri-Rail is a 67 mile commuter rail system serving Dade, Broward and Palm Beach Counties since 1989. The system includes 15 stations with three in Dade County (Golden Glades, Northside Metrorail Station and Miami International Airport).

Figure 13 shows the annual trend in monthly ridership on Tri-Rail for 1991, 1992 and 1993 which includes the interval of time impacted by Hurricane Andrew and the rebuilding period that followed. Table 19 shows the change in monthly Tri-Rail ridership from 1990 through 1993. Table 20 indicates the percentage change in ridership from month-to-month. Figure 14 provides a graphic comparison of monthly Tri-Rail ridership.

Figure 13 Tri-Rail Annual Ridership Trends

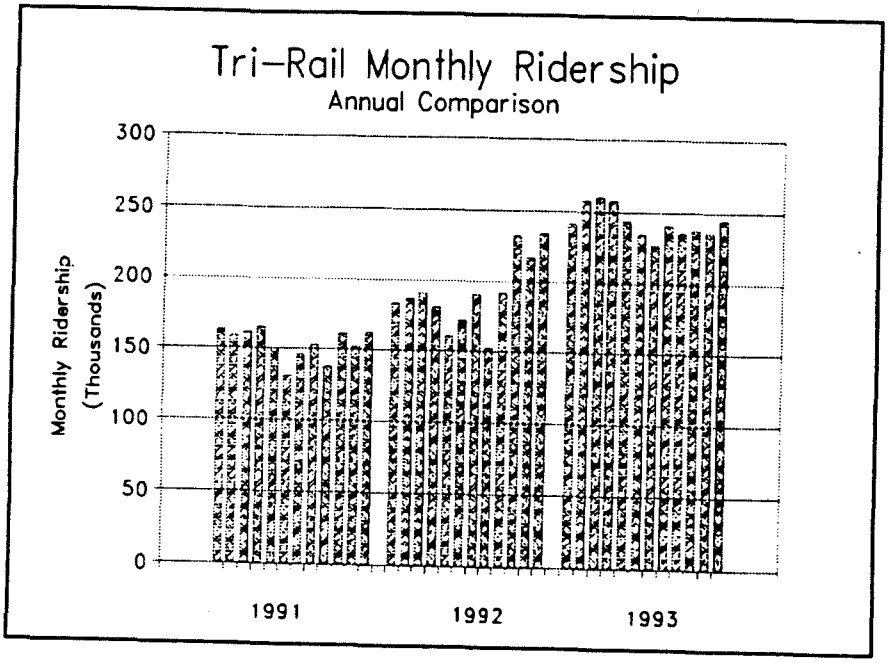


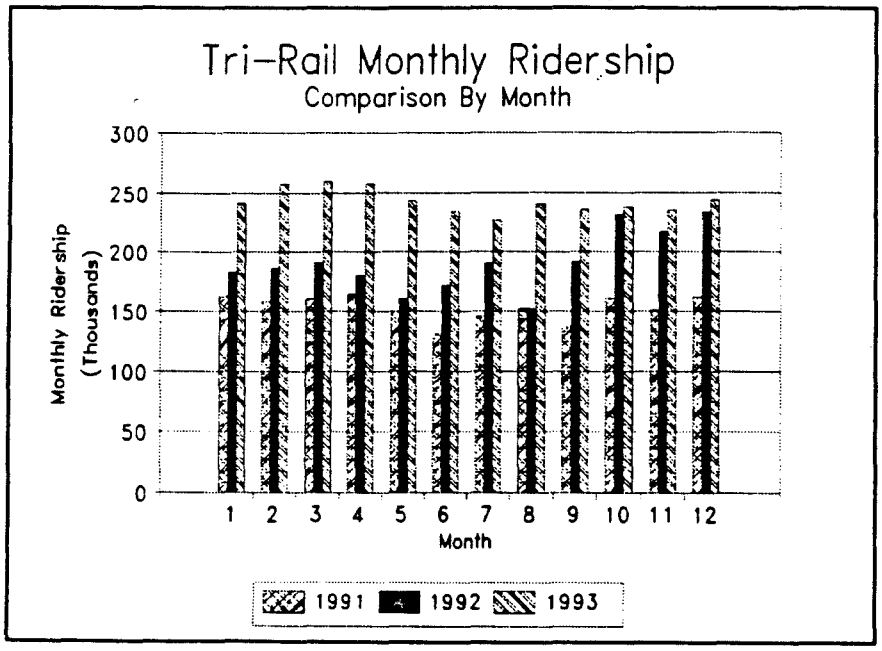
Table 19 Tri-Rail Monthly Ridership

Month	1989	1990	1991	1992	1993
January	53,791	89,829	162,140	182,736	241,417
February	58,886	93,500	158,277	185,918	257,504
March	74,892	111,477	160,170	190,266	259,947
April	64,439	110,615	164,418	180,533	257,580
May	67,233	113,776	149,797	159,900	243,284
June	55,972	107,588	131,127	171,391	234,534
July	53,278	112,834	145,320	189,511	226,549
August	61,538	137,848	152,549	151,805	240,759
September	53,795	113,261	137,258	191,725	235,664
October	62,364	140,990	161,054	231,936	238,166
November	58,731	138,954	151,259	216,679	235,511
December	58,192	134,836	161,265	233,989	244,622
Average	60,259	117,126	152,886	190,532	242,961
Total	723,111	1,405,508	1,834,634	2,286,389	2,915,537
Change from Previous Year		94%	31%	25%	28%

Table 20 Percent Monthly Change in Tri-Rail Ridership

Month	89-90 Change	90-91 Change	91-92 Change	92-93 Change
January	67%	80%	13%	32%
February	59%	69%	17%	39%
March	49%	44%	19%	37%
April	72%	49%	10%	43%
May	69%	32%	7%	52%
June	92%	22%	31%	37%
July	112%	29%	30%	20%
August	124%	11%	0%	59%
September	111%	21%	40%	23%
October	126%	14%	44%	3%
November	137%	9%	43%	9%
December	132%	20%	45%	5%

Figure 14 Tri-Rail Monthly Ridership Comparison



