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16. Abstract

This report documents the development and implementation of the traffic monitoring plan for the North Central Expressway Corridor. The report also provides a summary of the travel time and volume data collected during October 1989 and May 1990, as well as the vehicle occupancy and classification studies conducted during May 1990.

The primary purpose of these two studies is to provide a pre-construction traffic database. These data will aid in monitoring the changes in traffic conditions that might occur in the North Central Expressway Corridor as a result of construction. These studies are also intended to aid in the following: (1) traffic management planning for future phases of the North Central Project and for future projects in the Dallas area, (2) development of optimal signal timing plans for the arterial streets in the corridor, (3) public affairs programs which inform the public about traffic conditions and travel alternatives, (4) DART bus route and schedule planning, and (5) validation of portions of the North Central Texas Council of Governments (NCTCOG) peak hour traffic model.

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US-75 NORTH CENTRAL EXPRESSWAY RECONSTRUCTION: PRE-CONSTRUCTION TRAFFIC CONDITIONS

Report 9841E-2

Prepared for

North Central Project Office
State Department of Highways and Public Transportation
District 18, Dallas

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November 1990
(Revised July 1991)

METRIC (SI*) CONVERSION FACTORS

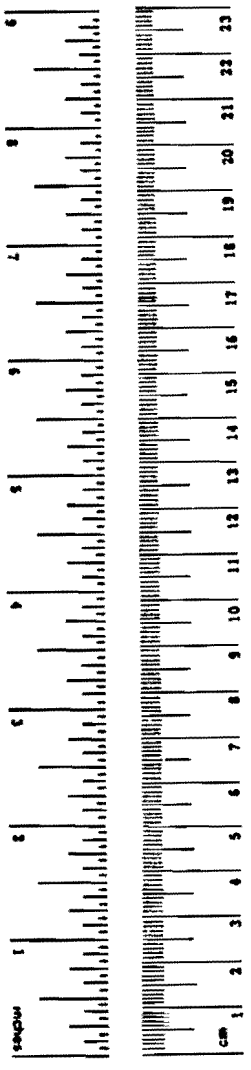
APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	2.54	centimetres	cm
ft	feet	0.3048	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km
AREA				
in^2	square inches	645.2	centimetres squared	cm^2
ft^2	square feet	0.0929	metres squared	m^2
yd^2	square yards	0.836	metres squared	m^2
mi^2	square miles	2.59	kilometres squared	km^2
ac	acres	0.395	hectares	ha
MASS (weight)				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
VOLUME				
fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft^3	cubic feet	0.0328	metres cubed	m^3
yd^3	cubic yards	0.0765	metres cubed	m^3

NOTE: Volumes greater than 1000 L shall be shown in m^3.

TEMPERATURE (exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



APPROXIMATE CONVERSIONS TO SI UNITS

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LENGTH				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi
AREA				
mm^2	millimetres squared	0.0016	square inches	in^2
m^2	metres squared	10.764	square feet	ft^2
km^2	kilometres squared	0.39	square miles	mi^2
ha	hectores (10 000 m^2)	2.53	acres	ac
MASS (weight)				
g	grams	0.0353	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams (1 000 kg)	1.103	short tons	T
VOLUME				
mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m^3	metres cubed	35.315	cubic feet	ft^3
m^3	metres cubed	1.308	cubic yards	yd^3

TEMPERATURE (exact)

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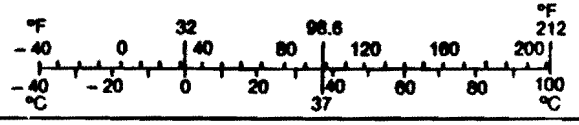

These factors conform to the requirement of FHWA Order 5190.1A.

* SI is the symbol for the International System of Measurements

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DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented within. The contents do not necessarily reflect the views or policies of the Texas Department of Transportation. This report does not constitute a standard, specification or regulation. It is no intended for construction, bidding or permit purposes. The report was prepared by Steven D. Wohlschlaeger and Raymond A. Krammes (Texas P.E. Registration #66413).

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INTRODUCTION

The reconstruction of the North Central Expressway south of the LBJ Freeway began in the Summer of 1990. As part of its efforts to minimize the adverse impacts of the North Central Expressway reconstruction project, District 18 of the Texas State Department of Highways and Public Transportation (SDHPT) has contracted with the Texas Transportation Institute (TTI) to monitor travel patterns and traffic conditions throughout the North Central corridor before and during the project.

The monitoring plan implemented by TTI includes the collection of traffic volume, vehicle classification and occupancy, and travel time data both before and during the reconstruction project. These data will aid in determining the changes in traffic patterns and conditions that result from reconstruction. In addition to the collection of these data, automobile and transit users in the corridor will be surveyed in order to understand the perceptual and behavioral changes in travel at an individual level (1). The monitoring plan was designed to provide information for numerous purposes: (1) traffic management planning for future phases of the North Central project and for future projects in the Dallas area, (2) the development of optimal signal timing plans for the arterial streets in the corridor, (3) public affairs programs to inform the public about traffic conditions and travel alternatives, (4) DART bus route and schedule planning, and (5) validation of portions of the North Central Texas Council of Governments (NCTCOG) peak hour traffic model.

This report documents the development and implementation of the traffic monitoring plan for the North Central Expressway corridor. The report also provides a summary of the travel time and traffic volume data collected during October 1989 and May 1990, as well as the vehicle occupancy and classification studies conducted during May 1990.

TRAFFIC MONITORING PLAN

Two separate studies have been conducted to date. These studies were conducted at different times of the year to help quantify and control for seasonal variations in travel patterns in the North Central Expressway corridor. The first was conducted in October 1989. The second, and more extensive study, was conducted in May 1990. The purpose of these studies is to provide a before-construction traffic database. These data will aid in monitoring the changes in traffic conditions that might occur in the North Central Expressway corridor as a result of construction. These studies are also intended to aid in traffic management planning for the phases of construction on the S-sections which are located south of Mockingbird Lane and are scheduled to begin in 1992.

The monitoring plan focuses on the north-south movements of traffic in the corridor, although selected east-west movements are also being monitored. It was determined that screen line volume counts, travel times, and vehicle occupancy and classification data, as well as automobile and transit user information would be collected.

All or portions of the May 1990 study will be replicated throughout the reconstruction project. These data collection activities will take place biannually, during the months of October and May.

Screen Line Traffic Volumes

Volume counts were made at selected locations, using portable pneumatic tube counters and/or time-lapse video equipment. These locations form four separate screen lines. Continuous 15-minute directional volumes were collected at all locations on Tuesday, Wednesday, and Thursday. This period represents average midweek travel. Where possible, portable pneumatic tube counters were used. A time-lapse VCR together

with a low light video camera were used for recording traffic volumes on US-75, due to the impracticality of setting out pneumatic tube counters.

Count locations are identified in Figure 1. Three of the screen lines (Loop 12, Mockingbird/Buckner, and Oak Lawn/Lemmon/Peak) will be used to identify changes in travel patterns on north-south routes during reconstruction. Volume counts were taken at the intersections of all screen lines with the alternative routes, as well as at various other selected locations. The fourth screen line, which bisects US-75, was established with the intent of measuring diversion caused by the possible cross-street and ramp closures, as well as by the main lane reconstruction.

Travel Times and Average Travel Speeds

Fourteen alternative routes, eleven of which run roughly parallel to the North Central Expressway and provide access from north of I-635 into the Central Business District (CBD), were monitored. The bounds of the CBD were taken to be Woodall Rodgers to the north and US-75 to the east. The other alternative routes run from east to west and correspond to the three screen lines: Loop 12, Mockingbird/Buckner, and Oak Lawn/Lemmon/Peak. Figure 2 highlights the travel time routes.

Travel times runs were made on each route during both the A.M. and P.M. peak periods. The A.M. peak lasts from 6:00 until 9:00 A.M., and the P.M. peak spans from 3:00 until 7:00 P.M.. Runs were made at half hour intervals in each direction. Travel time runs were made using the "floating car" technique. Using this technique, the driver approximates the median speed of the traffic stream by passing as many vehicles as pass the test car. The full route designations and the number of repetitions made on each route during both the October 1989 and May 1990 studies, along with the total length of each alternative route in both the southbound and northbound directions, can be found in Tables 1 and 2, respectively. Travel time runs were made on the three east-west routes during May 1990 only. Route designations and lengths for these routes can be

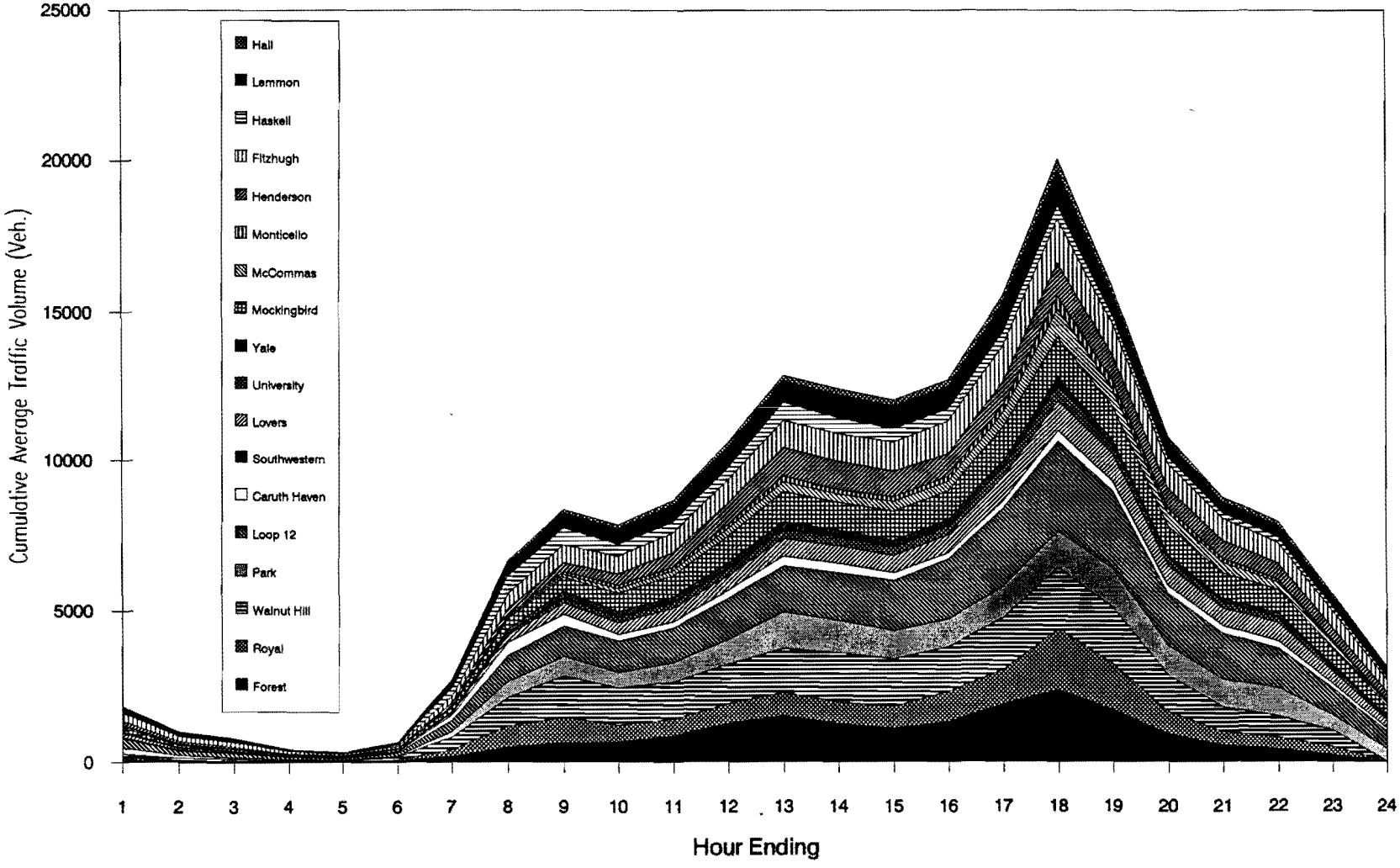


Figure 11. US-75 Screen Line Average Traffic Volumes (May 1990): Eastbound

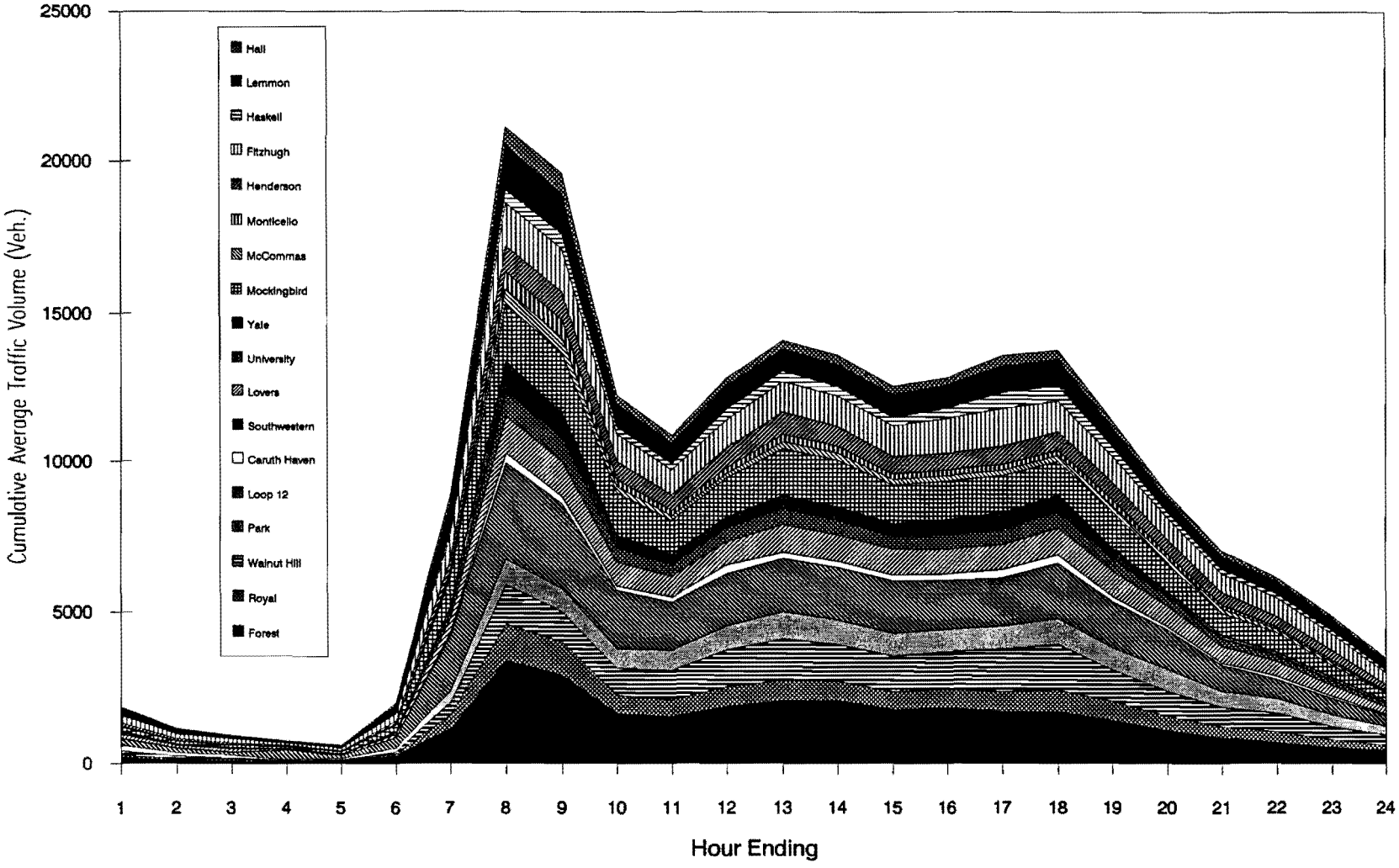
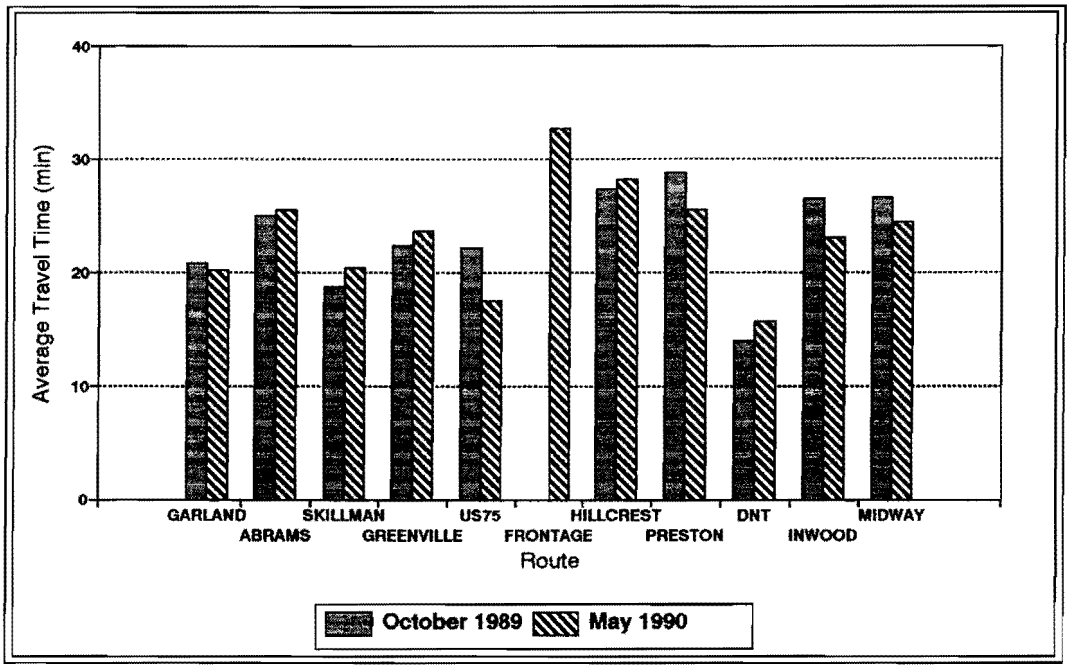
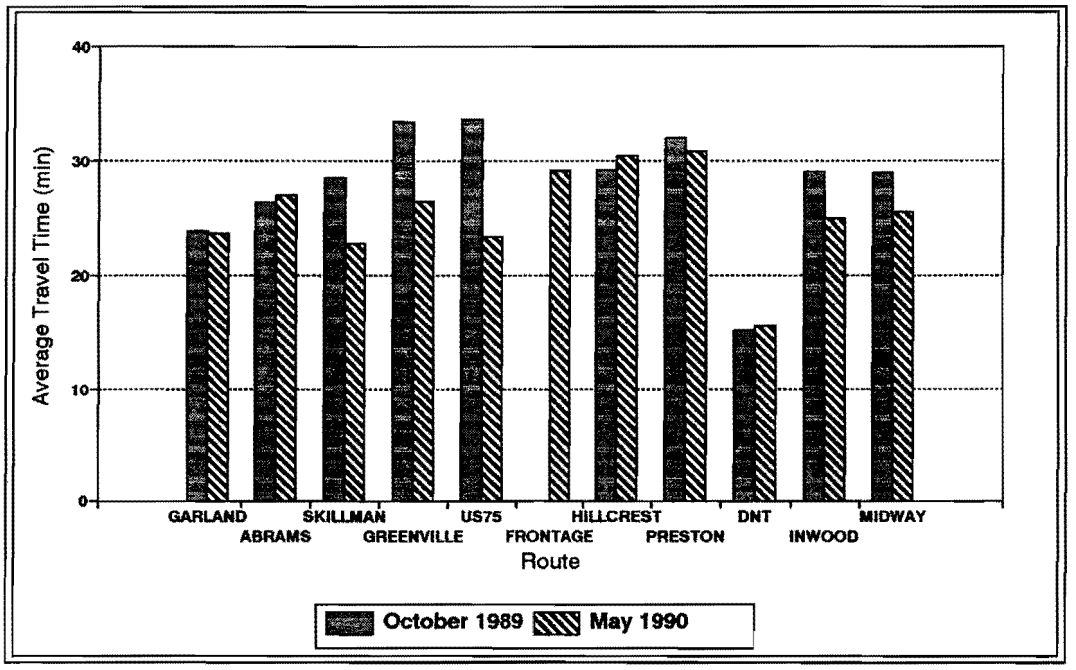