4.0 TRAVEL CHARACTERISTICS

A general household travel and hurricane impact survey was conducted during November and December of 1993 and during January of 1994. The purpose of the survey was to obtain information from residents regarding changes in their travel characteristics in Dade County. The types of travel characteristics surveyed included: travel origins, travel destinations, travel path changes and temporal or modal shifts.

Two surveys were conducted:

- A contact survey was conducted by telephone among randomly selected Dade County heads of households inquiring how Hurricane Andrew had effected the travel characteristics of household members.

- A travel diary was completed by cooperating households, detailing trips taken by all household members during a specifically assigned weekday.

To develop representative travel characteristics, Dade County was divided into six geographic regions: Eastern, Northeastern, Northwestern, Western, Central and Southern. A minimum sample of 400 households per region was specified to ensure county-wide geographic representation. This minimum sample resulted in the completion of over 3,700 contact (hurricane impact) surveys. Travel diaries were completed by 3,855 residents residing in 2,656 households. The number of contact surveys and travel diaries completed for each region is shown in Table 21.

The travel diaries were completed on a single weekday for all family members on a Monday, Tuesday, Wednesday or Thursday. Travel origins and travel destinations for all trips by all family members were elicited. As a result, information regarding current travel characteristics and changes in travel which occurred in response to Hurricane Andrew were summarized and expanded to represent the Dade County population. A total of 5,761 households agreed to participate in the travel diary phase of the survey after completing the telephone contact survey. Of these, 2,656 households (approximately 46 per cent) responded with completed travel diaries.