Figure 12. US-75 Screen Line Average Traffic Volumes (May 1990): Westbound

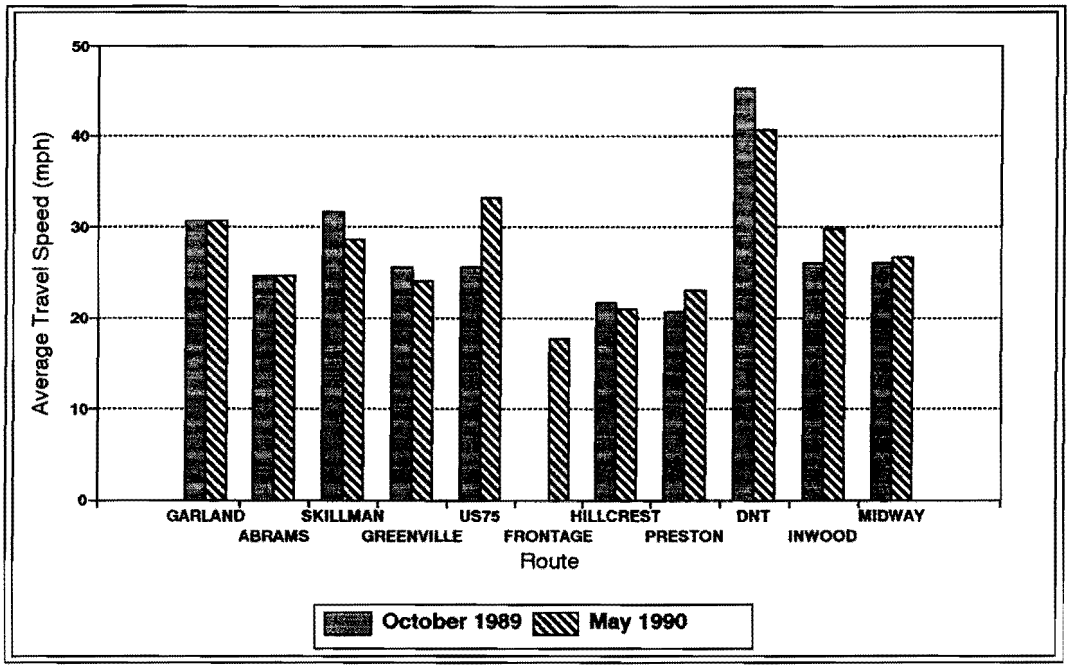


(a) A.M. Peak

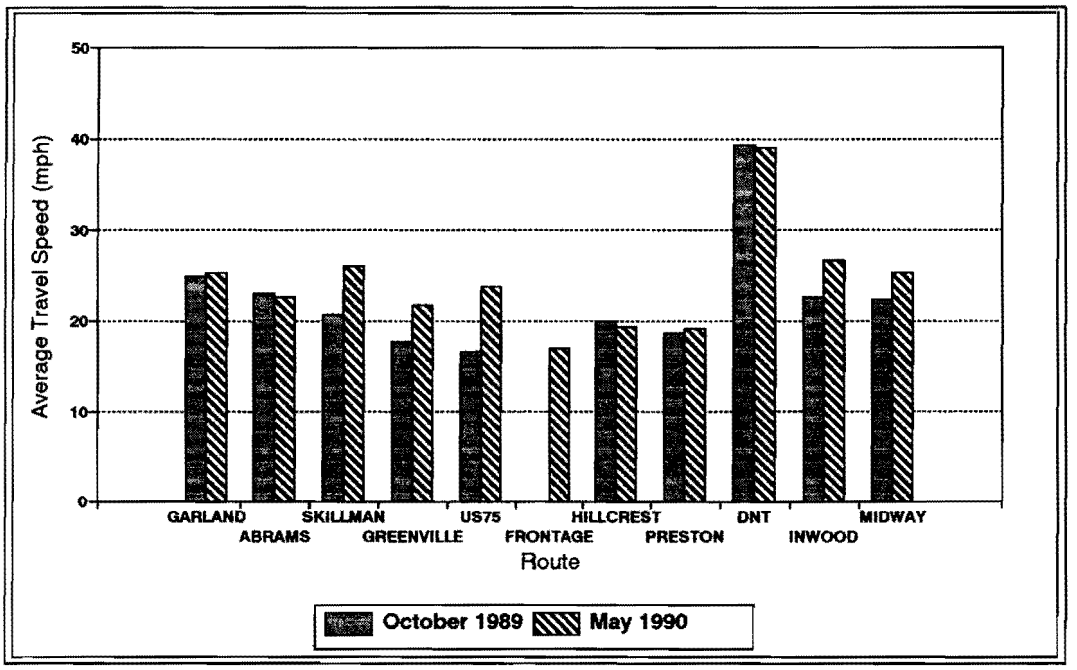


(b) P.M. Peak

Figure 13. Average Peak Hour, Peak Direction Travel Times Between I-635 and CBD



(a) A.M. Peak

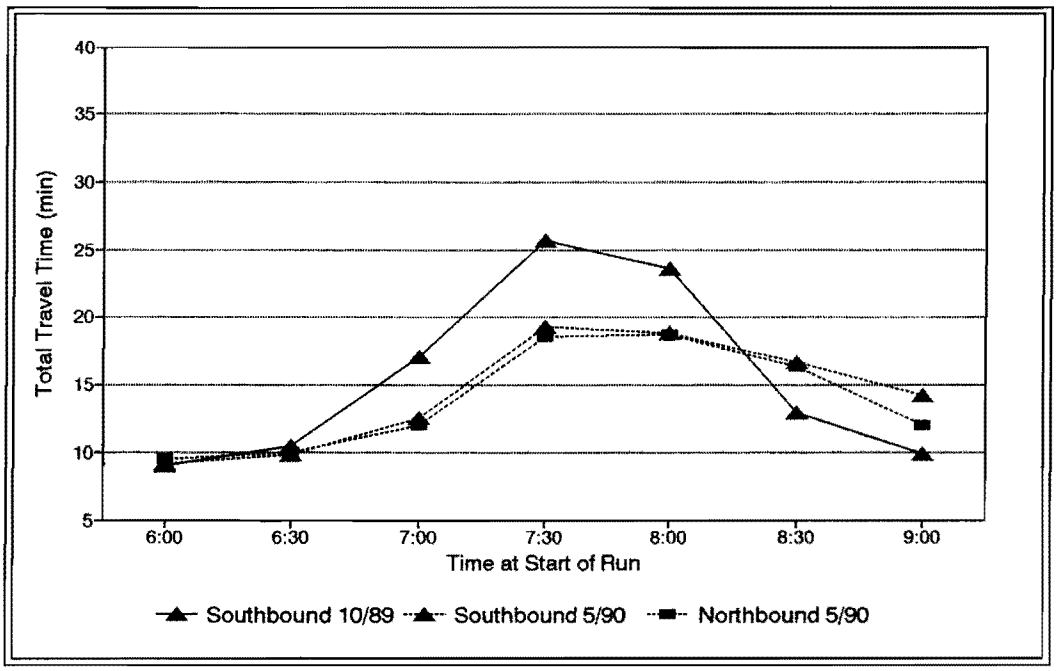


(b) P.M. Peak

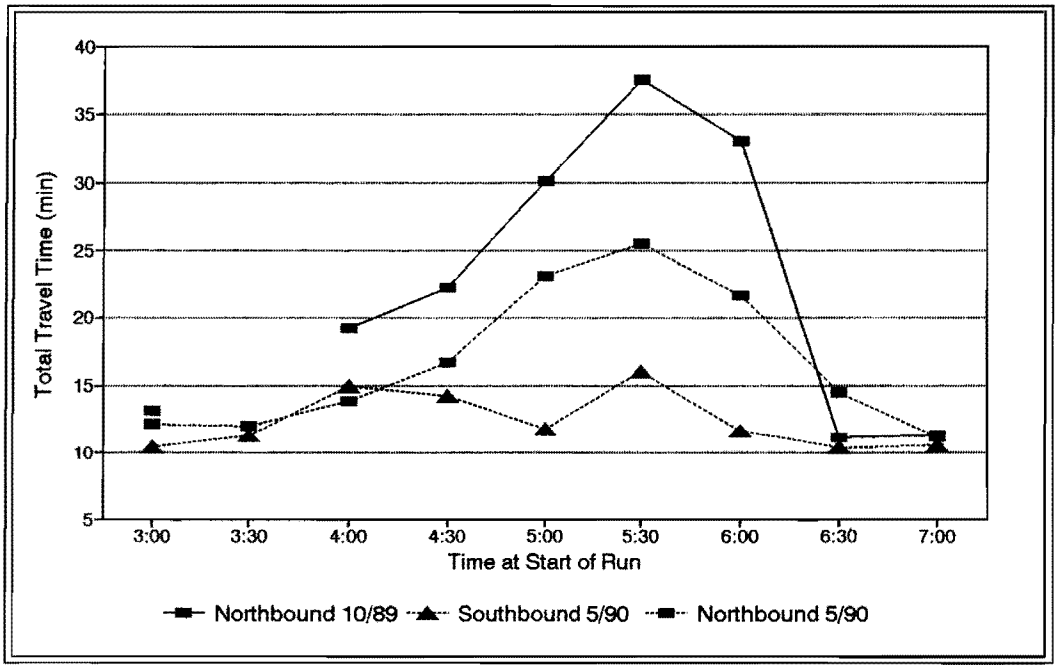
Figure 14. Average Peak Hour, Peak Direction Travel Speeds Between I-635 and CBD

travel time and; therefore, the highest average travel speeds. Because travel times reflect the varying distances between IH-635 and the CBD for each alternative route, average travel speed is considered a better measure for comparing the different routes. Average travel times were higher during May 1990 than during October 1989 which can be attributed to the seasonally higher traffic volumes during May 1990.

Figures 15 and 16 show the peak period total travel time and average travel speeds for US-75. The longest total travel time, and therefore the lowest average travel speed, was recorded at 7:30 A.M. during the A.M. peak period and at 5:30 P.M. during the P.M. peak period for both the October 1989 and May 1990 studies. Figures summarizing these data for the rest of the alternative routes that were monitored can be found in Appendices C and D. The total travel time and average travel speed for all runs made during the A.M. and P.M. peak periods of the October 1989 and May 1990 studies are summarized in Tables C-1 through C-3, and Tables D-1 through D-3, respectively, and can be found in Appendices C and D. Tables and figures summarizing the eastbound and westbound total travel times and average travel speeds can be found in Appendix E.

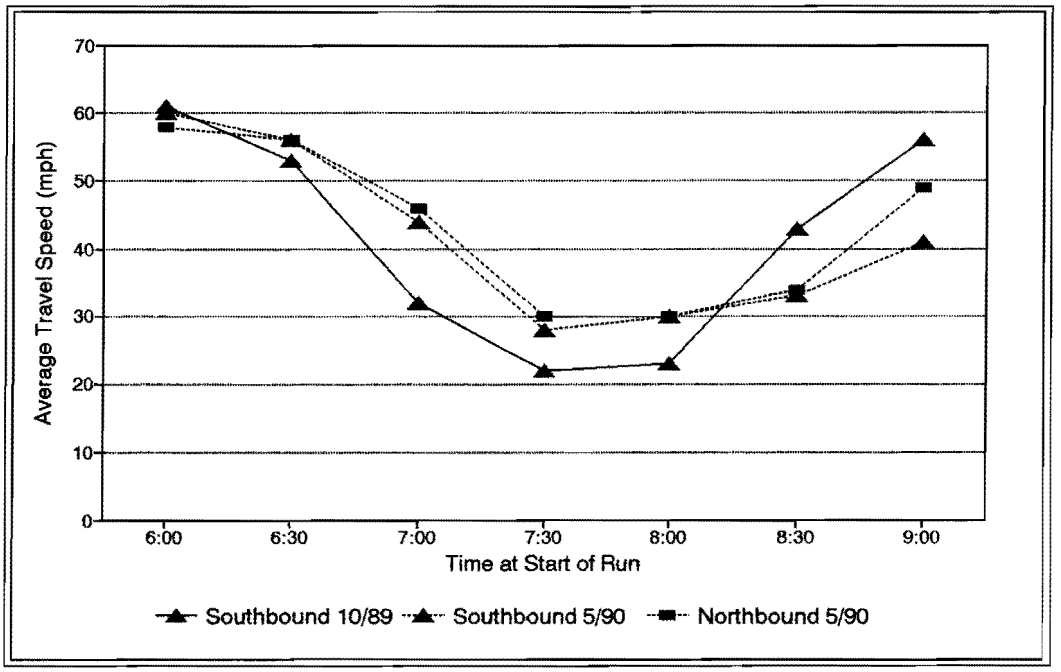


(a) A.M. Peak

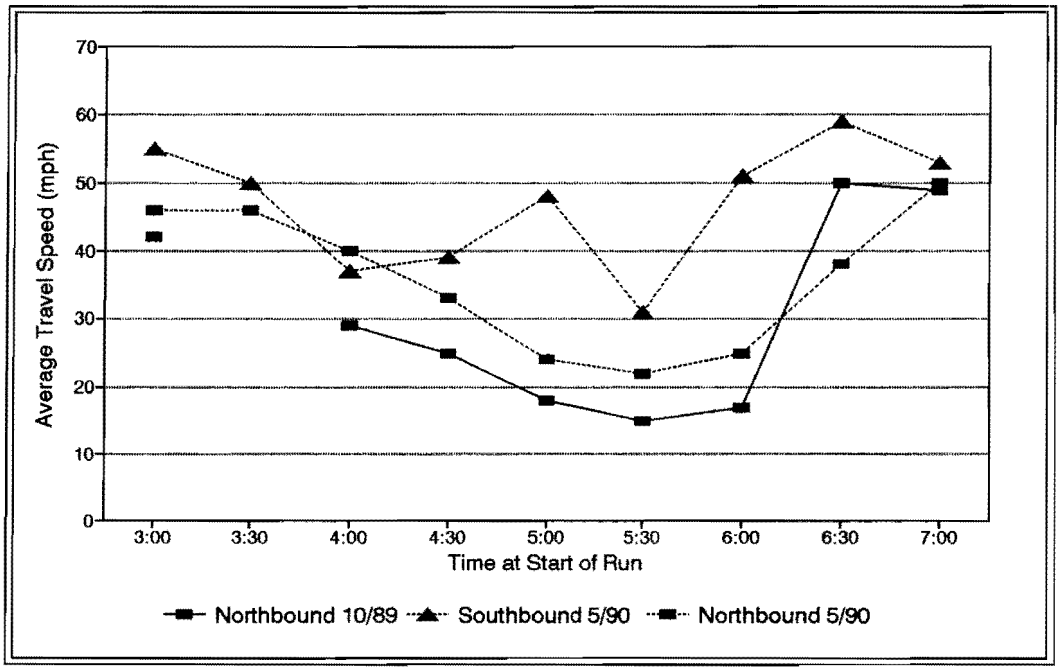


(b) P.M. Peak

Figure 15. Peak Period Total Travel Time Between I-635 and CBD - US-75



(a) A.M. Peak



(b) P.M. Peak

Figure 16. Peak Period Average Travel Speed Between I-635 and CBD - US-75

Vehicle Occupancy and Classification

The average occupancy of passenger vehicles for all routes monitored in the corridor is summarized in Table 4. Most commuters (approximately 85% during the A.M. peak and 82% during the P.M. peak) drive alone. The average A.M. and P.M. peak period, peak direction passenger vehicle occupancy for all routes monitored in the North Central Expressway corridor was 1.17 and 1.21 persons per vehicle, respectively. Rates varied slightly by route and direction. The observed occupancy rates are consistent with the results of the 1984 Regional Travel Survey performed by NCTCOG (2) The 1984 survey found an average auto occupancy of 1.13 persons per auto for home-based work trips and 1.36 persons per auto for all trip purposes.

TABLE 4. North Central Expressway Corridor Average Occupancy of Passenger Vehicles

Period and Direction	Occupancy (Persons per Vehicle)			
	Route			Corridor Average
	Preston	Skillman	US-75	
A.M. Peak				
Southbound	1.14	1.12	1.19	1.17
Northbound	--	--	1.23	--
Both	--	--	1.20	--
P.M. Peak				
Southbound	--	--	1.28	--
Northbound	1.31	1.20	1.19	1.21
Both	--	--	1.22	--

The vehicle classification data for all routes monitored is summarized in Table 5. The peak period, peak direction vehicle mix in the corridor averaged 95-96 percent passenger vehicles, 3-4 percent commercial trucks, and 1 percent other (bus and

motorcycle). The percentage of trucks in the peak direction was slightly higher during the P.M. peak than the A.M. peak.

TABLE 5. North Central Expressway Corridor Vehicle Classification

Period and Vehicle Type	Total Vehicles (%)							
	Route						Corridor Average	
	Preston		Skillman		US-75			
	NB	SB	NB	SB	NB	SB	NB	SB
A.M. Peak								
Pass. Car	--	95.40	--	98.25	89.56	95.03	--	95.95
Comm. Truck	--	3.95	--	1.22	9.39	3.98	--	3.23
Bus	--	0.83	--	0.45	0.98	0.83	--	0.69
Motorcycle	--	0.07	--	0.08	0.07	0.17	--	0.13
P.M. Peak								
Pass. Car	93.13	--	97.05	--	94.40	94.39	95.05	--
Comm. Truck	6.25	--	2.74	--	3.78	4.40	4.00	--
Bus	0.37	--	0.00	--	1.04	1.10	0.69	--
Motorcycle	0.25	--	0.21	--	0.28	0.10	0.26	--

SUMMARY

This report has documented the traffic monitoring plan that has been developed to measure the travel impacts of the reconstruction of the North Central Expressway south of the LBJ Freeway. The traffic monitoring plan includes traffic volume counts at four screen lines, travel time and average travel speed data on 14 routes, vehicle occupancy and classification counts, and automobile and transit user surveys.

The report also summarizes traffic patterns and conditions in the corridor before reconstruction based upon data collected in October 1989 and May 1990. These data will serve as the base line for quantifying the changes in traffic patterns and conditions during reconstruction.

Current plans are to replicate portions of the before-reconstruction data collection efforts every October and May during reconstruction (and at other times that special conditions warrant), subject to the availability of funding. The data collected as part of the traffic monitoring plan should provide a valuable, objective basis for the ongoing public information and traffic management efforts in the North Central corridor.

REFERENCES

1. Ullman, G.L. and Krammes, R.A. U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels Initial Survey Results. Texas Transportation Institute Research Report 9841E-1. September 1990.

2. Findings of the 1984 Regional Travel Survey. North Central Texas Council of Governments. 1984.

APPENDIX A

1989 SCREEN LINE TRAFFIC VOLUME SUMMARY TABLES

TABLE A-1. Mockingbird/Buckner Screen Line Average Traffic Volumes (October 1989): Southbound

Hour Ending	ROUTE											
	Garland	Abrams	Skillman	Matilda	Greenville	US 75	Hillcrest	Preston	DNT*	Inwood	Lemmon	Total
1	157	69	55	20	128	815	11	56	198	56	63	1628
2	67	39	20	17	62	427	5	28	96	28	37	826
3	56	34	19	18	35	358	4	20	67	20	21	652
4	43	25	11	8	20	229	0	13	66	13	21	449
5	65	21	11	5	16	367	1	15	59	15	28	603
6	204	59	37	14	22	962	9	38	239	38	137	1759
7	922	267	323	19	138	3599	53	160	1548	160	707	7896
8	2119	826	1293	74	551	5537	326	729	4891	729	1635	18710
9	1691	836	1254	101	623	4981	512	1103	4927	1103	1624	18755
10	1031	568	416	73	399	4440	284	866	2835	866	866	12644
11	947	564	301	83	386	4145	235	872	2066	872	744	11215
12	972	629	322	108	509	4498	268	982	2098	982	729	12097
13	1091	716	392	140	571	4485	309	1071	2119	1071	851	12816
14	1129	680	388	125	533	4590	284	808	2429	808	852	12626
15	1114	713	402	142	521	4522	289	1066	2274	1066	856	12965
16	1183	729	447	158	522	4659	286	1083	2454	1083	832	13436
17	1260	796	501	174	561	4889	355	1136	2827	1136	886	14521
18	1279	877	573	183	632	4711	406	1382	3152	1382	893	15470
19	1212	930	590	191	574	4305	336	1080	2610	1080	714	13622
20	913	758	391	122	550	3249	241	709	1677	709	496	9815
21	703	553	300	108	429	2460	139	462	985	462	357	6958
22	604	462	264	86	408	2335	132	388	898	388	363	6328
23	390	308	186	64	308	1955	71	267	590	267	279	4685
24	234	169	106	34	212	1435	36	116	370	116	151	2979
24 Hr. Total	19386	11628	8602	2067	8710	73953	4592	14450	41475	14450	14142	213455

*Volumes taken from May 1990 data.

TABLE A-2. Mockingbird/Buckner Screen Line Average Traffic Volumes (October 1989): Northbound

Hour Ending	ROUTE											
	Garland	Abrams	Skillman	Matilda	Greenville	US 75	Hillcrest	Preston	DNT*	Inwood	Lemmon	Total
1	194	92	46	33	98	1094	18	27	278	94	106	2080
2	114	59	23	18	63	657	10	15	143	46	73	1221
3	110	42	19	15	42	537	7	9	113	36	66	996
4	50	22	11	12	17	338	2	6	72	26	37	593
5	66	23	14	8	13	393	3	9	103	32	54	718
6	205	75	38	15	18	1009	15	14	292	72	149	1902
7	595	278	171	99	93	3507	58	60	1192	250	511	6814
8	941	673	401	335	160	4153	300	196	2449	588	729	10925
9	833	740	453	358	191	3674	489	300	2418	798	622	10876
10	804	686	339	266	185	3556	332	317	1800	634	456	9375
11	955	618	340	205	213	3795	306	326	1651	618	507	9534
12	1064	684	383	245	251	4392	364	400	1693	823	629	10928
13	1215	768	447	316	331	4392	389	422	1747	903	730	11660
14	1108	716	441	307	334	4277	387	441	1797	858	720	11386
15	1212	764	469	278	322	4580	362	414	1956	917	691	11965
16	1411	841	541	329	320	4645	415	411	2276	1044	833	13066
17	1773	959	768	432	332	4818	556	491	3153	1455	965	15702
18	2307	1178	1102	764	380	4107	791	692	4363	1847	1228	18759
19	1463	967	775	511	385	4657	575	475	3152	1198	764	14922
20	1027	664	429	284	298	4444	381	270	1527	701	507	10532
21	716	501	278	170	279	3316	221	177	1089	459	402	7608
22	603	397	216	148	303	3222	182	133	899	386	351	6840
23	493	295	159	105	252	2800	120	108	836	278	308	5754
24	322	203	104	74	185	1804	56	49	657	222	214	3890
24 Hr. Total	19581	12245	7967	5327	5065	74167	6339	5762	35656	14285	11652	198046

*Volumes taken from May 1990 data.

APPENDIX B

1990 SCREEN LINE TRAFFIC VOLUME SUMMARY TABLES

TABLE B-1. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1990): Southbound

Hour Ending	ROUTE									
	Abrams	Skillman	Greenville	US 75	Hillcrest	Preston	DNT	Inwood	Midway	Total
1	110	175	268	877	37	40	169	59	39	1774
2	73	99	143	455	21	17	79	33	17	937
3	49	72	110	385	18	12	93	27	8	774
4	28	60	33	257	4	9	70	18	8	487
5	21	65	23	300	7	10	70	10	11	517
6	62	165	56	965	24	37	356	40	42	1747
7	265	874	369	3045	154	200	2125	203	259	7494
8	698	2525	1828	3205	749	833	5110	600	960	16508
9	652	2006	1490	3022	905	1188	4547	717	983	15510
10	553	839	771	3483	611	818	2629	518	526	10748
11	595	680	783	3302	566	761	1952	458	447	9544
12	725	703	1163	3540	644	939	2158	511	498	10881
13	782	807	1433	3660	687	948	2047	584	555	11503
14	756	758	1173	3683	643	918	2154	641	549	11275
15	791	748	975	3610	653	914	2120	690	500	11001
16	895	768	1183	3531	774	928	2514	801	623	12017
17	953	868	1408	3570	948	877	2988	1015	614	13241
18	1115	1043	1580	3789	1035	919	3324	1411	624	14840
19	1057	1057	1237	3626	832	746	2581	871	558	12565
20	830	910	1048	3326	517	501	1690	477	426	9725
21	664	735	933	2742	332	340	1065	377	344	7532
22	494	617	832	2756	251	275	937	268	273	6701
23	378	477	665	2044	172	158	670	191	181	4936
24	227	297	502	1504	83	83	352	133	101	3282
24 Hr. Total	12773	17348	20006	60677	10667	12471	41800	10651	9146	195539

TABLE B-2. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1990): Northbound

Hour Ending	ROUTE									
	Abrams	Skillman	Greenville	US 75	Hillcrest	Preston	DNT	Inwood	Midway	Total
1	132	227	291	982	42	42	266	32	47	2061
2	79	126	179	659	21	23	138	22	27	1276
3	63	108	150	544	17	16	117	15	20	1050
4	37	66	48	310	7	9	67	7	9	560
5	30	52	24	335	8	12	109	13	13	596
6	54	84	50	989	17	31	287	65	23	1600
7	201	299	268	3388	116	121	1337	376	149	6255
8	504	604	832	3877	429	435	2973	1227	436	11317
9	572	607	940	3882	573	548	2555	1156	432	11265
10	474	440	612	3464	431	540	1623	704	334	8622
11	516	497	636	3643	433	640	1532	614	350	8861
12	577	617	943	4164	479	766	1830	681	424	10481
13	693	718	1305	4163	560	798	1824	744	509	11314
14	661	743	1285	3882	562	837	1993	716	477	11156
15	686	802	1099	4083	551	867	2247	789	513	11637
16	718	1009	1162	4128	549	846	2664	912	604	12592
17	825	1560	1529	4054	664	850	3954	947	765	15148
18	970	2477	2092	3696	902	1089	5134	825	1174	18359
19	939	1811	1583	4063	670	852	3384	674	742	14718
20	755	1065	1092	3845	406	491	1797	399	437	10287
21	694	934	875	2876	341	394	1260	313	354	8041
22	579	781	851	2775	279	284	1078	267	272	7166
23	410	647	711	2612	174	193	1075	143	194	6159
24	280	435	515	1686	80	104	608	71	114	3893
24 Hr. Total	11449	16711	19072	68100	8311	10788	39852	11712	8419	194414

TABLE B-3. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1990): Southbound

Hour Ending	ROUTE											
	Garland	Abrams	Skillman	Matilda	Greenville	US 75	Hillcrest	Preston	DNT	Inwood	Lemmon	Total
1	171	87	66	16	166	858	18	39	189	99	124	1833
2	75	52	47	9	79	559	12	20	93	62	57	1065
3	56	42	35	8	54	365	4	16	61	46	65	752
4	44	24	15	6	20	297	3	8	62	19	39	537
5	62	20	15	2	21	327	2	9	56	28	36	578
6	215	58	41	2	38	1006	9	26	240	84	81	1800
7	1030	245	371	12	142	3900	64	114	1565	273	418	8134
8	2057	849	1410	69	616	5851	374	568	4937	682	1108	18521
9	1624	851	1303	80	635	5397	553	895	4923	805	1095	18161
10	1093	578	472	52	444	4508	278	648	2854	735	630	12292
11	1036	558	362	69	458	3814	248	626	2066	675	605	10517
12	1024	605	422	78	588	4035	300	699	2137	835	695	11418
13	1138	696	469	132	695	4592	346	782	2134	932	819	12735
14	1147	692	432	112	640	4686	336	841	2420	898	766	12970
15	1067	696	455	104	565	4485	333	765	2264	919	736	12389
16	1239	727	507	104	625	4273	329	780	2435	1051	902	12972
17	1285	783	575	113	714	4695	386	767	2844	1450	958	14570
18	1316	847	600	170	807	4838	428	732	3236	1691	944	15609
19	1387	920	650	161	764	4352	370	649	2681	1110	727	13771
20	1250	739	483	123	733	3675	269	498	1713	693	547	10923
21	929	606	385	97	590	2868	192	361	1015	506	445	7994
22	779	497	319	87	558	2566	140	291	937	423	364	6961
23	532	350	260	61	392	2075	87	172	612	294	323	5158
24	307	201	132	35	263	1505	39	86	384	223	197	3372
24 Hr. Total	20863	11723	9826	1702	10607	75727	5120	10392	41858	14533	12681	215032

TABLE B-4. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1990): Northbound

Hour Ending	ROUTE											
	Garland	Abrams	Skillman	Matilda	Greenville	US 75	Hillcrest	Preston	DNT	Inwood	Lemmon	Total
1	205	88	65	51	158	1187	30	51	248	69	103	2255
2	149	64	39	22	93	666	11	28	125	38	79	1314
3	128	41	27	15	58	542	10	18	99	26	60	1024
4	67	24	15	11	22	335	4	10	65	21	43	617
5	93	28	14	9	11	420	3	10	106	32	48	774
6	221	76	61	27	24	1192	12	28	292	123	135	2191
7	657	293	208	101	85	3667	53	98	1251	694	541	7648
8	938	654	609	256	146	4263	217	396	2554	1578	867	12478
9	928	740	647	248	145	4185	323	674	2408	1504	643	12445
10	906	694	490	275	125	4181	249	621	1692	973	509	10715
11	1014	624	514	222	143	3892	238	619	1651	762	504	10183
12	1211	724	567	262	171	4384	331	694	1974	805	673	11796
13	1377	784	680	326	193	4261	344	741	1991	1016	831	12544
14	1410	782	649	307	206	4537	352	739	2012	893	757	12644
15	1531	814	688	315	245	4741	339	742	2180	868	754	13237
16	1774	889	837	325	202	4912	360	712	2597	918	834	14360
17	1984	992	1204	387	181	5050	494	826	3806	987	1080	16991
18	2243	1165	1620	541	170	4717	669	1017	5270	987	1291	19690
19	1732	961	1127	438	203	5089	444	768	3796	821	813	16192
20	1222	725	577	311	243	4063	269	473	1727	570	555	10735
21	997	586	428	224	260	3491	201	391	1169	435	463	8645
22	927	486	315	203	255	3338	185	342	915	407	400	7753
23	636	336	223	136	275	3074	109	226	856	294	313	6478
24	454	208	156	91	269	3025	59	126	720	153	226	5485
24 Hr. Total	22804	12776	11760	5103	3883	79212	5286	10350	39504	14994	12522	218194

TABLE B-5. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1990): Southbound

Hour Ending	ROUTE													
	Columbia	Gaston	Live Oak	Ross	US-75	Cole	Turtle Creek	Oak Lawn	Lemmon	Cedar Springs	Maple	DNT	Harry Hines	Total
1	32	53	40	81	1087	58	29	80	194	191	93	207	95	2240
2	16	30	28	56	625	32	13	53	108	154	80	95	45	1335
3	16	22	25	44	516	25	14	47	95	151	89	72	46	1162
4	19	19	18	31	318	9	14	21	57	52	34	42	37	671
5	27	25	27	28	377	9	4	17	48	20	22	56	26	686
6	68	106	95	92	1034	23	22	40	99	57	38	211	68	1953
7	407	481	491	323	3992	97	141	172	372	145	144	976	241	7982
8	1358	1342	1947	1252	5332	438	829	647	1064	464	380	3643	604	19300
9	929	1172	1905	1265	5519	662	1450	816	1224	608	462	4656	760	21428
10	347	521	612	594	4307	276	702	568	839	455	378	2799	578	12976
11	249	453	451	512	3788	242	460	592	802	420	373	1965	602	10909
12	294	445	498	560	3692	298	548	725	948	474	447	2030	776	11735
13	364	543	670	720	3876	393	659	906	1380	605	572	1882	866	13436
14	365	533	608	759	4339	373	735	846	1297	644	581	2276	835	14191
15	287	458	493	623	4299	293	527	745	1153	538	525	2081	828	12850
16	264	401	454	623	4910	259	480	711	1295	567	575	2217	1145	13901
17	269	368	456	701	4776	375	441	691	1364	665	518	3311	1596	15531
18	222	335	455	573	4556	317	501	700	1322	677	535	3541	1613	15347
19	184	328	396	453	3789	294	467	633	1094	569	416	3312	653	12588
20	177	250	299	372	3723	270	420	506	843	433	332	1958	371	9954
21	129	208	233	283	2827	209	220	411	745	379	215	1122	265	7246
22	108	165	173	238	2514	161	156	347	625	337	176	1009	217	6226
23	90	164	119	180	1957	122	106	276	534	305	165	752	196	4966
24	72	102	73	151	1465	83	71	167	419	247	134	430	178	3592
24 Hr. Total	6293	8524	10566	10514	73618	5318	9009	10717	17921	9157	7284	40643	12641	222205

TABLE B-6. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1990): Northbound

Hour Ending	ROUTE													
	Columbia	Gaston	Live Oak	Ross	US-75	Mc.Kinney	Turtle Creek	Oak Lawn	Lemmon	Cedar Springs	Maple	DNT	Harry Hines	Total
1	78	82	63	98	1118	91	84	105	193	229	99	301	75	2616
2	38	45	39	59	672	30	51	68	140	101	62	169	51	1525
3	37	31	25	50	577	28	32	57	114	74	55	109	41	1230
4	23	23	13	27	335	11	21	28	63	38	31	74	25	712
5	25	21	15	21	417	8	8	18	78	26	25	106	35	803
6	60	45	32	49	1131	10	12	27	232	57	33	270	134	2092
7	121	137	88	121	4710	41	69	136	862	175	121	1181	849	8611
8	239	341	189	300	4694	210	210	388	1253	391	253	1970	1353	11791
9	257	331	233	433	4767	309	357	559	1029	386	313	2665	971	12610
10	276	313	273	429	3577	241	432	533	765	340	322	2249	533	10283
11	318	402	325	494	3519	273	496	544	780	413	352	1721	554	10191
12	464	571	566	660	3993	428	681	697	1286	591	481	2133	673	13224
13	474	585	669	733	3932	513	836	833	1490	674	491	1962	726	13918
14	408	514	473	589	4092	496	811	747	1175	612	478	2024	714	13133
15	471	574	462	586	4176	410	684	743	1083	569	441	2079	703	12981
16	634	731	600	680	4634	387	667	734	1064	602	487	2253	667	14140
17	1078	1044	1173	1148	5089	572	1026	838	1335	699	552	3811	782	19147
18	1627	1452	1799	1552	4787	1170	2024	988	1466	899	608	5286	872	24530
19	597	708	785	793	4910	871	1163	709	1102	764	392	3733	412	16939
20	310	408	372	448	3960	618	634	499	850	559	230	1952	245	11085
21	230	332	290	340	2869	610	465	390	795	522	231	1249	213	8536
22	193	270	233	262	2868	580	427	335	694	491	238	1092	212	7895
23	177	207	158	260	3031	537	388	285	561	442	219	1125	233	7623
24	157	201	138	185	2202	304	215	186	363	363	172	868	139	5493
24 Hr. Total	8292	9368	9013	10317	76060	8748	11793	10447	18773	10017	6686	40382	11212	231108

TABLE B-7. US-75 Screen Line Average Traffic Volumes (May 1990): Eastbound

Hour Ending	ROUTE																	
	Forest	Royal	Walnut	Park Lane	Loop 12	Caruth Haven	South-western	Lovers	Univer-sity	Yale	Mock-ingbird	McCom mas	Monti-cello	Hen-derson	Fitzhugh	Haskell	Lemmon	Hall	Total
1	68	65	145	196	323	39	42	129	28	27	146	49	13	146	268	49	133	35	1901
2	35	43	71	81	159	21	21	59	17	15	70	28	7	94	160	39	93	25	1038
3	21	25	56	59	147	10	14	43	11	7	56	13	8	50	162	23	78	19	802
4	14	13	43	30	82	9	5	18	6	6	36	9	4	26	75	19	35	6	436
5	14	12	34	29	56	7	5	16	6	4	33	4	3	17	54	18	21	6	339
6	46	43	82	47	95	32	13	24	9	6	49	7	3	30	73	56	53	8	676
7	198	218	415	188	379	163	50	79	26	25	144	23	17	100	231	258	247	37	2798
8	509	710	940	533	855	433	255	243	71	125	332	54	63	234	477	556	432	90	6912
9	654	834	1370	641	996	381	328	384	166	215	472	104	78	306	594	536	513	120	8892
10	677	561	1223	516	1036	219	311	385	169	187	624	152	93	384	577	383	533	129	8159
11	891	539	1242	634	1152	199	323	449	194	170	699	174	107	493	646	343	594	144	8993
12	1308	644	1295	813	1365	258	318	475	230	179	896	262	143	681	786	403	706	165	10927
13	1559	755	1470	1191	1503	328	377	593	295	248	1010	338	189	978	908	602	746	192	13262
14	1298	708	1628	1048	1588	301	403	584	293	213	936	272	142	968	920	528	798	201	12829
15	1149	721	1562	926	1662	237	364	567	273	221	980	326	139	889	980	428	778	196	12398
16	1357	994	1478	915	1975	210	381	590	282	205	967	322	161	777	1103	402	769	224	13112
17	1965	1119	1714	1016	2581	242	509	773	344	206	1163	493	235	800	1212	444	973	257	16046
18	2409	2012	2024	1188	3018	361	933	998	517	257	1362	950	411	1140	1426	439	1185	354	20984
19	1763	1504	1847	1302	2564	317	655	942	290	150	1163	591	265	867	1075	282	751	206	16534
20	948	735	1195	996	1698	272	461	683	222	104	948	422	169	671	825	227	542	148	11266
21	561	448	846	908	1512	255	348	578	193	102	870	343	131	597	722	188	382	130	9114
22	440	373	715	943	1303	238	282	596	187	123	780	245	90	540	677	180	368	127	8227
23	231	275	535	513	902	147	158	421	111	77	559	166	72	417	544	158	333	101	5720
24	180	150	343	424	592	101	78	280	80	65	326	109	40	298	412	108	264	62	3912
24 Hr. Total	18295	13501	22273	15137	27543	4780	6634	9909	4020	2937	14621	5456	2563	11503	14907	6669	11347	2982	195077

TABLE B-8. US-75 Screen Line Average Traffic Volume (May 1990): Westbound

Hour Ending	ROUTE																		
	Forest	Royal	Walnut	Park Lane	Loop 12	Caruth Haven	South-western	Lovers	Univer-sity	Yale	Mock-ingbird	McCom-mas	Monti-cello	Hen-derson	Fitzhugh	Haskell	Lemmon	Hall	Total
1	195	84	137	183	214	23	75	126	58	45	133	21	16	105	244	36	206	49	1950
2	111	55	89	113	134	21	49	71	37	30	79	9	12	67	153	33	109	30	1202
3	92	43	55	100	97	13	32	84	30	30	67	9	11	55	145	19	72	20	974
4	51	19	34	42	301	6	10	29	12	8	60	6	5	35	82	13	37	14	764
5	81	21	26	45	100	4	10	30	15	10	61	5	8	32	92	12	58	12	622
6	264	62	74	118	344	20	49	100	53	35	221	32	23	89	221	39	261	75	2080
7	1156	453	422	374	1841	112	253	458	202	181	917	88	121	368	772	137	1007	264	9126
8	3427	1181	1296	826	3225	331	1197	1243	844	989	1956	493	568	852	1404	417	1469	611	22329
9	2942	1091	985	759	2820	230	1079	1186	819	799	2024	524	599	955	1422	487	1315	656	20692
10	1675	597	912	637	1905	148	582	782	457	413	1432	214	232	612	923	237	767	309	12834
11	1583	544	981	660	1575	164	417	688	378	323	1148	151	173	525	847	197	716	248	11318
12	1914	642	1229	779	1698	289	454	765	488	334	1327	149	187	685	937	344	820	262	13303
13	2111	673	1353	890	1742	204	616	936	537	418	1574	235	262	763	1026	337	771	274	14722
14	2111	622	1231	790	1733	186	698	892	482	430	1577	239	245	673	1021	308	754	310	14302
15	1813	580	1178	752	1726	179	624	852	445	389	1320	181	182	592	1040	274	782	265	13174
16	1887	597	1259	721	1802	217	516	818	480	497	1306	173	200	556	1188	321	800	242	13360
17	1750	652	1416	736	1578	275	497	822	505	556	1251	184	195	807	1274	528	913	352	14091
18	1751	696	1517	843	1817	269	597	902	542	549	1139	199	173	635	1021	518	899	307	14374
19	1447	637	1058	728	1515	149	655	852	429	317	1225	191	209	588	869	321	633	244	12067
20	1121	471	823	739	1289	113	499	668	313	174	907	176	143	487	710	189	453	171	9446
21	866	374	654	510	879	75	341	538	244	132	723	134	115	427	611	141	428	172	7364
22	715	359	612	488	849	109	288	485	183	128	625	108	85	345	596	122	415	136	6448
23	550	251	437	401	539	69	217	366	186	100	416	76	77	329	520	105	371	117	5107
24	448	161	355	293	365	45	137	244	101	93	248	45	41	215	373	93	309	89	3853
24 Hr. Total	30039	10865	18133	12527	29688	3251	9892	13937	7820	6980	21736	3642	3882	10597	17491	5228	14365	5229	225302

APPENDIX C

PEAK PERIOD TOTAL TRAVEL TIMES

TABLE C-1. Peak Period, Peak Direction Total Travel Time (min) - (October 1989)

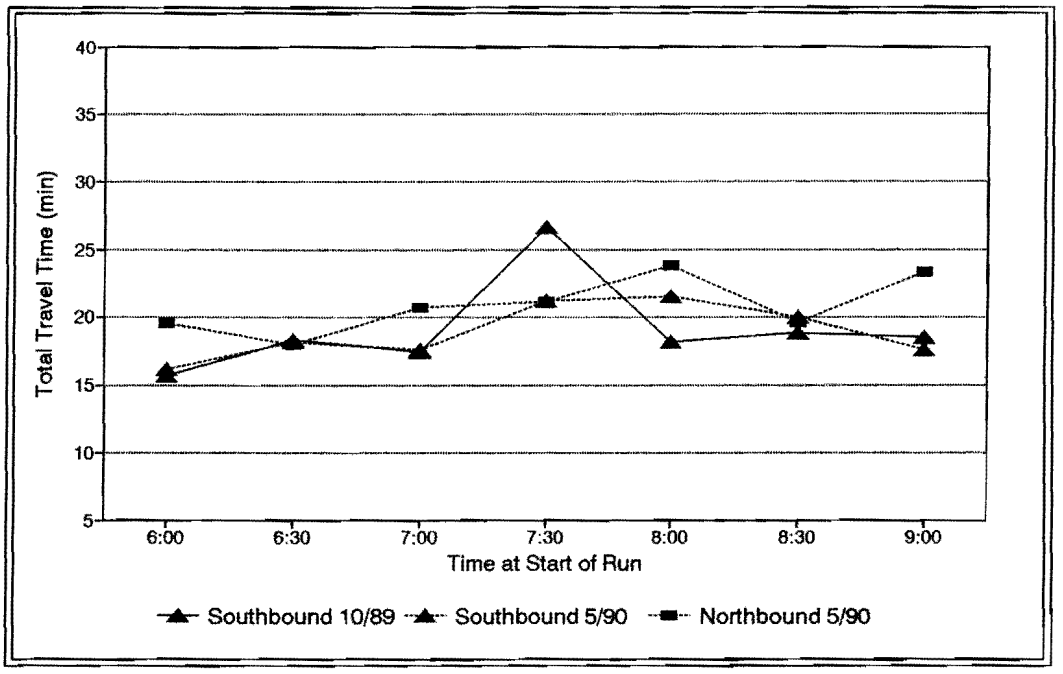
Run Beginning		Alternative Route									
		Garland	Abrams	Skillman	Greenville	US-75	Hillcrest	Preston	DNT	Inwood	Midway
AM Peak Period Southbound	6:00	15.72	20.42	18.12	15.43	9.10	20.78	26.58	11.22	19.77	26.53
	6:30	18.33	20.42	18.72	21.08	10.52	25.58	22.58	10.27	21.33	21.55
	7:00	17.47	22.93	15.55	18.95	17.10	25.67	26.72	10.27	22.70	26.73
	7:30	26.68	26.68	22.27	23.85	25.67	28.98	29.78	13.33	26.90	24.12
	8:00	18.17	25.50	18.33	24.23	23.63	27.25	29.63	18.23	29.83	28.72
	8:30	18.88	21.98	-	24.32	12.92	24.50	32.25	18.92	22.13	25.67
	9:00	18.53	22.02	18.13	19.55	9.92	21.48	27.55	10.57	18.67	24.17
PM Peak Period Northbound	3:00	21.20	24.98	19.47	23.15	13.20	28.70	28.20	11.75	29.60	21.97
	3:30	-	-	-	-	-	-	-	-	-	-
	4:00	19.23	25.12	18.10	24.93	19.22	28.85	28.50	12.33	28.72	29.78
	4:30	21.83	25.78	22.17	25.98	22.25	31.33	26.58	12.98	25.68	23.47
	5:00	23.30	25.15	28.97	41.47	30.10	31.65	33.43	15.80	29.48	29.43
	5:30	26.50	28.30	30.72	32.72	37.57	29.23	32.62	15.70	32.37	29.30
	6:00	21.78	25.48	25.67	25.97	33.08	26.63	29.80	14.07	25.13	28.13
	6:30	20.12	21.83	22.43	20.65	11.17	22.50	24.82	12.68	21.43	26.60
	7:00	18.05	22.77	22.07	23.12	11.35	24.98	25.67	10.83	19.47	23.53

TABLE C-2. Peak Period, Peak Direction Total Travel Time (min) - (May 1990)

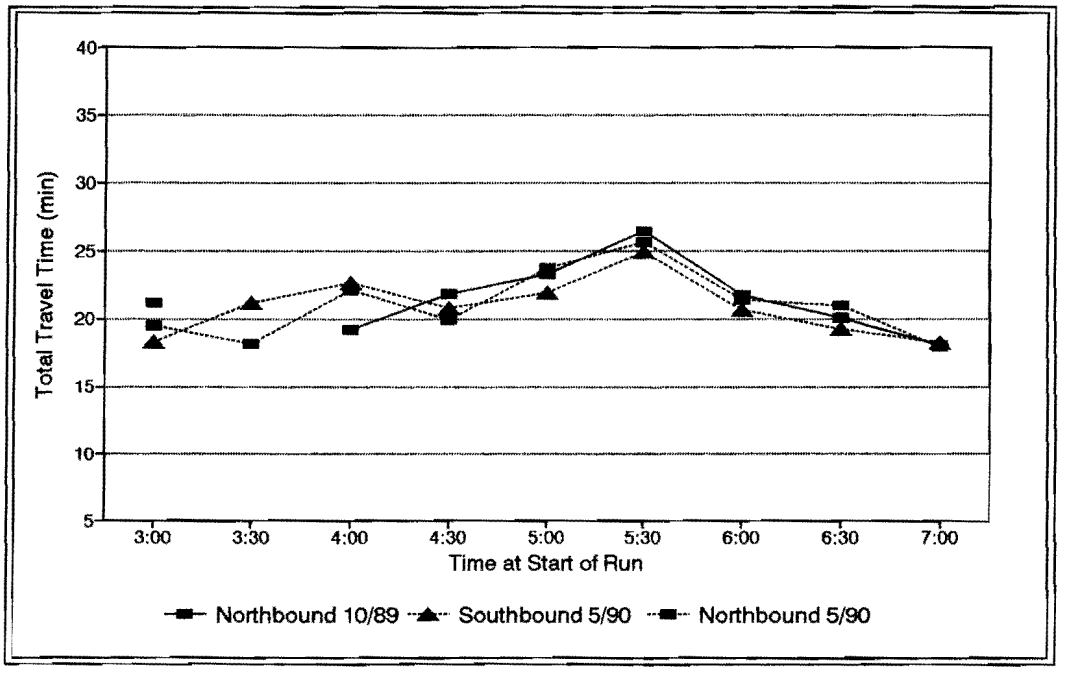
Run Beginning		Alternative Route										
		Garland	Abrams	Skillman	Greenville	US-75	US-75 Fr. Rd.	Hillcrest	Preston	DNT	Inwood	Midway
AM Peak Period Southbound	6:00	16.15	21.28	18.37	19.53	9.18	20.00	23.42	23.32	11.65	18.00	22.75
	6:30	18.22	19.53	15.87	19.12	9.87	22.95	25.07	21.44	10.70	18.05	22.27
	7:00	17.60	23.38	18.00	20.00	12.52	23.35	26.77	22.78	11.13	20.85	22.17
	7:30	21.20	27.78	22.15	26.24	19.69	33.75	28.42	25.03	14.95	23.35	23.73
	8:00	21.53	25.18	20.82	25.25	18.80	40.98	29.42	28.68	20.85	24.98	27.18
	8:30	20.03	22.38	17.93	25.25	17.45	34.40	28.45	26.66	18.17	23.05	25.93
	9:00	17.63	21.55	19.97	20.64	14.24	27.50	26.02	25.36	12.40	22.82	20.85
PM Peak Period Northbound	3:00	19.50	25.17	18.72	23.12	12.14	19.22	27.67	29.76	12.13	24.13	26.85
	3:30	18.22	24.18	22.63	21.42	12.03	26.30	27.60	29.67	12.65	24.32	27.27
	4:00	22.18	26.82	22.58	25.10	13.94	23.23	27.78	26.48	12.38	22.77	26.67
	4:30	19.95	24.23	18.67	23.50	16.70	25.70	26.87	30.08	14.67	25.42	25.68
	5:00	23.77	27.83	18.53	27.81	23.08	31.07	30.32	34.60	16.37	26.47	25.52
	5:30	25.60	28.92	26.77	26.18	25.50	31.63	34.67	31.77	17.10	25.75	26.08
	6:00	21.43	24.18	23.03	25.14	21.64	24.68	26.18	26.06	13.10	22.60	24.88
	6:30	20.97	23.63	20.03	21.84	14.48	24.45	23.50	25.54	14.08	24.67	23.18
	7:00	18.00	21.37	21.58	21.85	11.20	20.50	24.82	23.64	10.80	19.78	23.33