Table 21 Demographic Surveys and Travel Diaries by Region

Region	Hurricane Impact Surveys Completed	Travel Diaries Completed	
		Number of Households	Number of Diaries
Eastern	701	437	566
Northeastern	598	436	620
Northwestern	667	406	562
Western	564	478	815
Central	679	486	635
Southern	541	413	657
County-Wide	3750	2656	3855

4.1 Changes in Travel Origins

At the time Hurricane Andrew struck on August 24, 1992, 95 percent of the households which were surveyed resided in Dade County. Changes in travel origins were determined by surveying heads of household who resided in the county at the time that Hurricane Andrew struck. Of those heads of households who were living in Dade County in August, 1992, 14 percent are now living in a different residence. This represents approximately 96,300 households. Of the 96,300 households now living in a different residence, 43 percent (almost 42,000 households) were forced to move due to damage to their homes caused by Hurricane Andrew. This resettlement impacted all regions of the county. The least affected regions were the Eastern and Northeastern Regions where less than 10 per cent of the households have relocated since Hurricane Andrew. The most affected Region was the Southern Region, where over 44 percent of the residents have changed households since the hurricane.

At least 7,700 of the pre-Andrew South Dade households which relocated are now living elsewhere in Dade County. The Western and Northwestern Regions of Dade County have combined to absorb to more than 7,300 households since the storm. Approximately 53 per cent of all hurricane-related household moves (almost 42,000 households) were the result of a totally destroyed dwelling. The remaining 47 per cent (approximately 19,500 households) were forced to move because of extensive damage to their homes. Only 8 percent (approximately 3,200 households) of those who moved because of hurricane damage plan to return to their pre-Andrew residence. Thus, the location of nearly 39,000 households will be permanently changed among households which remain within Dade County. An additional 11,000 Dade County households are estimated to have moved to Broward and Palm Beach Counties due to Hurricane Andrew.

4.2 Changes in Travel Destinations

Changes which have occurred in travel destinations were measured by determining the percent of the population which changed workplace or school location. Approximately one-third of Dade County's pre-Andrew residents are currently employed at a different workplace. Nearly 12 percent of these changes were brought about by Hurricane Andrew. (Fifty-eight percent of the Hurricane Andrew changes occurred due to forced business relocations and 42 percent occurred due to business closures). Thirty nine percent of the Southern Region households surveyed changed workplace due to hurricane effects. About 15 percent of those residents who relocated are still planning to return to their former workplace.

24 per cent of Dade County children are now attending a different school than they attended in August, 1992. About one of every five of these school relocations occurred due to Hurricane Andrew. Ninety-one percent of pre-Andrew schools are planned to re-open. In South Dade, 41 percent of all residents are driving their children to different schools since Hurricane Andrew. Over one-third of these school changes occurred due to the effects of the storm.

4.3 Travel Path Changes

Travel patterns to and from work continue to be dramatically or somewhat affected by Hurricane Andrew for just 21 percent of all pre-Andrew residents of Dade County. This varies from a low of under 11 percent in the Eastern Region to over 25 percent in the Western and Southern Regions of the County. Increases in travel distance to work have impacted 24 percent of all county residents. The average additional distance travelled by the county's residents to and from work is approximately 22 miles. Residents of the Southern Region are travelling an additional 25 miles; the Northeastern Region an additional 24 miles; and the other Regions an additional 22 miles or less.

Nearly 20 percent of all Dade County residents who drive children to school continue to experience changes when taking children to and from schools. The greatest effect is being experienced in the Southern and Western Regions, where 26 percent and 23 percent, respectively, of these households continue to be affected.

4.4 Temporal and Modal Shifts

The vast majority of people in all Regions continue to experience increases in travel time for grocery shopping, movies, visiting friends, other shopping, banking, or church attendance. Travel distances have also consistently increased throughout the county. Depending on the trip purpose, between 2.8 percent and 6.8 percent of all residents have changed their travel route. The mode of transportation has changed for over 26 percent of Dade County

residents. This change in mode has occurred for the following percent of residents by trip purpose:

Grocery Shopping	23.2%
Movies	29.5%
Visiting Friends	30.5%
Other Shopping	31.4%
Banking	15.7%
Church	16.7%

For each of these six trip purposes, the Southern Region has experienced the greatest impact in change of the mode of transportation used:

Grocery Shopping	40.3%
Movies	45.7%
Visiting Friends	53.2%
Other Shopping	49.6%
Banking	41.5%
Church	53.7%