TABLE C-3. Peak Period, Off-Peak Direction Total Travel Time (min) - (May 1990)

Run Beginning		Alternative Route										
		Garland	Abrams	Skillman	Greenville	US-75	US-75 Fr. Rd.	Hillcrest	Preston	DNT	Inwood	Midway
AM Off-Peak Period Northbound	6:00	19.55	20.78	16.10	17.97	9.55	17.27	26.02	23.10	12.32	18.38	23.55
	6:30	18.00	22.10	20.32	19.62	9.97	27.95	25.10	25.93	10.85	20.12	21.67
	7:00	20.75	24.75	24.23	21.05	11.98	27.18	27.43	26.59	12.37	21.23	23.20
	7:30	21.10	24.32	23.95	25.42	18.60	35.70	27.12	29.44	14.07	24.87	27.08
	8:00	23.82	29.37	20.98	26.16	18.71	32.47	29.30	29.60	13.58	23.07	24.73
	8:30	19.62	25.87	23.13	23.23	16.31	-	29.32	29.59	13.07	23.68	26.85
	9:00	23.37	22.05	19.00	23.44	11.46	20.32	21.05	25.63	12.38	20.37	24.43
PM Off-Peak Period Southbound	3:00	18.30	25.53	18.40	20.87	10.43	23.92	24.43	25.99	12.25	24.40	29.85
	3:30	21.20	22.83	16.08	21.57	11.30	24.70	26.50	27.02	12.72	25.25	28.53
	4:00	22.67	26.48	21.20	25.78	15.00	33.58	26.28	28.05	11.53	21.00	30.13
	4:30	20.83	21.68	20.77	26.08	14.29	31.63	25.33	26.35	12.23	22.98	27.72
	5:00	21.98	23.75	25.55	26.38	11.85	33.62	27.83	26.30	15.23	24.83	29.45
	5:30	24.88	24.92	22.87	27.22	16.05	35.72	26.53	25.06	13.52	23.20	24.82
	6:00	20.70	22.18	23.33	23.77	11.66	-	26.10	26.16	13.08	22.72	27.07
	6:30	19.28	23.33	18.63	20.42	10.41	22.58	25.38	22.46	11.38	22.52	25.70
	7:00	18.25	22.97	18.47	20.04	10.60	23.27	22.83	23.99	12.27	21.88	23.22

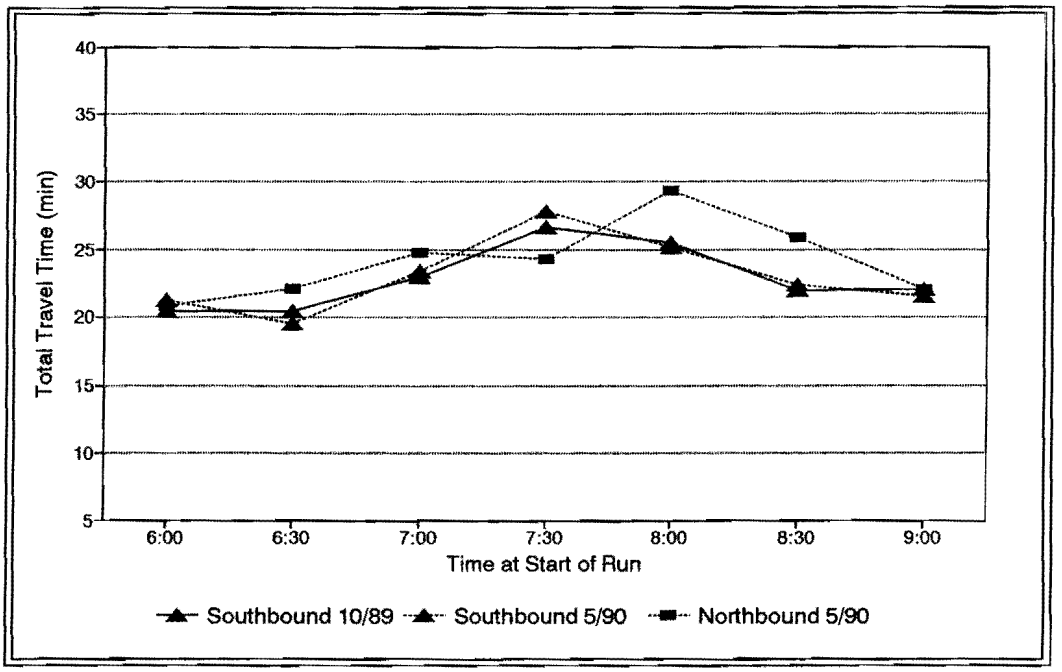


(a) A.M. Peak

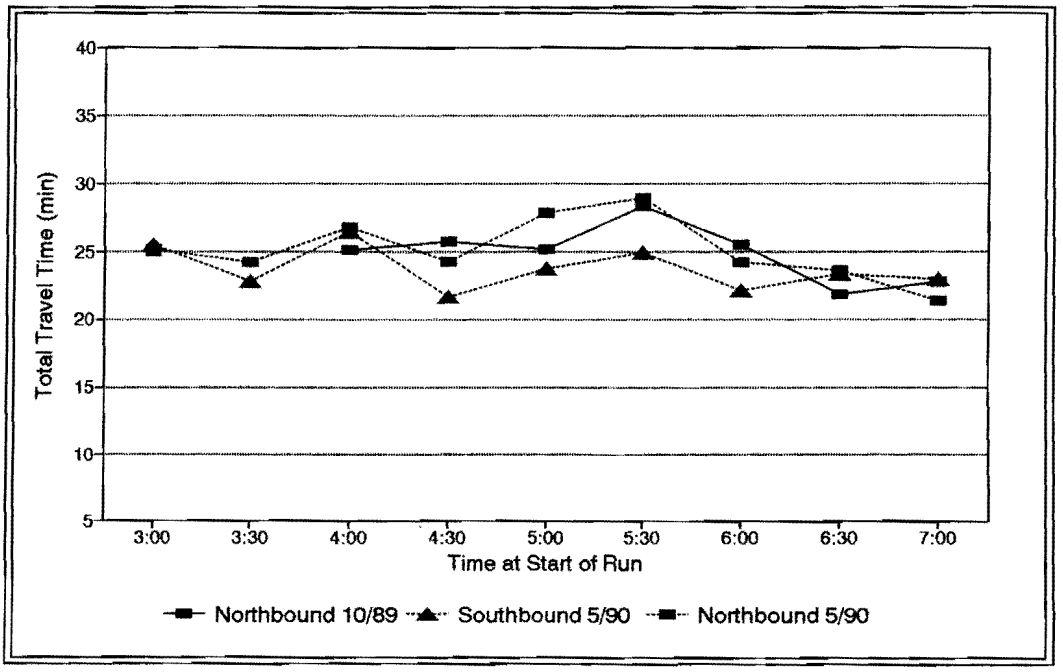


(b) P.M. Peak

Figure C-1. Peak Period Total Travel Time Between I-635 and CBD - Garland

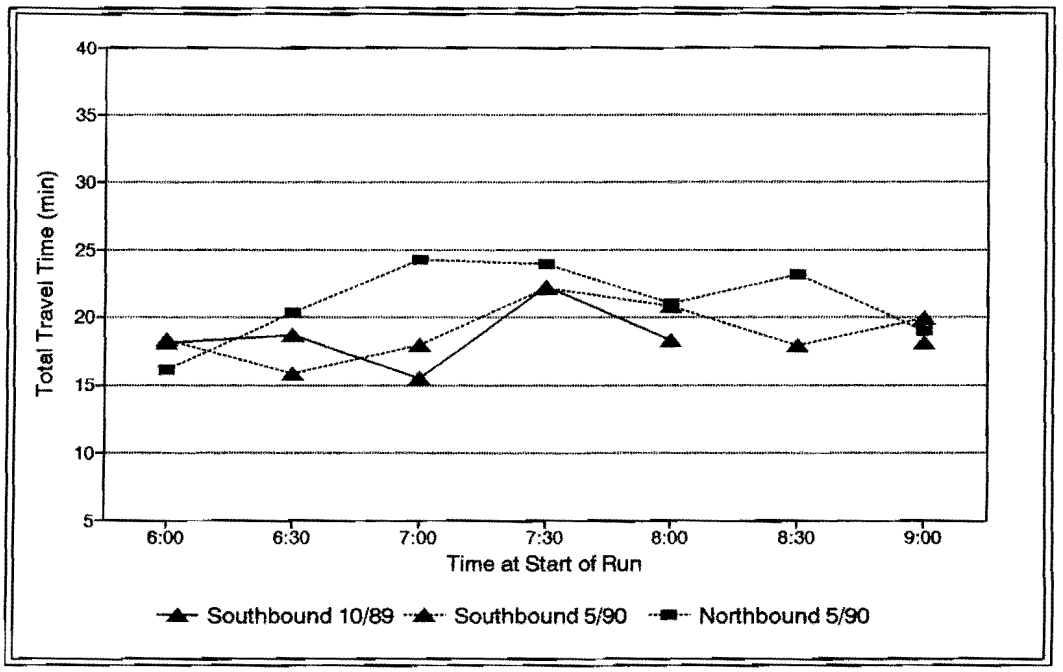


(a) A.M. Peak

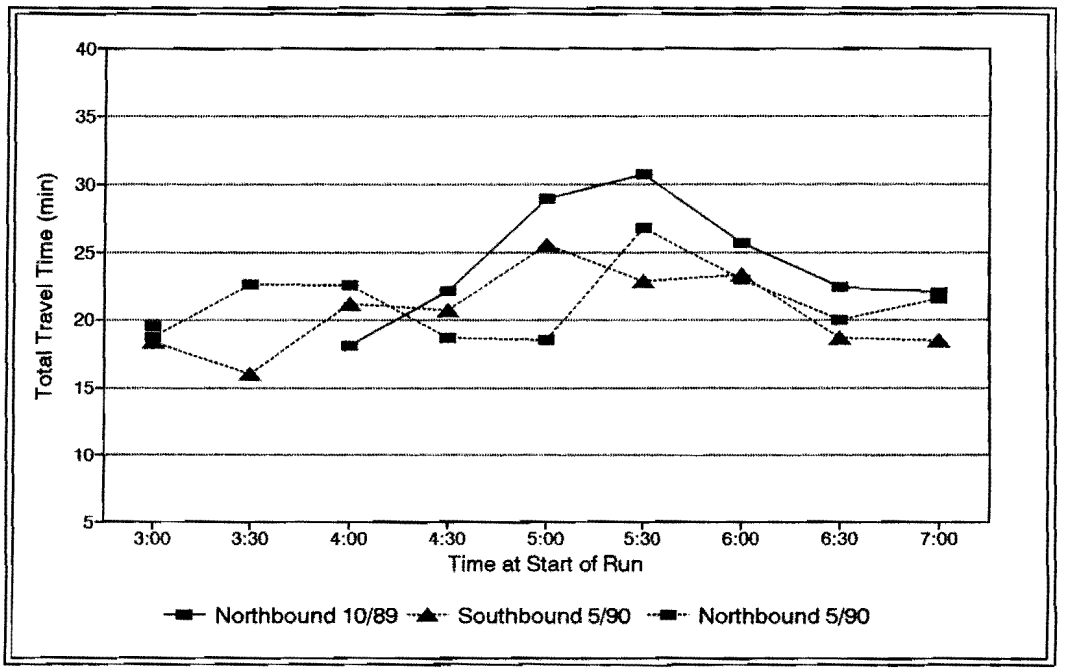


(b) P.M. Peak

Figure C-2. Peak Period Total Travel Time Between I-635 and CBD - Abrams

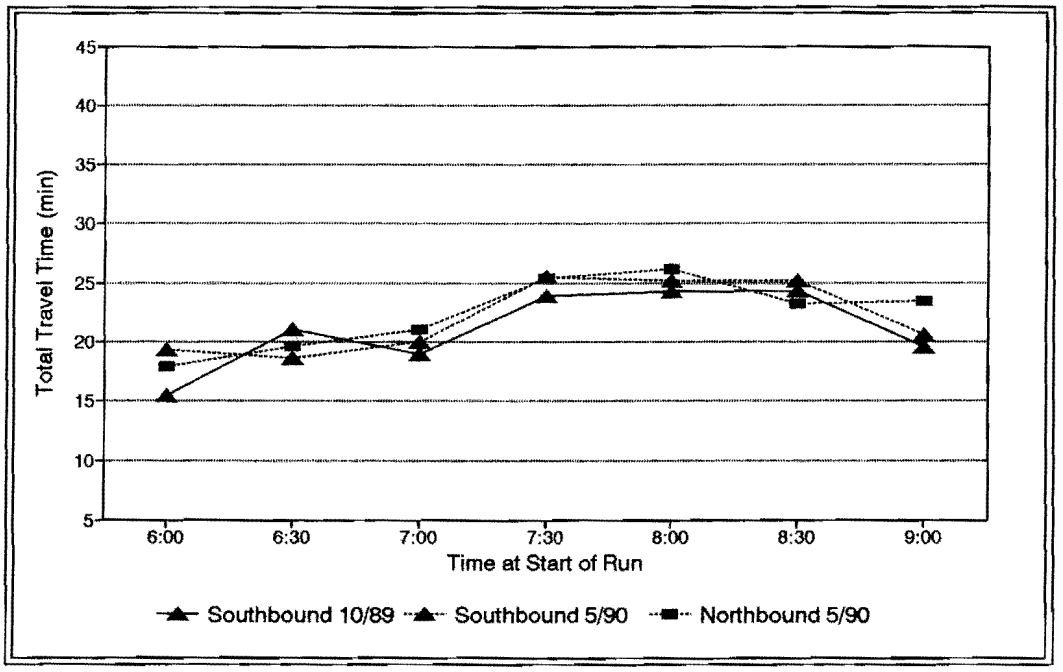


(a) A.M. Peak

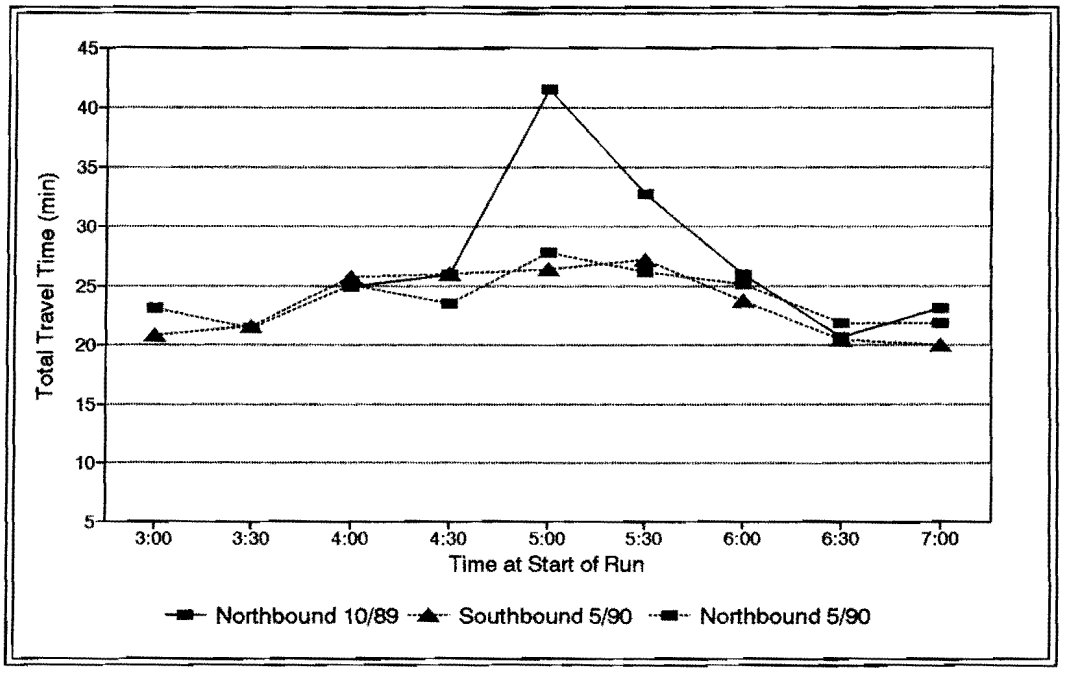


(b) P.M. Peak

Figure C-3. Peak Period Total Travel Time Between I-635 and CBD - Skillman

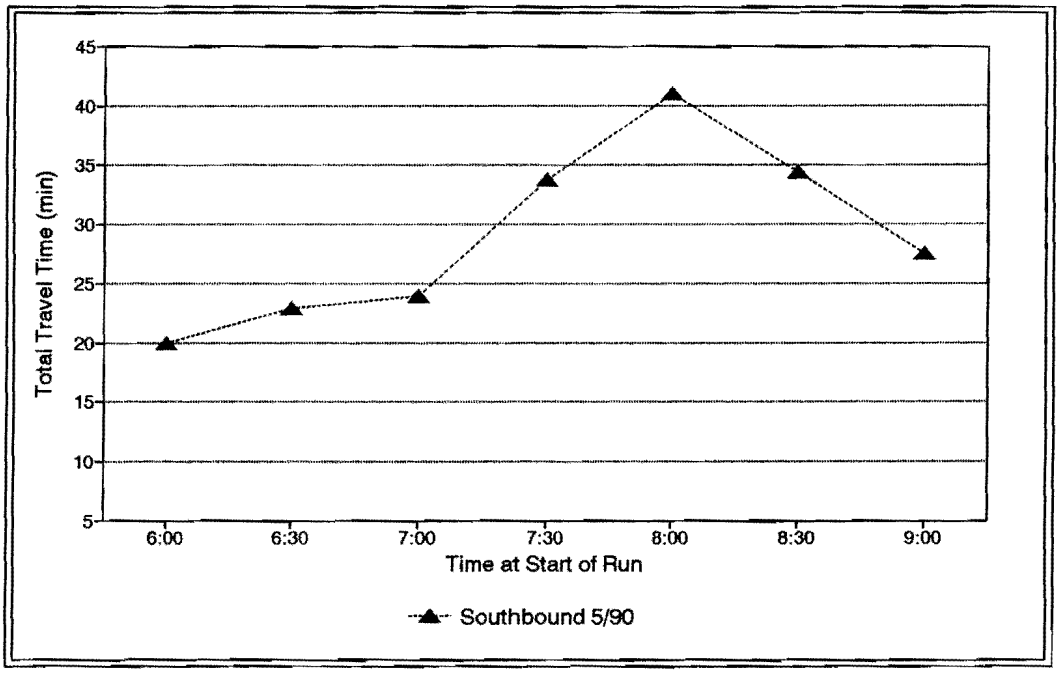


(a) A.M. Peak

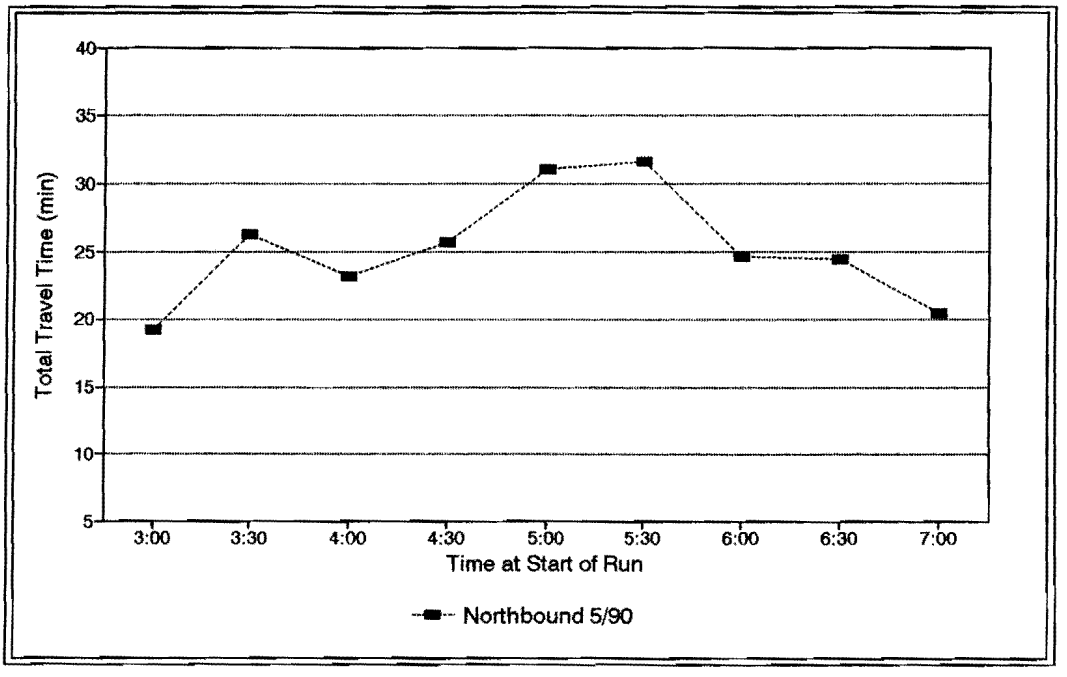


(b) P.M. Peak

Figure C-4. Peak Period Total Travel Time Between I-635 and CBD - Greenville

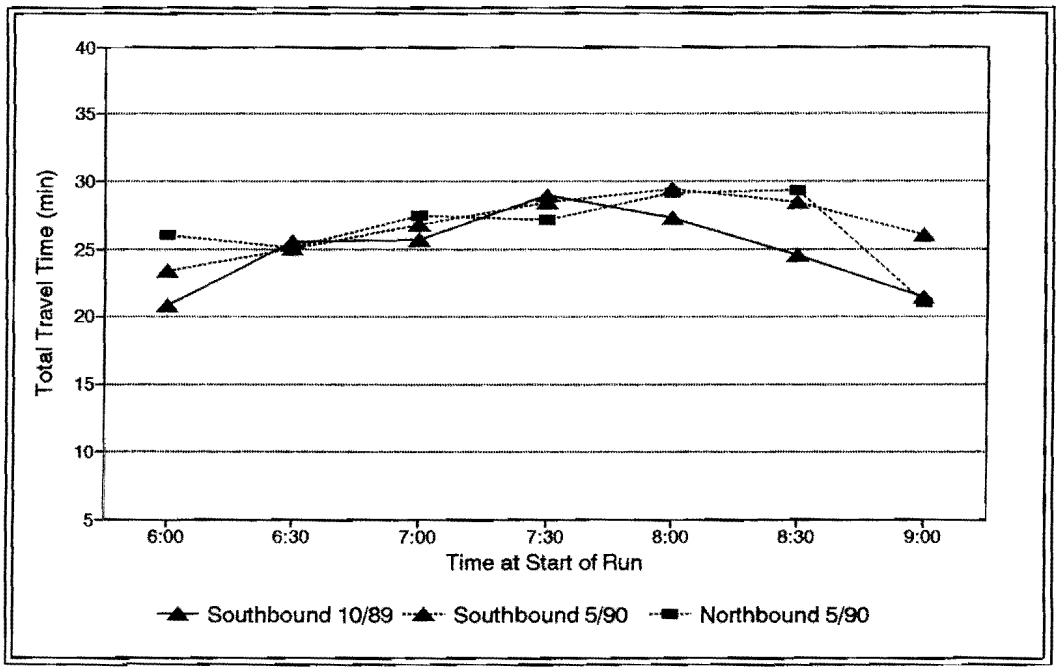


(a) A.M. Peak

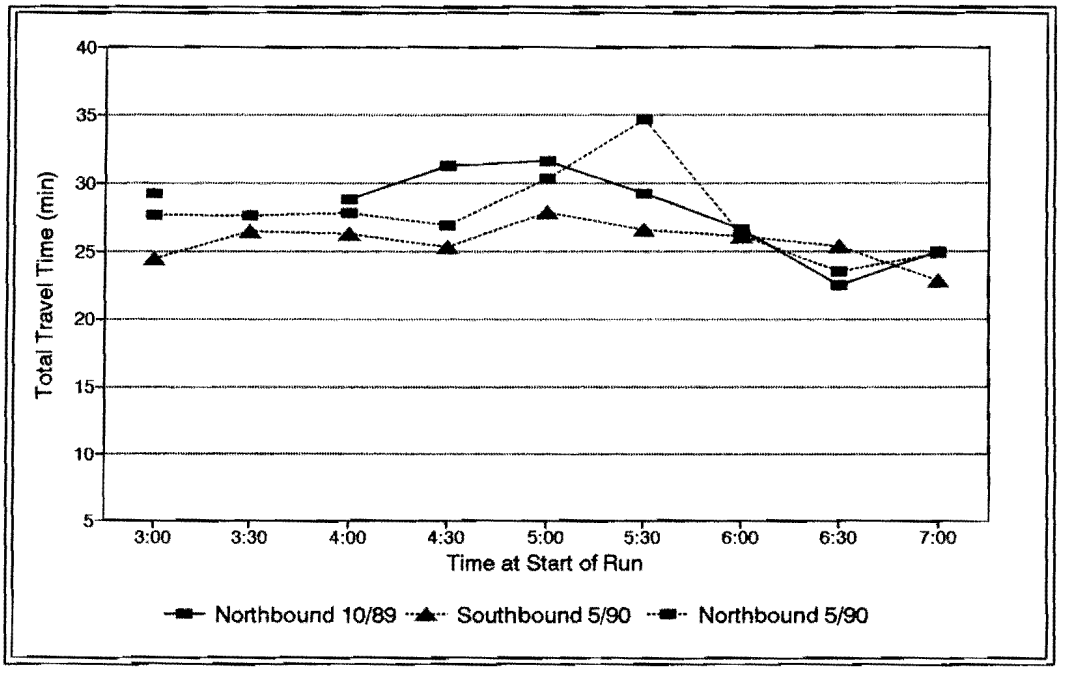


(b) P.M. Peak

Figure C-5. Peak Period Total Travel Time Between I-635 and CBD - US-75 Frontage Road

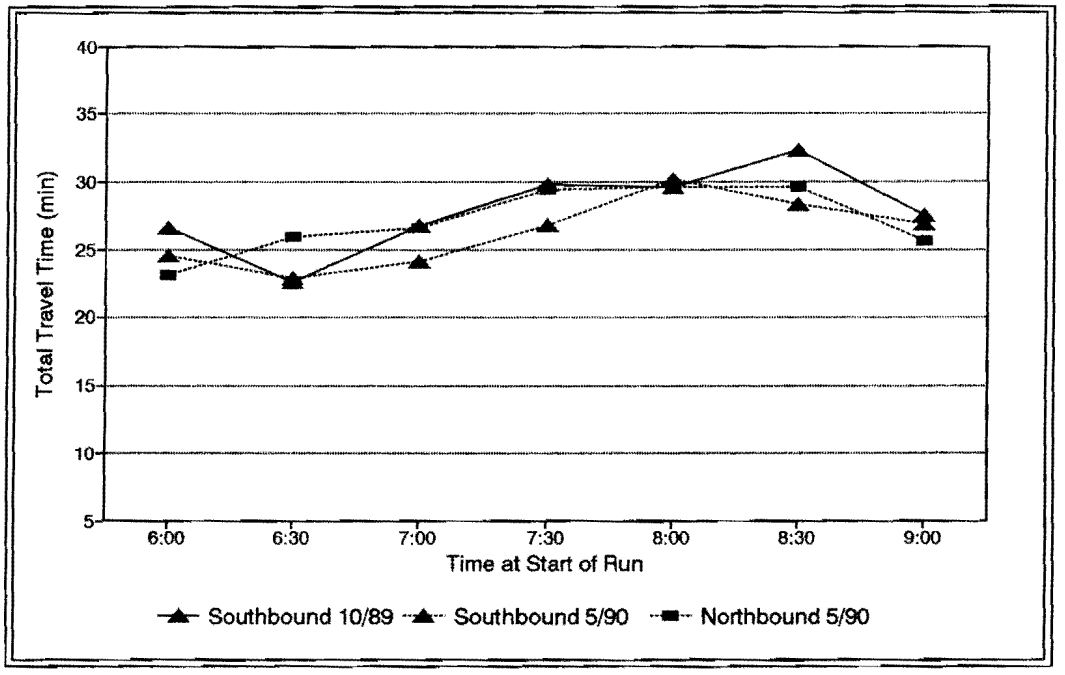


(a) A.M. Peak

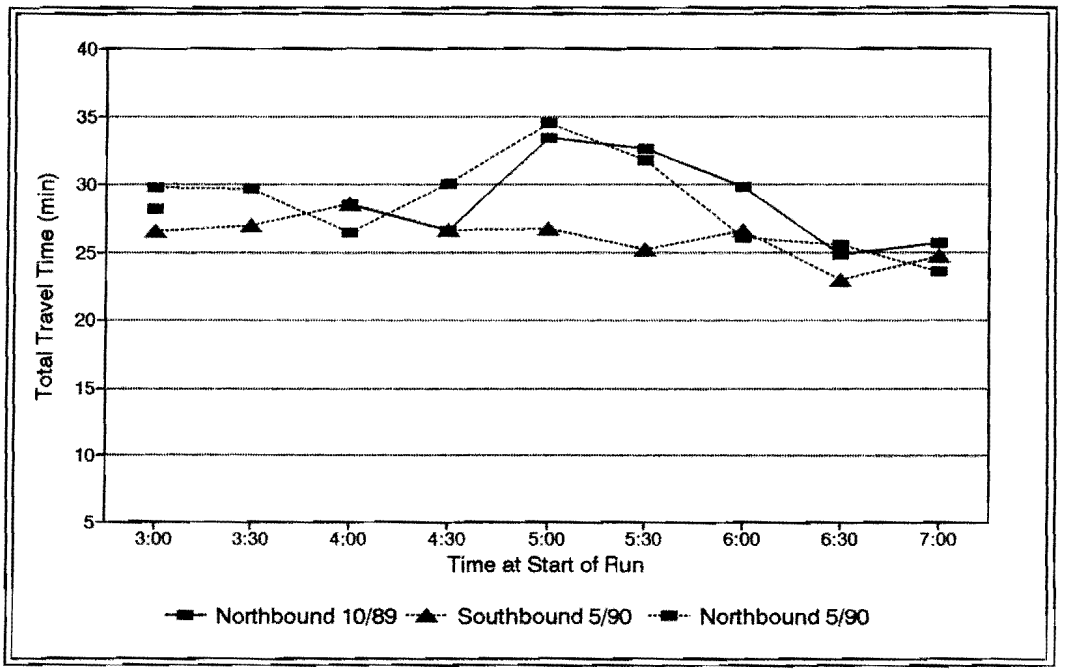


(b) P.M. Peak

Figure C-6. Peak Period Total Travel Time Between I-635 and CBD - Hillcrest

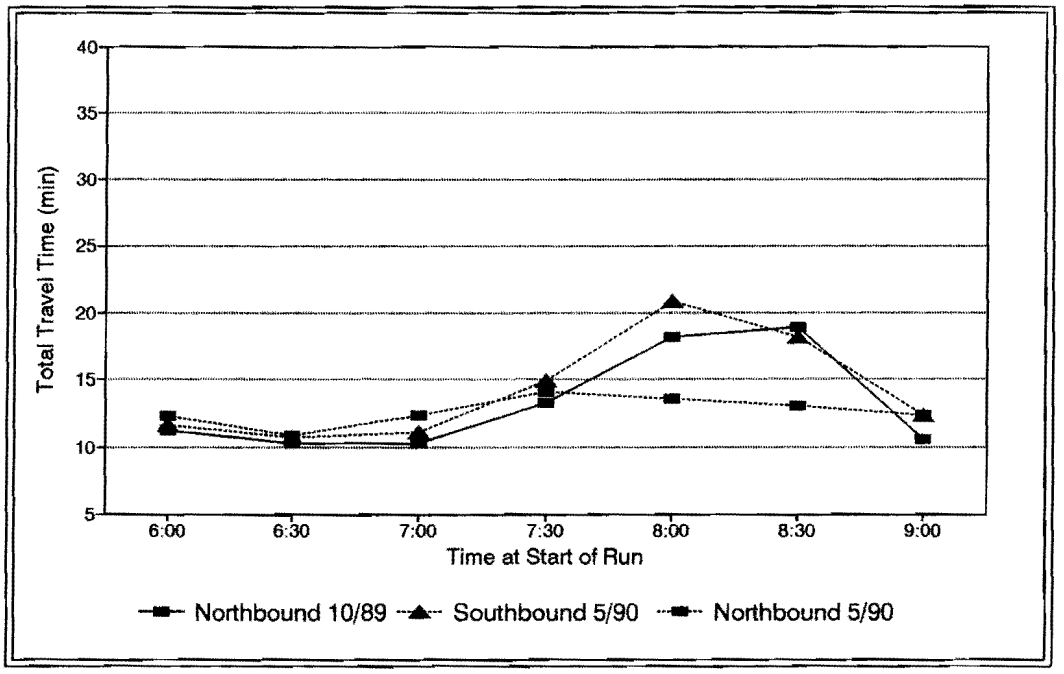


(a) A.M. Peak

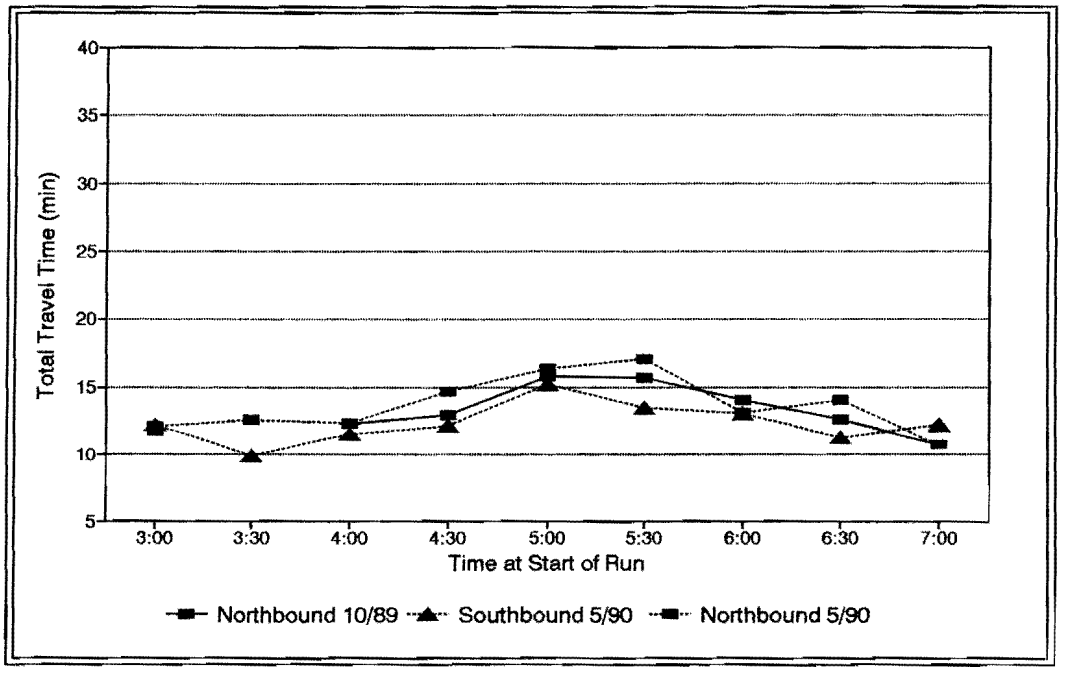


(b) P.M. Peak

Figure C-7. Peak Period Total Travel Time Between I-635 and CBD - Preston

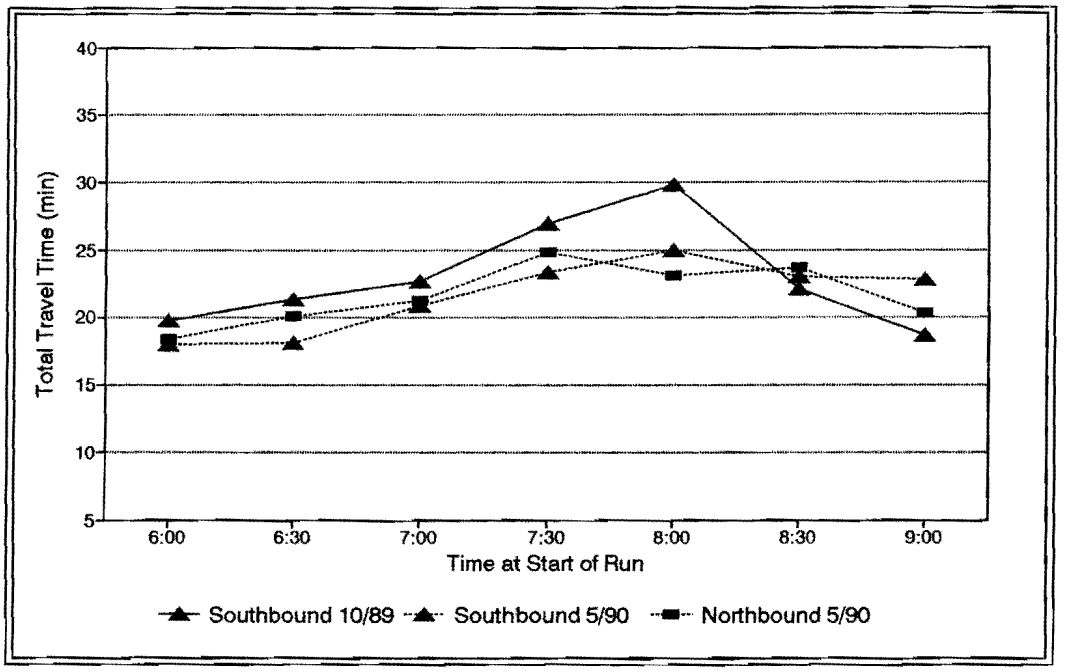


(a) A.M. Peak

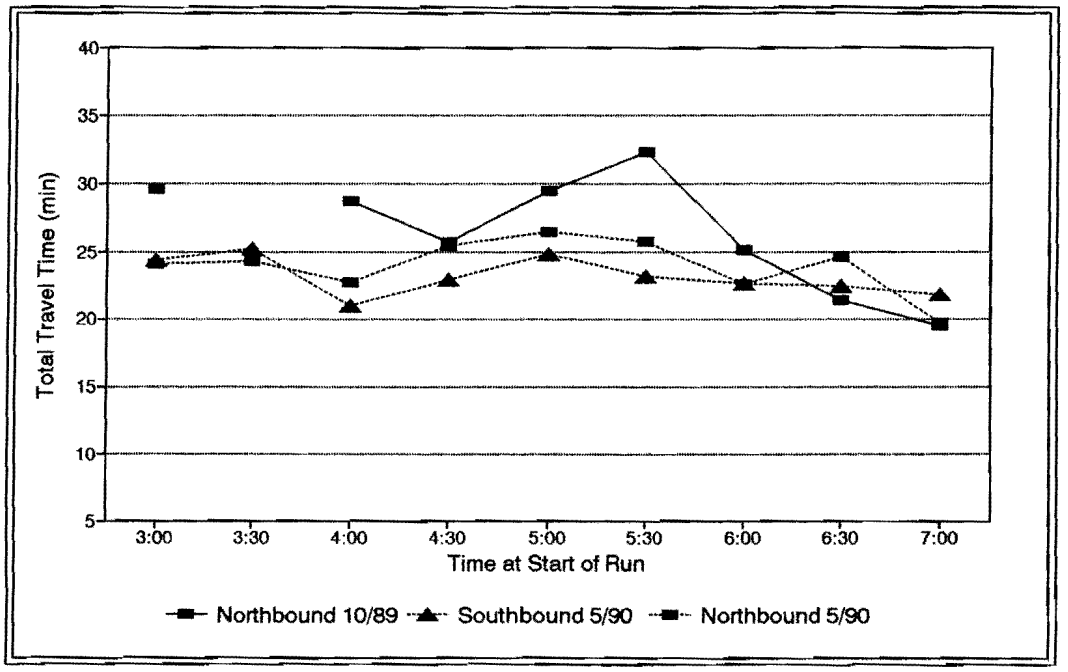


(b) P.M. Peak

Figure C-8. Peak Period Total Travel Time Between I-635 and CBD - Dallas North Tollway

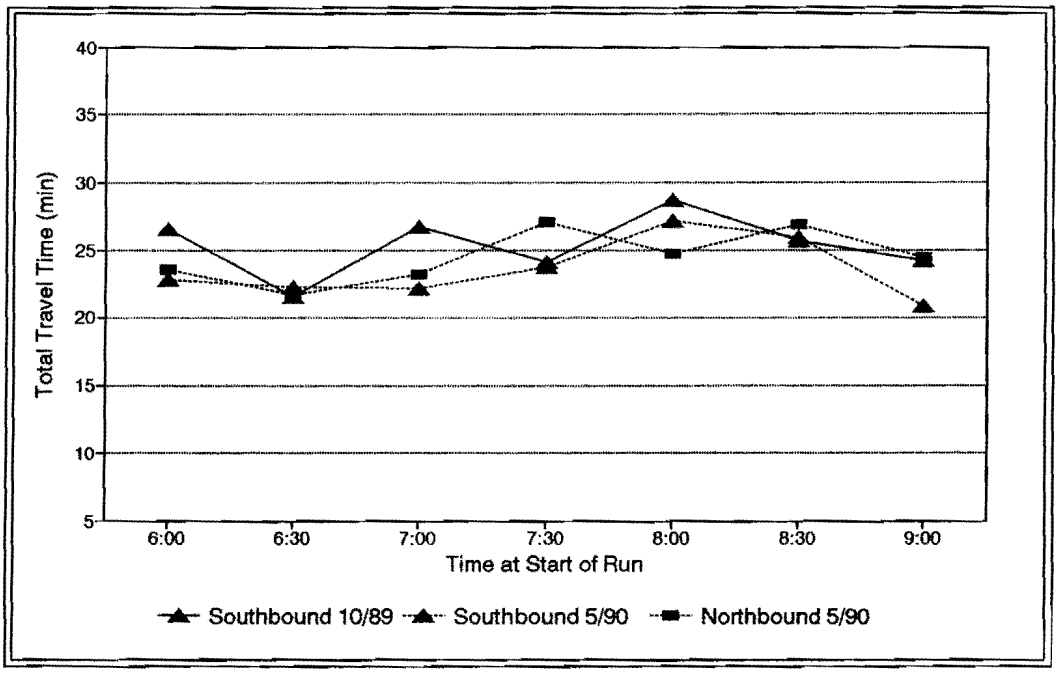


(a) A.M. Peak

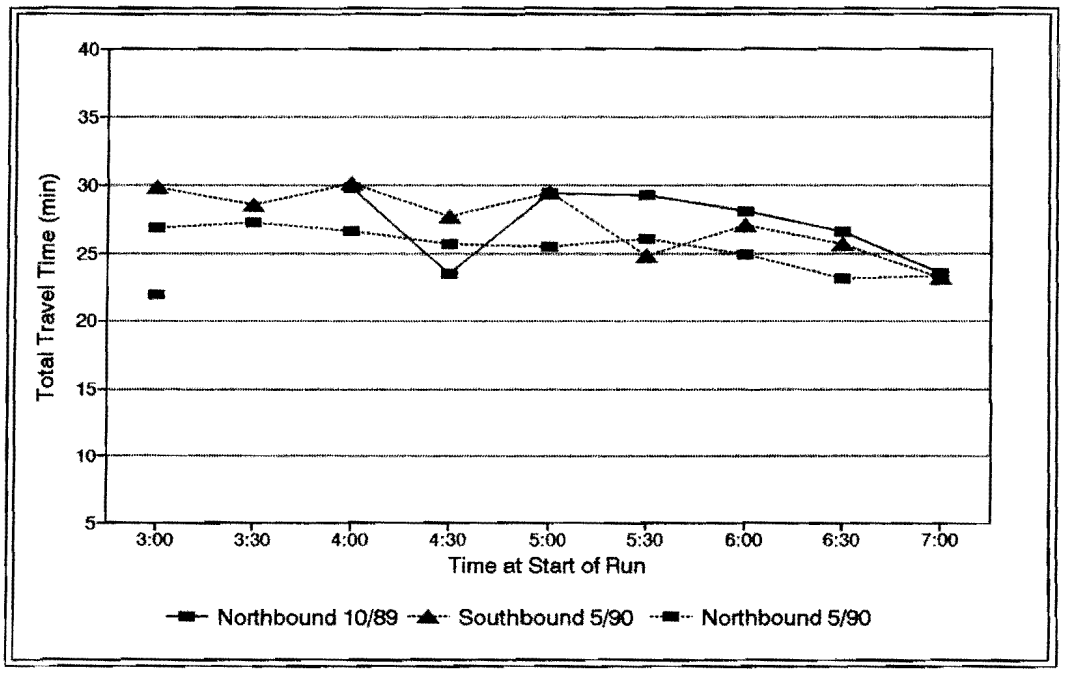


(b) P.M. Peak

Figure C-9. Peak Period Total Travel Time Between I-635 and CBD - Inwood



(a) A.M. Peak



(b) P.M. Peak

Figure C-10. Peak Period Total Travel Time between I-635 and CBD - Midway

APPENDIX D

PEAK PERIOD AVERAGE TRAVEL SPEEDS

TABLE D-1. Peak Period, Peak Direction Average Travel Speed (mph) - (October 1989)

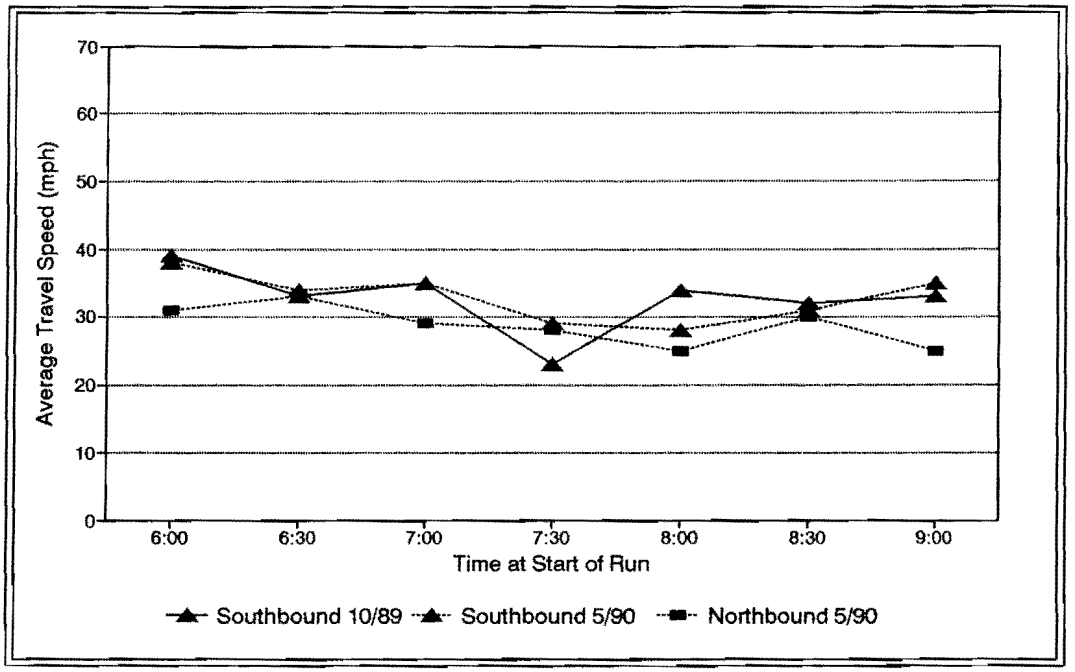
Run Beginning		Alternative Route									
		Garland	Abrams	Skillman	Greenville	US-75	Hillcrest	Preston	DNT	Inwood	Midway
AM Peak Period Southbound	6:00	39	30	32	36	61	28	22	53	35	24
	6:30	33	30	31	27	53	23	26	58	32	30
	7:00	35	27	37	30	39	23	22	58	30	24
	7:30	23	23	26	24	22	20	20	45	25	27
	8:00	34	24	32	23	23	22	20	33	23	23
	8:30	32	28	-	23	43	24	18	31	31	25
	9:00	33	28	32	29	56	27	21	56	37	26
PM Peak Period Northbound	3:00	28	24	30	25	42	20	21	51	22	28
	3:30	-	-	-	-	-	-	-	-	-	-
	4:00	31	24	32	23	29	20	21	48	23	22
	4:30	27	23	26	22	25	19	22	46	26	27
	5:00	26	24	20	14	18	18	18	38	22	22
	5:30	22	21	19	17	15	18	18	38	20	22
	6:00	27	24	23	22	17	22	20	42	26	23
	6:30	30	28	26	28	50	26	24	47	31	24
	7:00	33	26	26	25	49	23	23	55	34	27

TABLE D-2. Peak Period, Peak Direction Average Travel Speed (mph) - (May 1990)

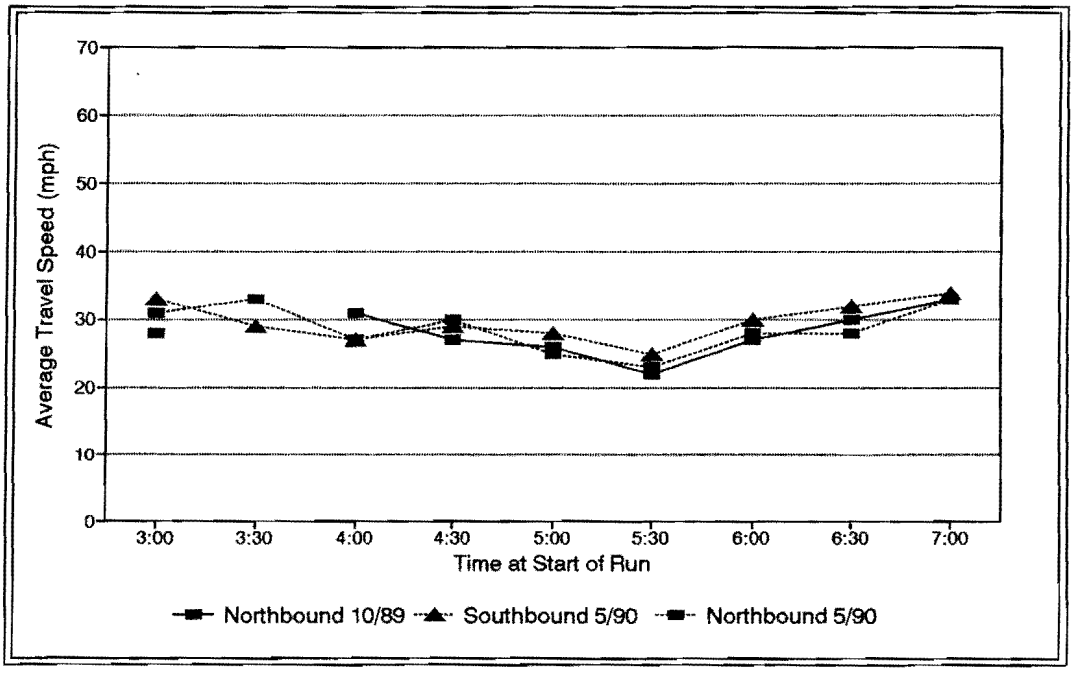
Run Beginning		Alternative Route										
		Garland	Abrams	Skillman	Greenville	US-75	US-75 Fr. Rd.	Hillcrest	Preston	DNT	Inwood	Midway
AM Peak Period Southbound	6:00	38	29	32	29	61	28	25	25	51	38	28
	6:30	34	32	36	30	56	24	24	27	56	38	29
	7:00	35	27	32	28	44	24	22	25	53	33	29
	7:30	29	22	26	22	29	16	21	23	40	29	27
	8:00	28	25	28	22	31	13	20	20	29	27	24
	8:30	31	28	32	22	33	16	21	22	33	30	25
	9:00	35	29	29	27	40	20	23	23	48	30	31
PM Peak Period Northbound	3:00	31	24	31	25	46	25	21	20	49	27	24
	3:30	33	25	26	27	47	19	21	20	47	27	24
	4:00	27	22	26	23	41	21	21	22	48	29	24
	4:30	30	25	31	25	34	19	22	19	41	26	25
	5:00	25	22	31	21	24	16	19	17	36	25	25
	5:30	23	21	22	22	22	15	17	19	35	26	25
	6:00	28	25	25	23	26	20	22	22	46	29	26
	6:30	28	25	29	26	38	20	25	23	42	27	28
	7:00	33	28	27	26	50	24	24	25	55	33	28

TABLE D-3. Peak Period, Off-Peak Direction Average Travel Speed (mph) - (May 1990)

Run Beginning		Alternative Route										
		Garland	Abrams	Skillman	Greenville	US-75	US-75 Fr. Rd.	Hillcrest	Preston	DNT	Inwood	Midway
AM Off-Peak Period Northbound	6:00	31	29	36	29	58	28	22	25	48	36	27
	6:30	33	27	29	29	56	17	23	22	55	33	30
	7:00	29	24	24	27	47	18	21	22	48	31	28
	7:30	28	25	24	23	30	14	22	20	42	27	24
	8:00	25	20	28	22	31	15	20	20	44	29	26
	8:30	30	23	25	25	34	-	20	20	46	28	24
	9:00	25	27	30	24	50	24	28	23	48	32	26
PM Off-Peak Period Southbound	3:00	33	24	31	29	53	23	24	22	49	28	21
	3:30	29	27	36	26	50	22	22	21	47	27	22
	4:00	27	23	27	22	37	16	22	21	52	33	21
	4:30	29	29	28	21	39	17	23	22	49	30	23
	5:00	28	26	23	21	47	16	21	22	39	28	21
	5:30	25	25	25	21	35	15	22	23	44	29	25
	6:00	30	28	25	24	48	-	23	22	45	30	23
	6:30	32	27	31	28	54	24	23	26	52	30	24
	7:00	34	27	31	28	53	24	26	24	48	31	27

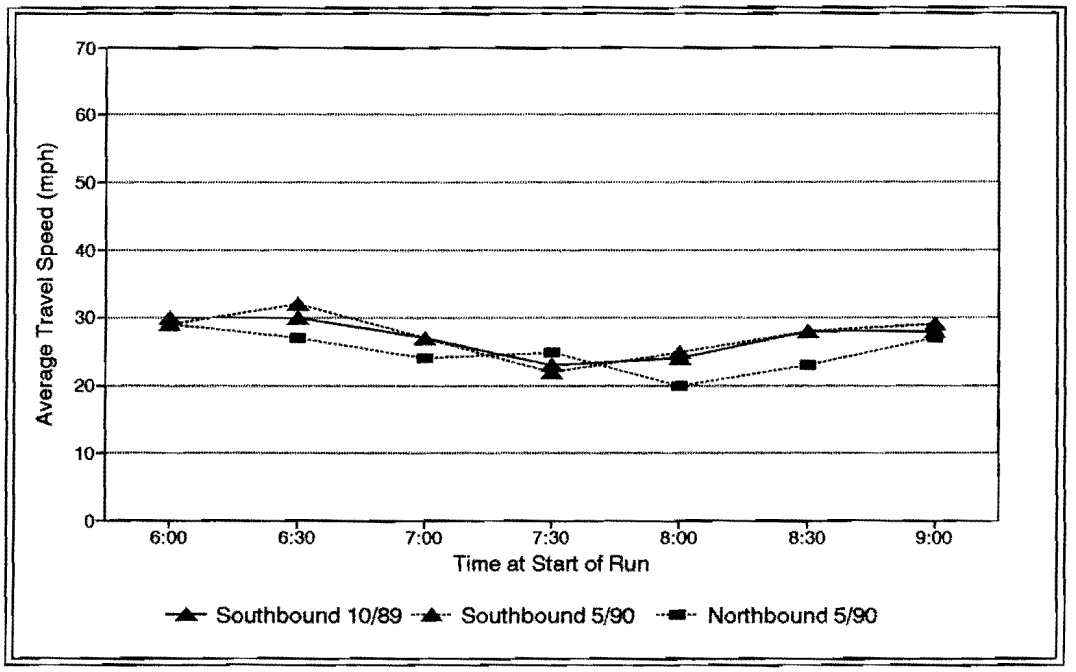


(a) A.M. Peak

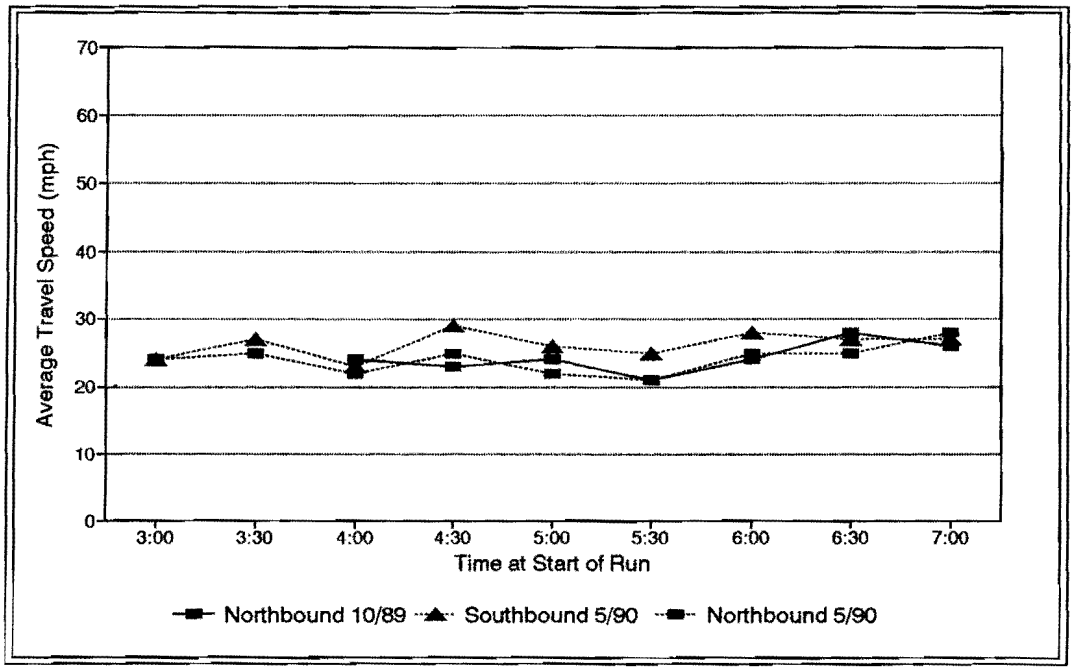


(b) P.M. Peak

Figure D-1. Peak Period Average Travel Speed Between I-635 and CBD - Garland

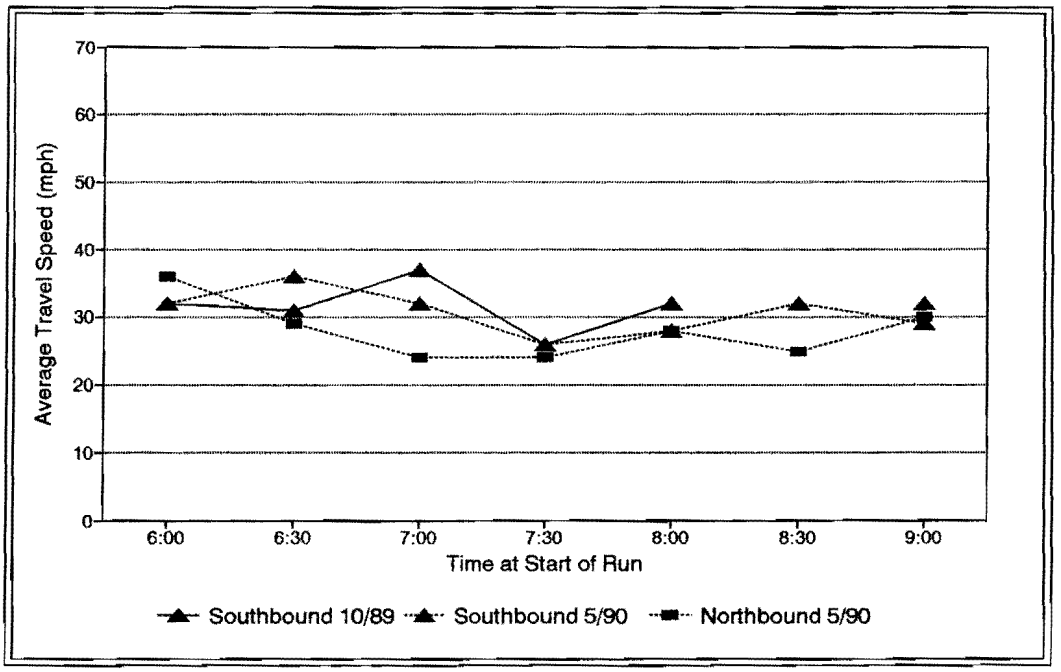


(a) A.M. Peak

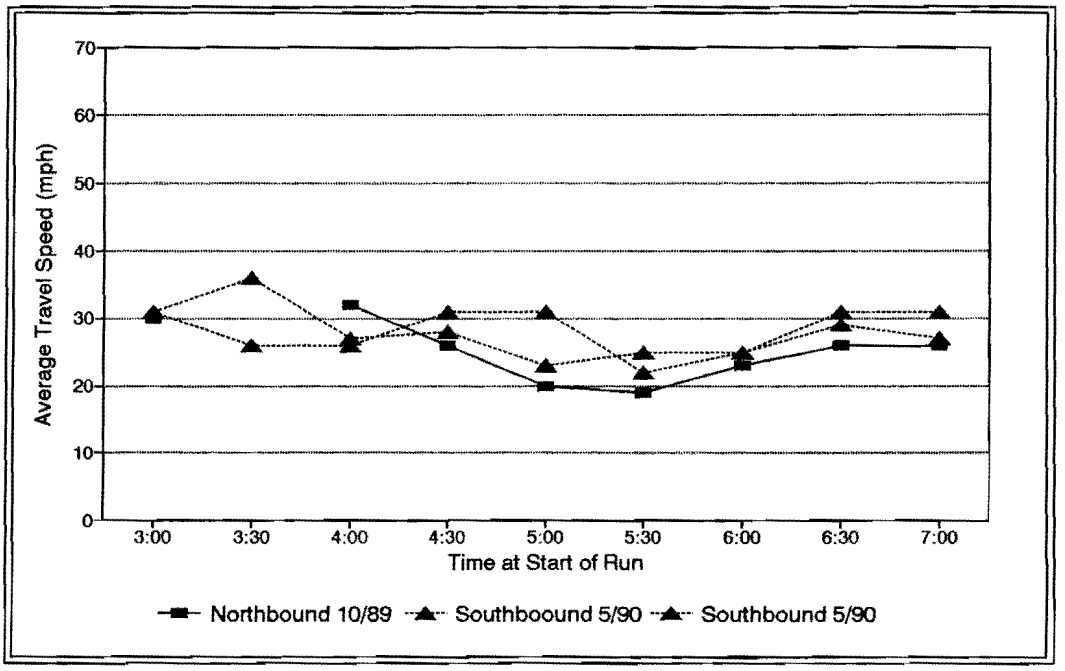


(b) P.M. Peak

Figure D-2. Peak Period Average Travel Speed Between I-635 and CBD - Abrams

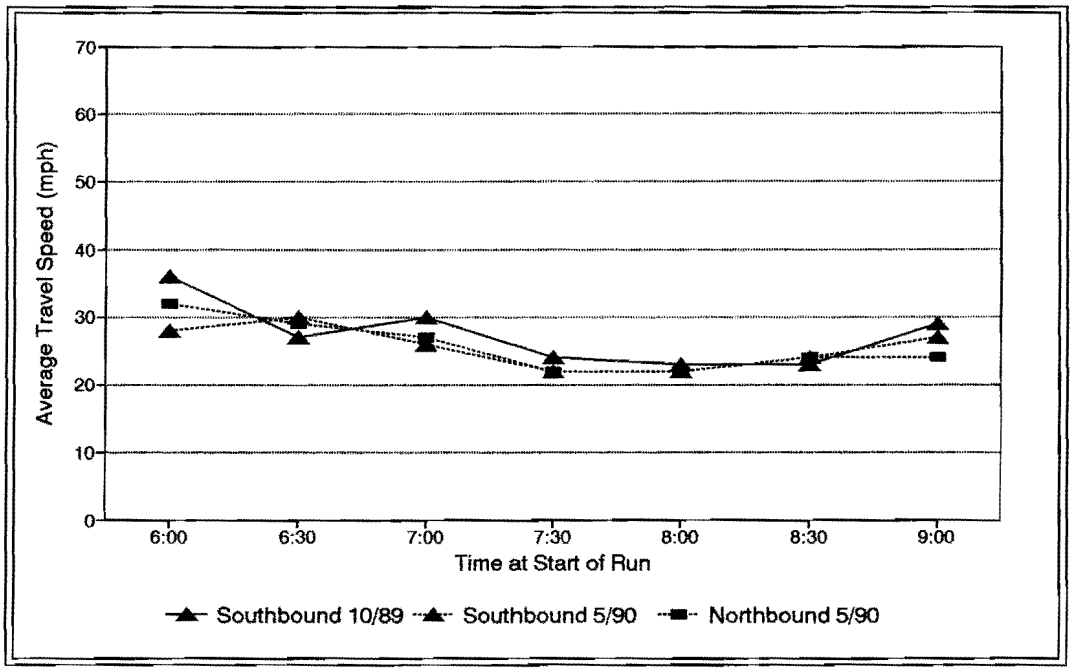


(a) A.M. Peak

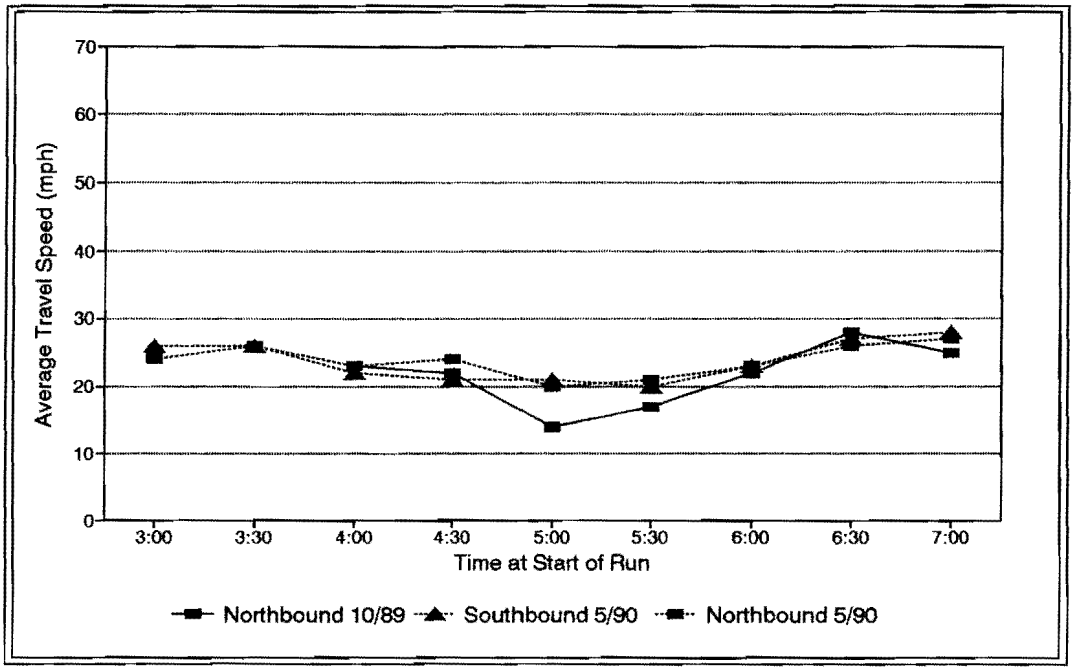


(b) P.M. Peak

Figure D-3. Peak Period Average Travel Speed Between I-635 and CBD - Skillman

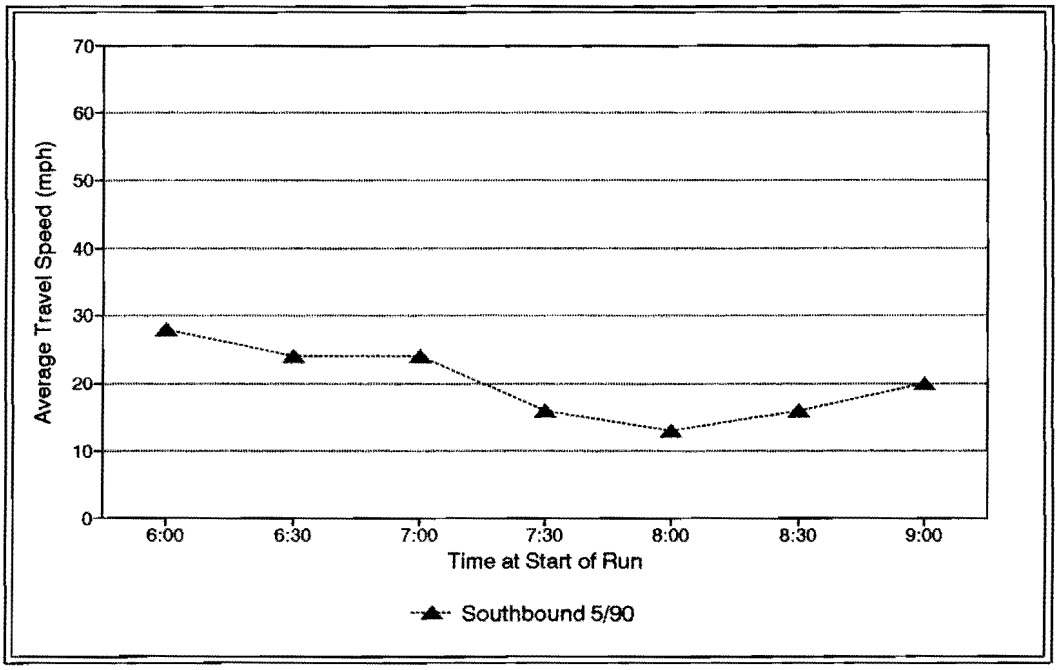


(a) A.M. Peak

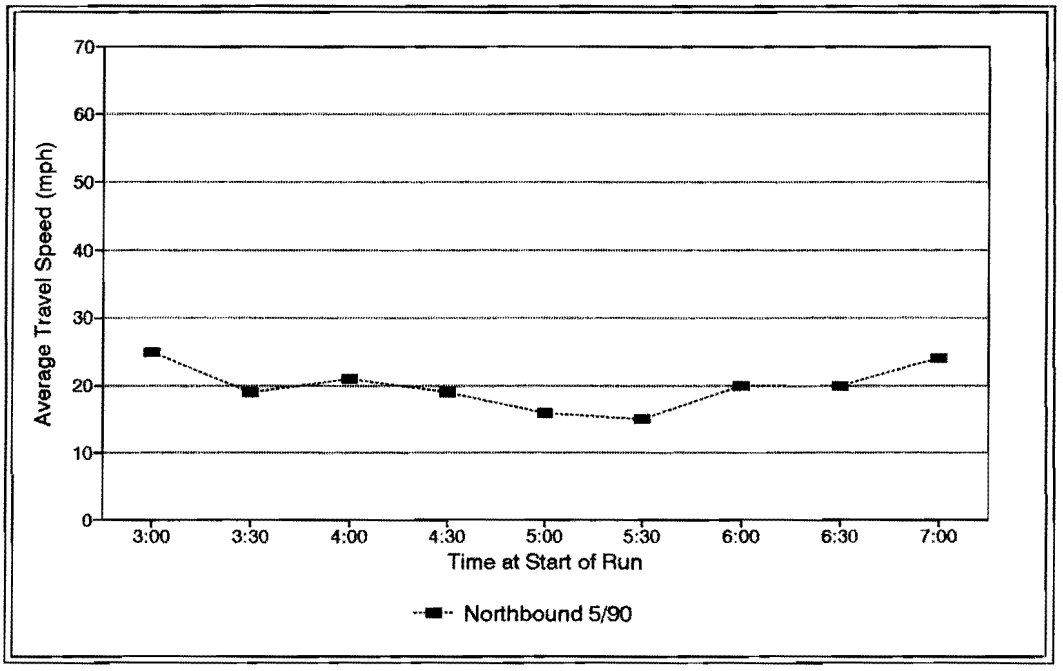


(b) P.M. Peak

Figure D-4. Peak Period Average Travel Speed Between I-635 and CBD - Greenville

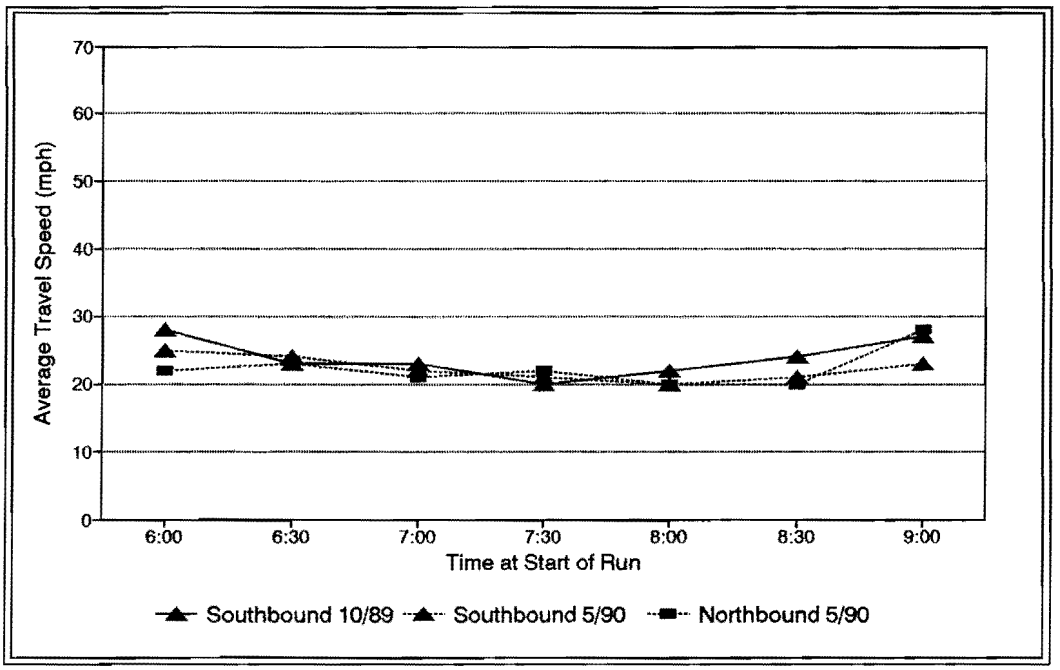


(a) A.M. Peak

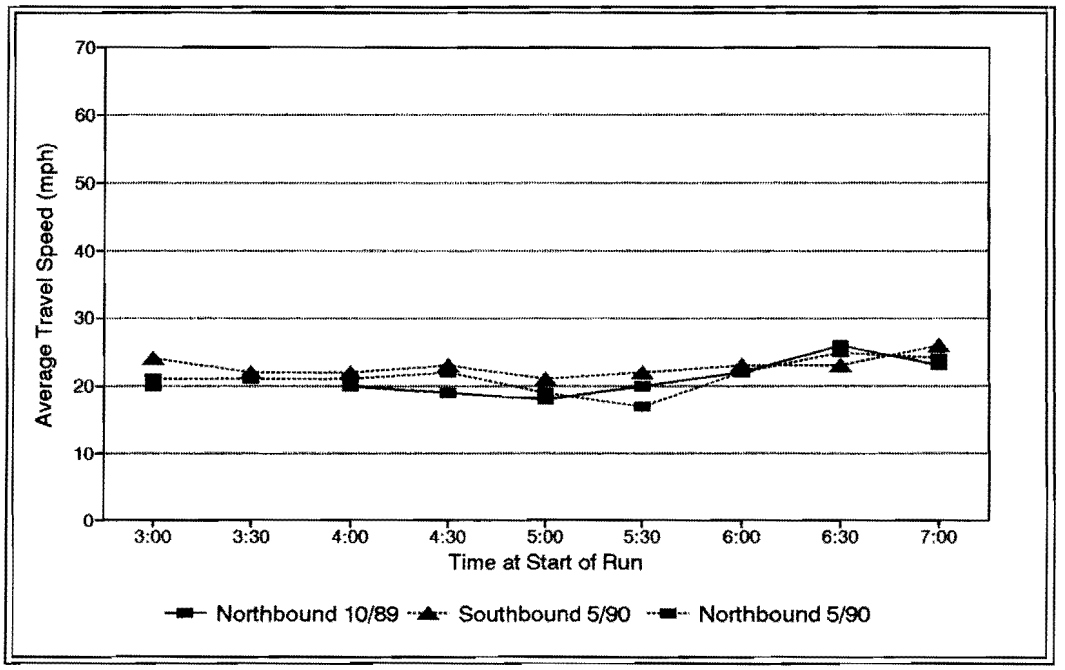


(b) P.M. Peak

Figure D-5. Peak Period Average Travel Speed Between I-635 and CBD - US-75 Frontage Road

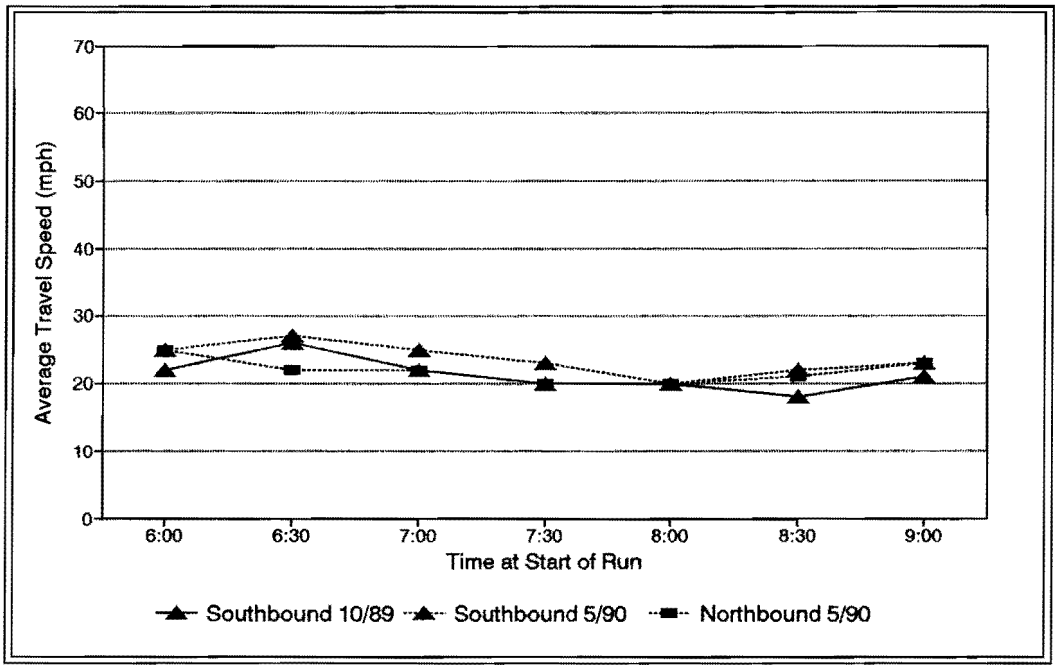


(a) A.M. Peak

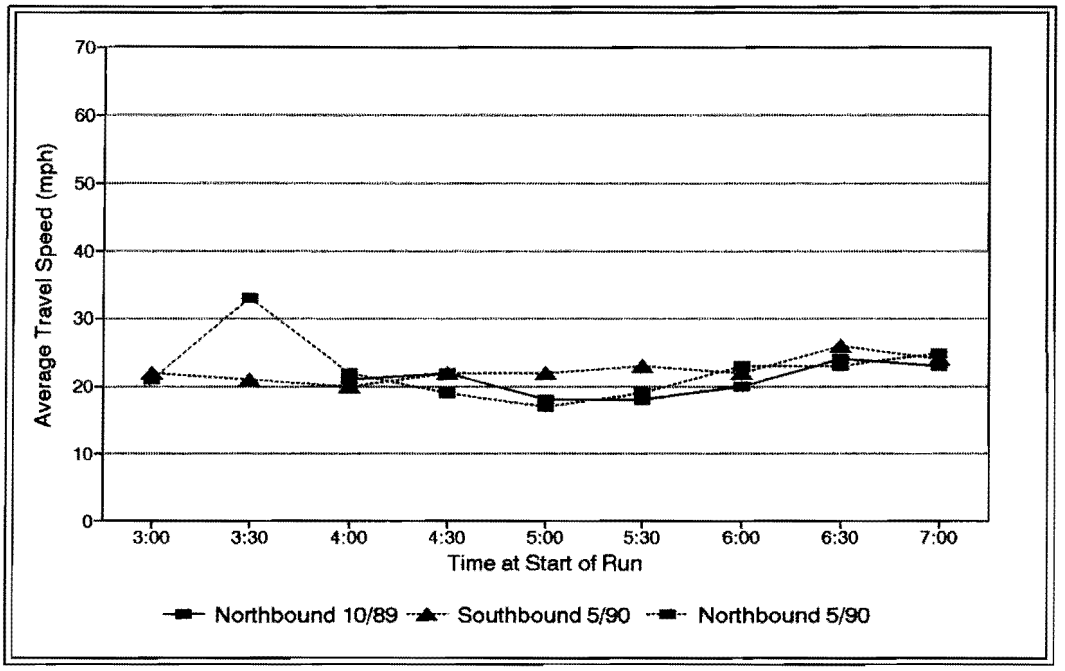


(b) P.M. Peak

Figure D-6. Peak Period Average Travel Speed Between I-635 and CBD - Hillcrest

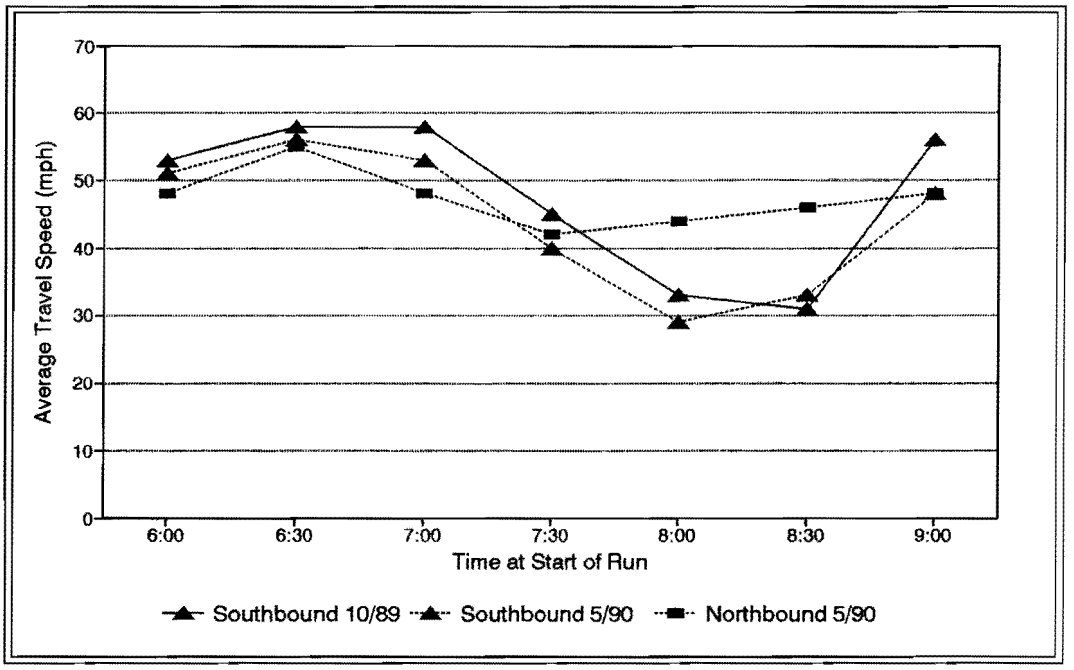


(a) A.M. Peak

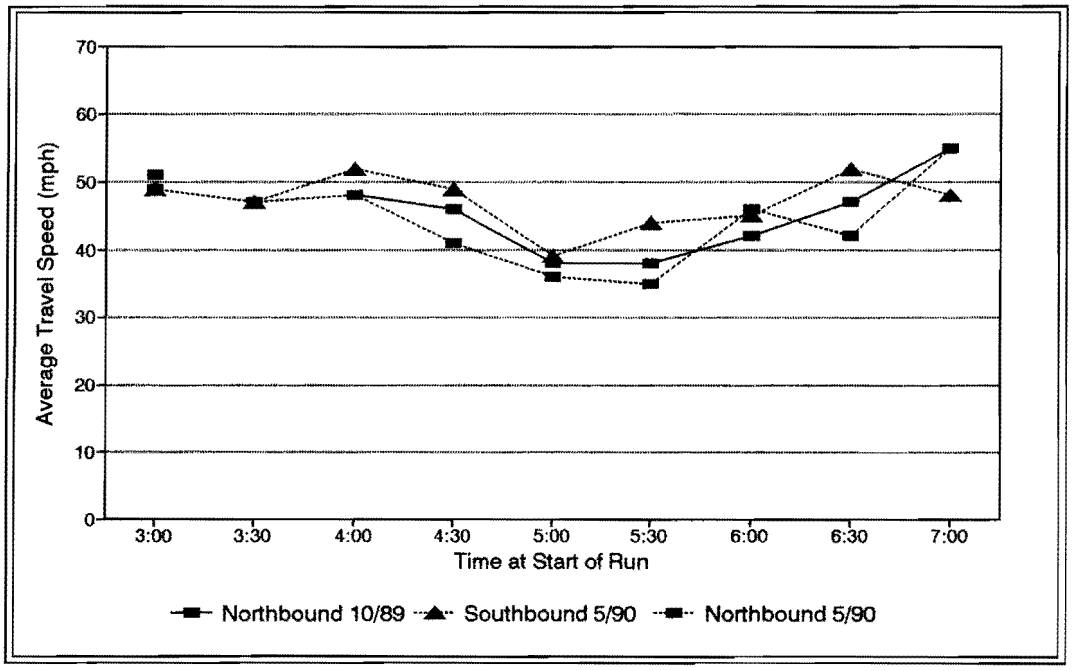


(b) P.M. Peak

Figure D-7. Peak Period Average Travel Speed Between I-635 and CBD - Preston

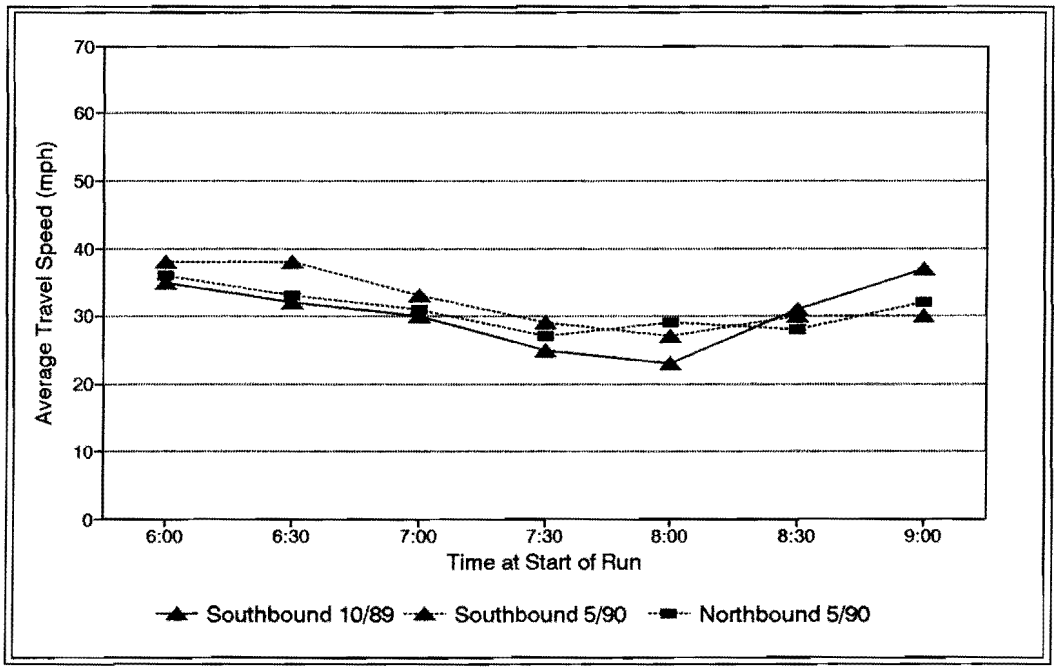


(a) A.M. Peak

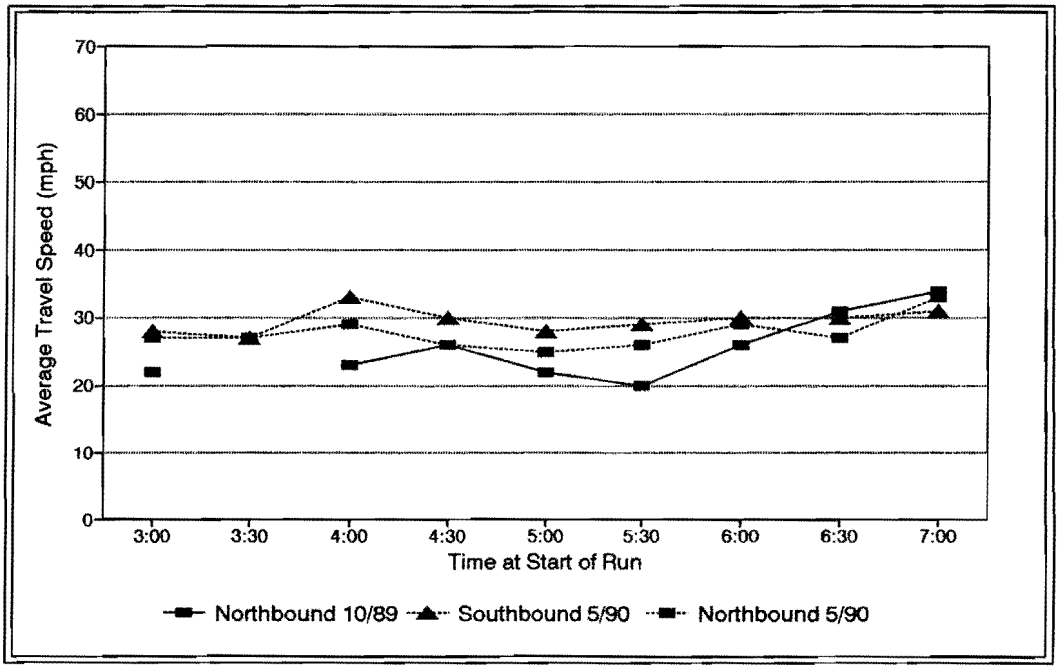


(b) P.M. Peak

Figure D-8. Peak Period Average Travel Speed Between I-635 and CBD - Dallas North Tollway

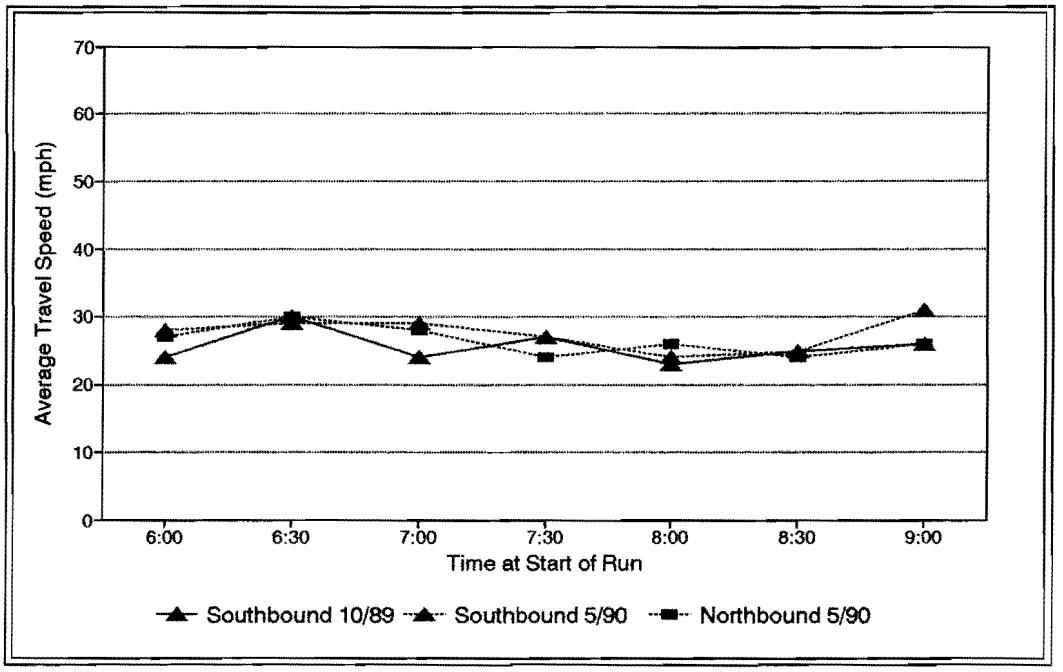


(a) A.M. Peak

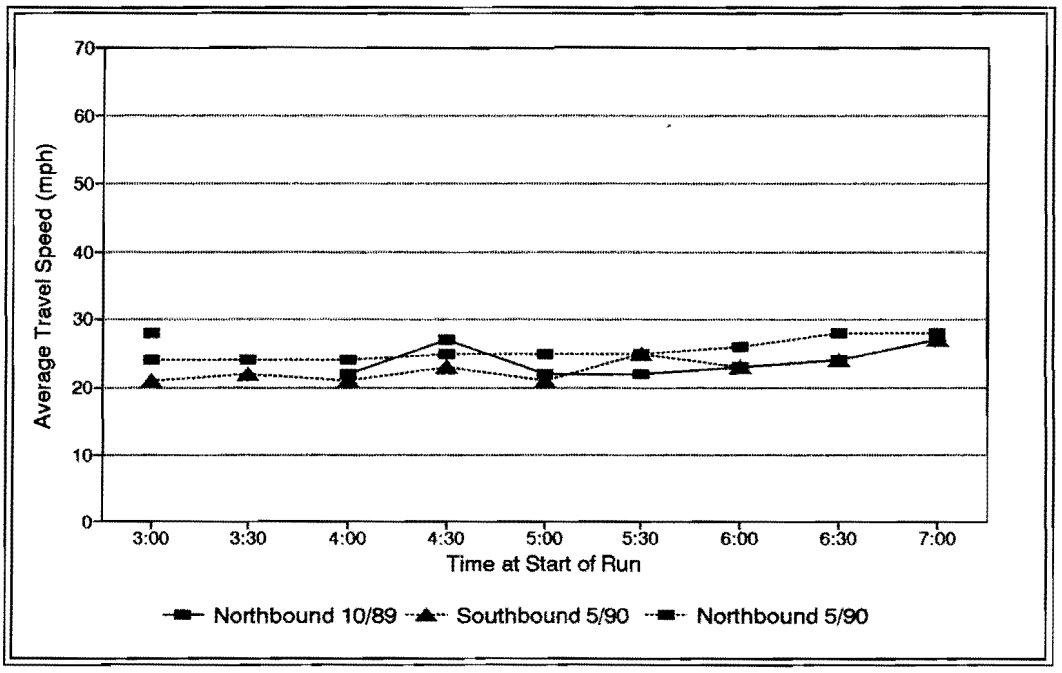


(b) P.M. Peak

Figure D-9. Peak Period Average Travel Speed Between I-635 and CBD - Inwood



(a) A.M. Peak



(b) P.M. Peak

Figure D-10. Peak Period Average Travel Speed Between I-635 and CBD - Midway

APPENDIX E

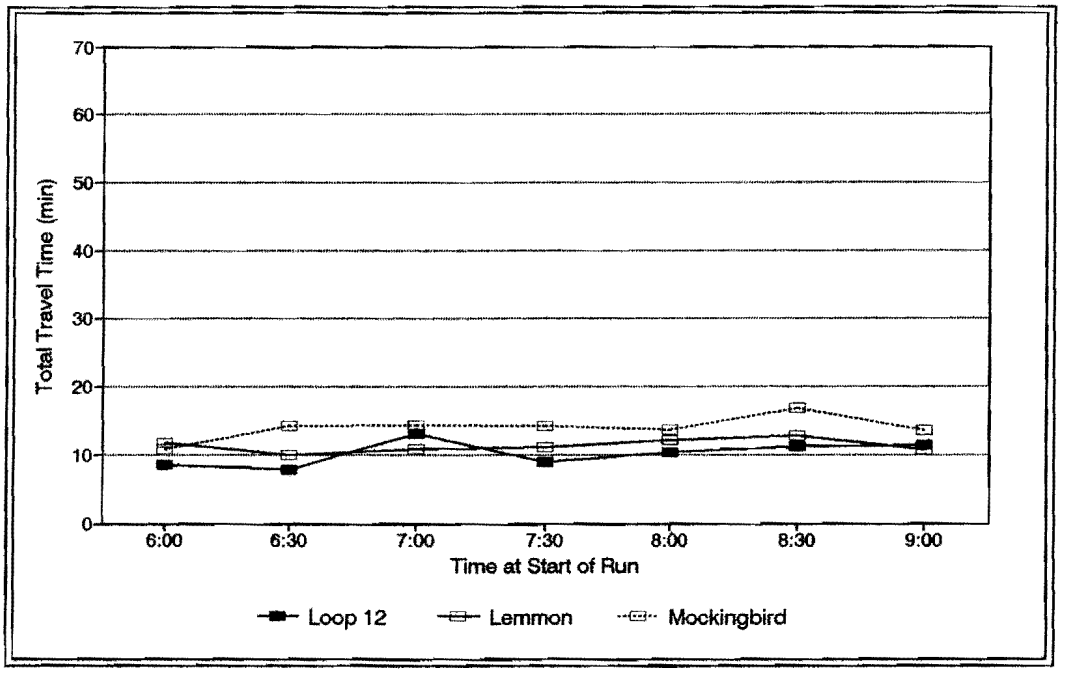
PEAK PERIOD TOTAL TRAVEL TIMES AND AVERAGE TRAVEL SPEEDS FOR EASTBOUND AND WESTBOUND ROUTES

TABLE E-1. Peak Period Total Travel Time (min) - (May 1990)

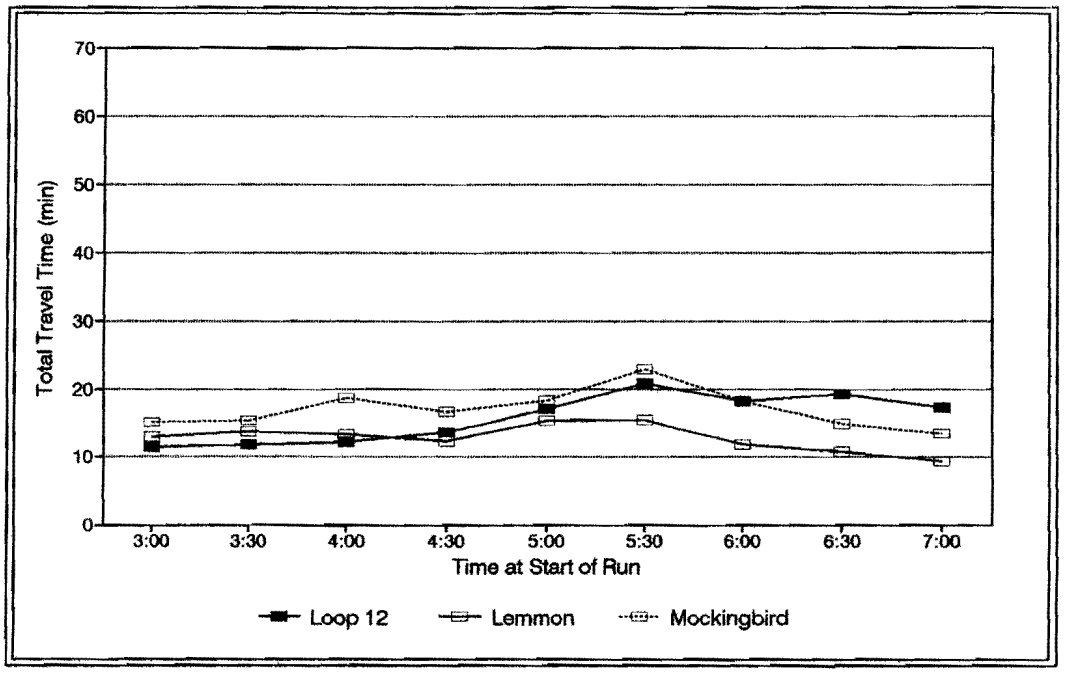
Run Beginning		Alternative Route					
		Eastbound			Westbound		
		Loop 12	Lemmon	Mockingbird	Loop 12	Lemmon	Mockingbird
AM Peak Period	6:00	8.67	11.85	10.97	7.98	9.78	12.48
	6:30	7.78	10.05	14.35	8.37	9.43	11.80
	7:00	13.20	10.95	14.47	9.03	11.88	13.62
	7:30	9.00	11.27	14.32	13.92	13.58	17.98
	8:00	10.47	12.22	13.87	12.82	13.05	17.02
	8:30	11.35	12.95	16.95	11.28	12.67	13.85
	9:00	11.53	10.88	13.67	10.22	9.95	14.62
PM Peak Period	3:00	11.48	13.08	15.23	9.97	11.55	13.97
	3:30	11.85	13.77	15.52	11.08	13.75	14.68
	4:00	12.30	13.43	18.85	8.77	13.42	15.48
	4:30	13.62	12.32	16.75	12.75	12.53	16.70
	5:00	17.23	15.47	18.50	11.93	13.15	17.80
	5:30	20.98	15.63	22.98	12.73	14.57	17.18
	6:00	18.33	11.82	18.33	10.78	12.87	13.73
	6:30	19.35	10.87	14.95	10.00	13.47	17.00
	7:00	17.40	9.38	13.55	9.48	8.75	12.85

TABLE E-2. Peak Period Average Travel Speed (mph) - (May 1990)

Run Beginning		Alternative Route					
		Eastbound			Westbound		
		Loop 12	Lemmon	Mockingbird	Loop 12	Lemmon	Mockingbird
AM Peak Period	6:00	37	19	25	40	21	22
	6:30	41	22	19	38	24	23
	7:00	24	21	19	36	25	20
	7:30	36	20	19	23	20	15
	8:00	31	19	20	25	17	16
	8:30	28	17	16	29	18	20
	9:00	28	21	20	31	23	19
PM Peak Period	3:00	28	17	18	32	20	20
	3:30	27	16	18	29	17	19
	4:00	26	17	15	37	17	18
	4:30	24	18	16	25	19	16
	5:00	19	15	15	27	18	15
	5:30	15	14	12	25	16	16
	6:00	17	19	15	30	18	20
	6:30	17	21	18	32	17	16
	7:00	18	24	20	34	27	21

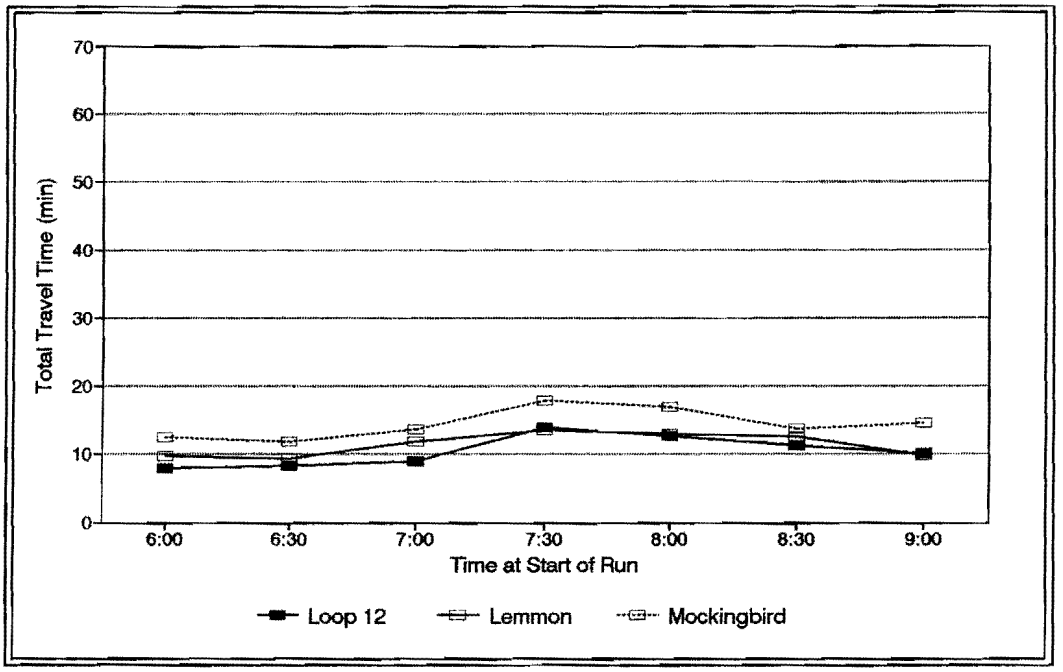


(a) A.M. Peak

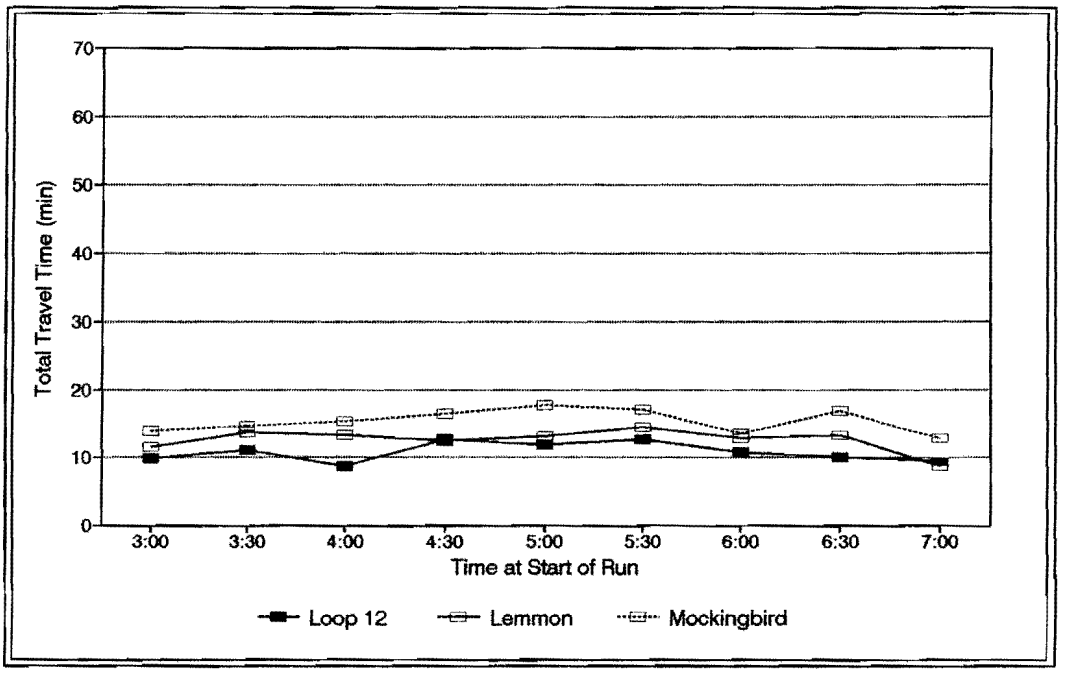


(b) P.M. Peak

Figure E-1. Peak Period Total Travel Time for Eastbound Routes

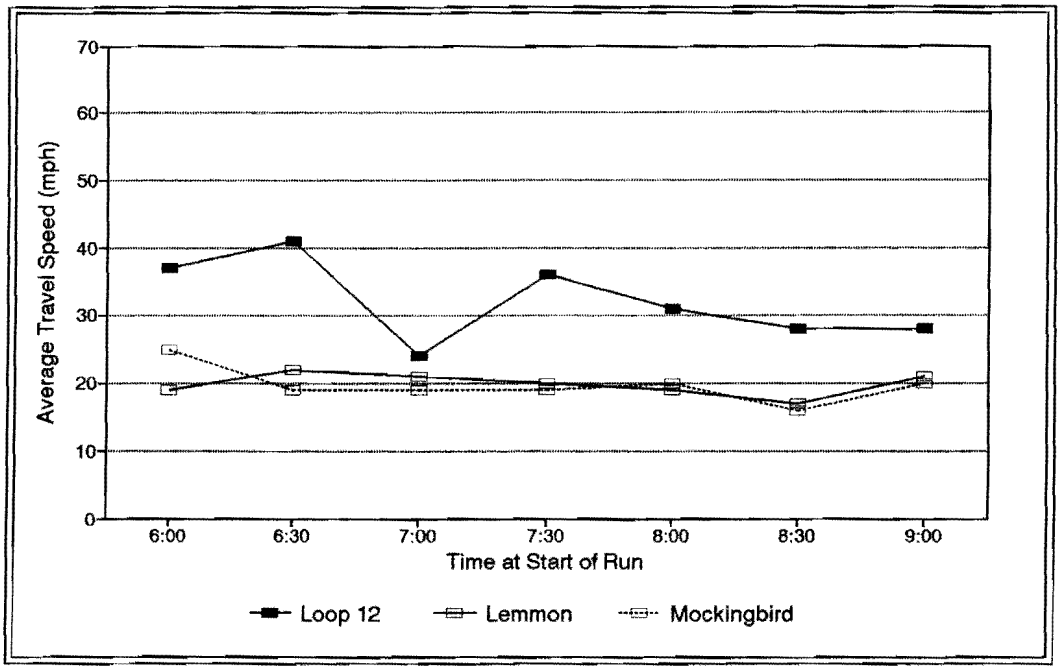


(a) A.M. Peak

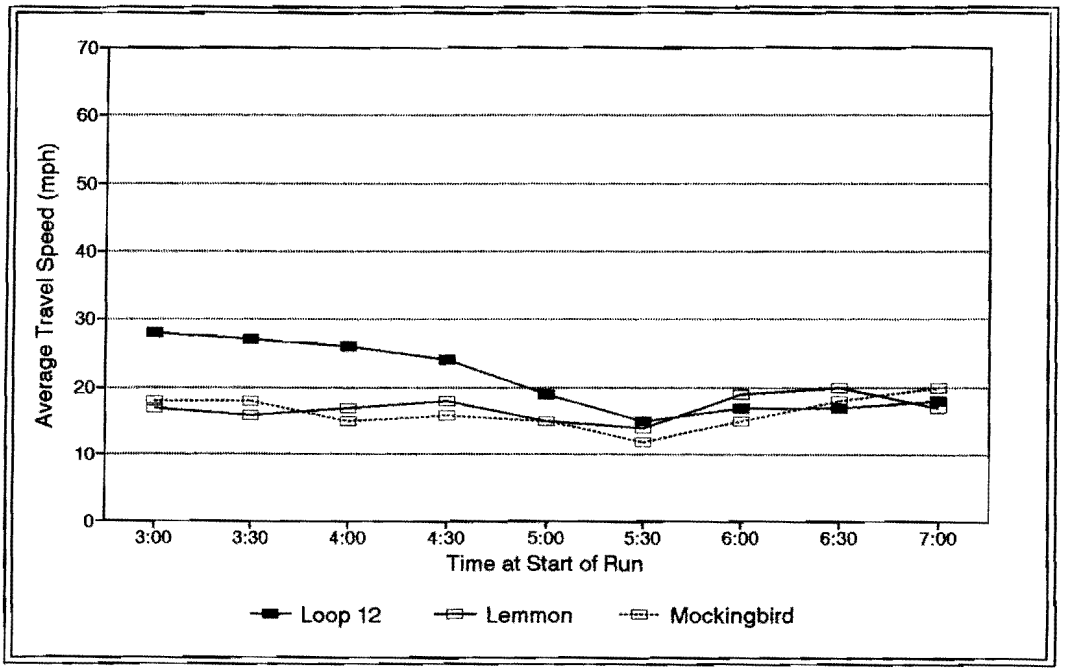


(b) P.M. Peak

Figure E-2. Peak Period Total Travel Time for Westbound Routes

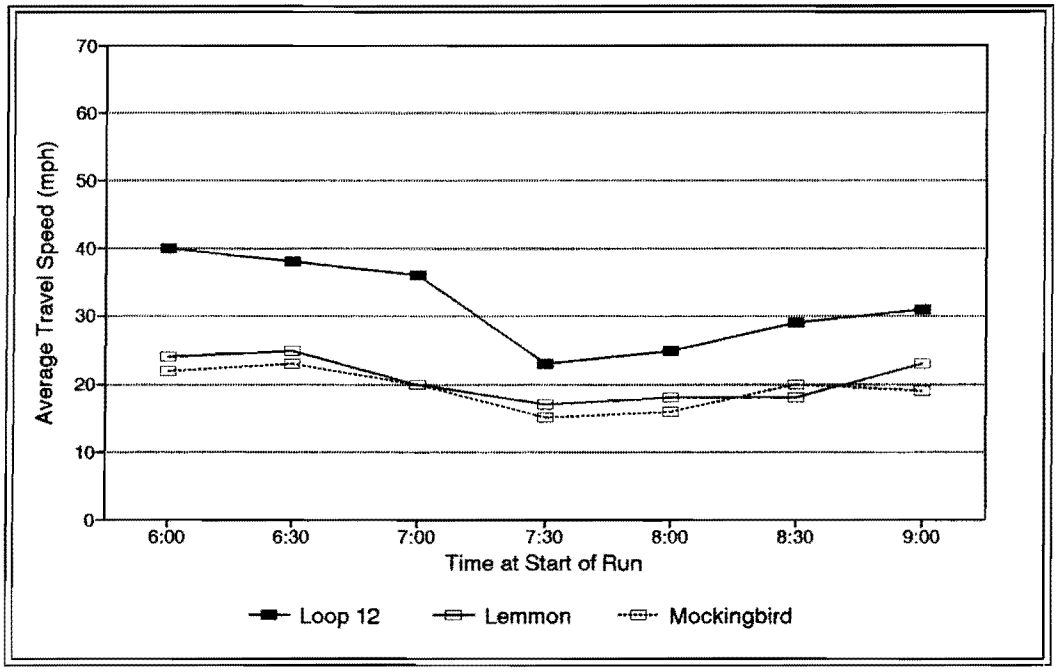


(a) A.M. Peak

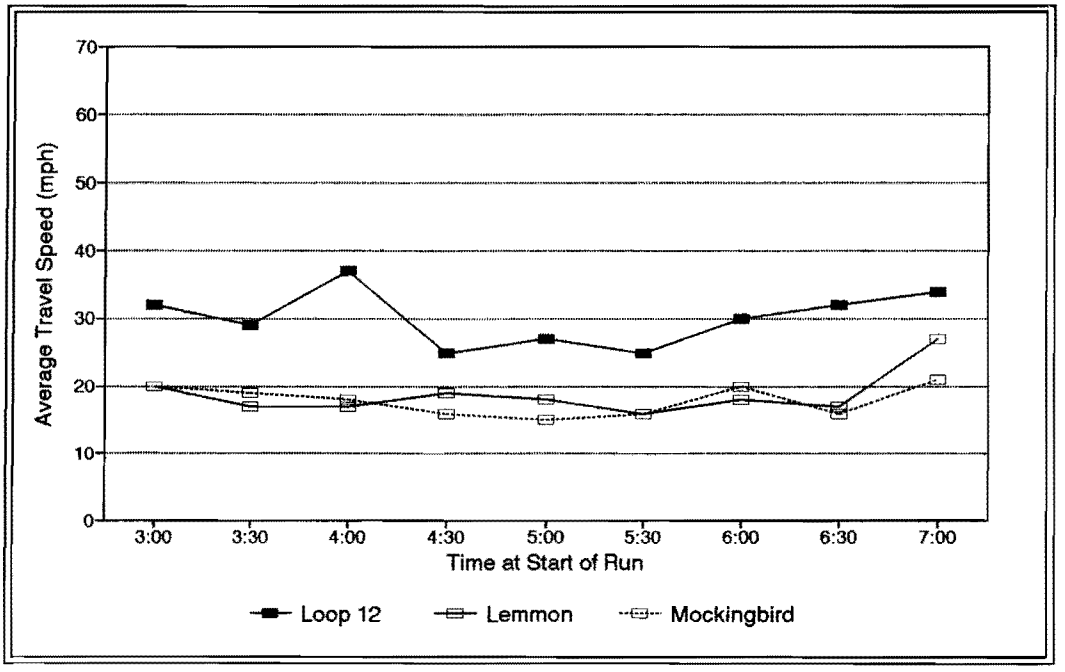


(b) P.M. Peak

Figure E-3. Peak Period Average Travel Speed for Eastbound Routes



(a) A.M. Peak



(b) P.M. Peak

Figure E-4. Peak Period Average Travel Speed for Westbound Routes