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16. Abstract

This report documents the results of the traffic data collection efforts during May 1992, two years after reconstruction began on the US-75 North Central Expressway south of the I-635 LBJ Freeway. Traffic conditions and patterns have been monitored during October 1989 and May 1990 (before construction) and during October 1990, May 1991, October 1991, and May 1992 (during the first two years of the project). The traffic monitoring efforts included traffic data collection and automobile and transit user surveys. The traffic data collection efforts included screen line traffic volume counts, vehicle occupancy and classification counts, and travel time runs. The automobile and transit users surveys are documented in a separate report. The results indicate that the reconstruction activities underway during the May 1992 data collection efforts had little impact on peak period, peak direction traffic conditions and patterns in the corridor. Some minor changes were observed in the daily traffic patterns throughout the corridor.

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US-75 NORTH CENTRAL EXPRESSWAY RECONSTRUCTION: MAY 1992 TRAFFIC CONDITIONS

Report 1940-4

Prepared for

North Central Project Office
Texas Department of Transportation
District 18, Dallas

Sponsored by

Texas Department of Transportation

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May 1993

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)

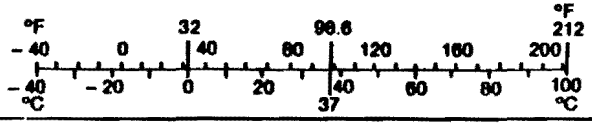
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
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)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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

* SI is the symbol for the International System of Measurements

IMPLEMENTATION

This report documents the results of the May 1992 traffic data collection efforts in the US-75 North Central Expressway corridor. The study was performed approximately two years into the reconstruction project on the US-75 North Central Expressway south of the I-635 LBJ Freeway. Traffic conditions and patterns were monitored before construction (October 1989 and May 1990) and during construction (October 1990, May 1991, October 1991, and May 1992). The traffic conditions prior to construction and during the first year-and-a-half of construction were documented in previous reports. The traffic monitoring efforts included traffic data collection and automobile and transit user surveys. The traffic data collection efforts included screen line traffic volume counts, vehicle occupancy and classification counts, and travel time runs. The automobile and transit users survey results are documented in a separate report.

The results indicate that the reconstruction activities underway during the May 1992 traffic data collection efforts had minimal impact on peak period traffic conditions and patterns in the corridor; however, some changes in daily traffic patterns were observed. The results of the May 1992 traffic data collection efforts are summarized as follows:

- The total daily corridor traffic volumes appear to have decreased in the US-75 North Central Expressway corridor during May 1992. Reductions of 3-4 percent in total north-south volumes were observed in the southern portion of the corridor. Daily east-west traffic crossing US-75 North Central Expressway decreased by 12 percent suggesting that the project could be having an effect on east-west traffic movements in the corridor. Most of the volume reduction, however, occurred during off-peak periods of the day (i.e., midday off-peak and nighttime hours.)

- Daily traffic volumes on US-75 North Central Expressway, when compared to control locations in the Dallas area, decreased by 6 to 9 percent. The majority of the US-75 North Central Expressway reduction took place during off-peak periods. In general, daily traffic patterns indicate that volumes decreased on US-75 North Central Expressway and increased on the Dallas North Tollway during construction. The increased traffic on Dallas North Tollway could represent some diversion from US-75 but most likely is due to the growth in development north of Dallas.

- Peak period, peak direction traffic patterns have not changed significantly due to the construction project. Only minor changes in peak direction patterns were observed in May 1992. The Dallas North Tollway experienced slightly higher traffic volumes and US-75 North Central Expressway volumes were generally lower than before construction. Peak period east-west traffic patterns appeared to fluctuate more than north-south traffic patterns.

- Peak-period traffic on the US-75 North Central Expressway consists primarily of passenger vehicles (96-97 percent) of which 79 to 88 percent carry only a single occupant. The average passenger vehicle occupancy slightly increased from October 1991 to May 1992. A.M. peak period average vehicle occupancy remains lower than before construction, whereas the occupancy during the P.M. peak period has risen higher than before construction.

- Peak hour, peak direction average travel times on the US-75 North Central Expressway between the I-635 LBJ Freeway and the Dallas central business district were not significantly affected by the construction project during May 1992. The A.M. peak average travel time was approximately 1 minute longer; however, the total travel time at 7:30 a.m. was approximately 3 minutes longer. The average travel time during the P.M. peak was actually 5 minutes shorter than before construction. Off-peak period travel times were unchanged during May 1992. Other routes in the corridor experienced only minor changes in peak hour, peak direction average travel times. The Dallas North Tollway peak hour, peak direction travel times were 2-3 minutes higher than before construction.

ACKNOWLEDGMENTS

The authors wish to thank Mr. Stephen Ranft at Texas Transportation Institute in Arlington and his staff for their assistance in collecting travel time, traffic volume, and vehicle occupancy and classification data. The authors greatly appreciate the many students at Texas Transportation Institute in College Station who contributed to the data reduction and report preparation.

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 herein. The contents do not necessarily reflect the official views or policies of the Texas Department of Transportation. This report does not constitute a standard, specification, or regulation. It is not intended for construction, bidding, or permit purposes.

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INTRODUCTION

This report documents the continuing efforts by the Texas Transportation Institute (TTI) to monitor the changes in traffic conditions and travel patterns resulting from the reconstruction of the US-75 North Central Expressway south of the I-635 LBJ Freeway. The long-term reconstruction project began during the Summer of 1990 and is now in its third year. This report documents the traffic conditions during May 1992, two years after the project began.

The monitoring study closely follows the boundaries of the North Central corridor (see Figure 1) that were defined by the North Central Mobility Task Force:

- I-635 LBJ Freeway on the north,
- The Dallas central business district on the south,
- Audelia, White Rock Lake, and Buckner on the east, and
- The Dallas North Tollway on the west.

TTI began monitoring the North Central corridor during October 1989 and, since that date, has been collecting data twice per year (in May and October). The monitoring effort has two major elements:

- Collection of traffic data and
- Survey of automobile and transit users.

Traffic conditions in the corridor before construction in October 1989 and May 1990 were documented in an earlier report (*1*). Other reports documented the corridor-wide traffic conditions during the first year of construction in October 1990 and May 1991 (*2*) and during the second year of construction in October 1991 (*3*). The results of the May 1990, November 1990, May 1991, October 1991, and May 1992 automobile and transit users surveys are summarized in separate reports (*4-8*).

The data documented in this report and previous reports, combined with data to be collected in subsequent studies, will provide assistance in evaluating the effects of the reconstruction project on traffic conditions and travel patterns throughout the corridor. The monitoring plan was designed to provide data for several potential uses:

- Traffic management planning for future phases of the North Central project and for future projects in the Dallas area,
- The development of optimal signal timing plans for the arterial streets in the corridor,
- Public affairs programs to inform the public about traffic conditions and travel alternatives,
- Dallas Area Rapid Transit (DART) bus route and schedule planning,
- Validation of portions of the North Central Texas Council of Governments (NCTCOG) peak hour traffic model, and
- Development of a traffic simulation model of the North Central corridor for evaluating proposed traffic management actions.

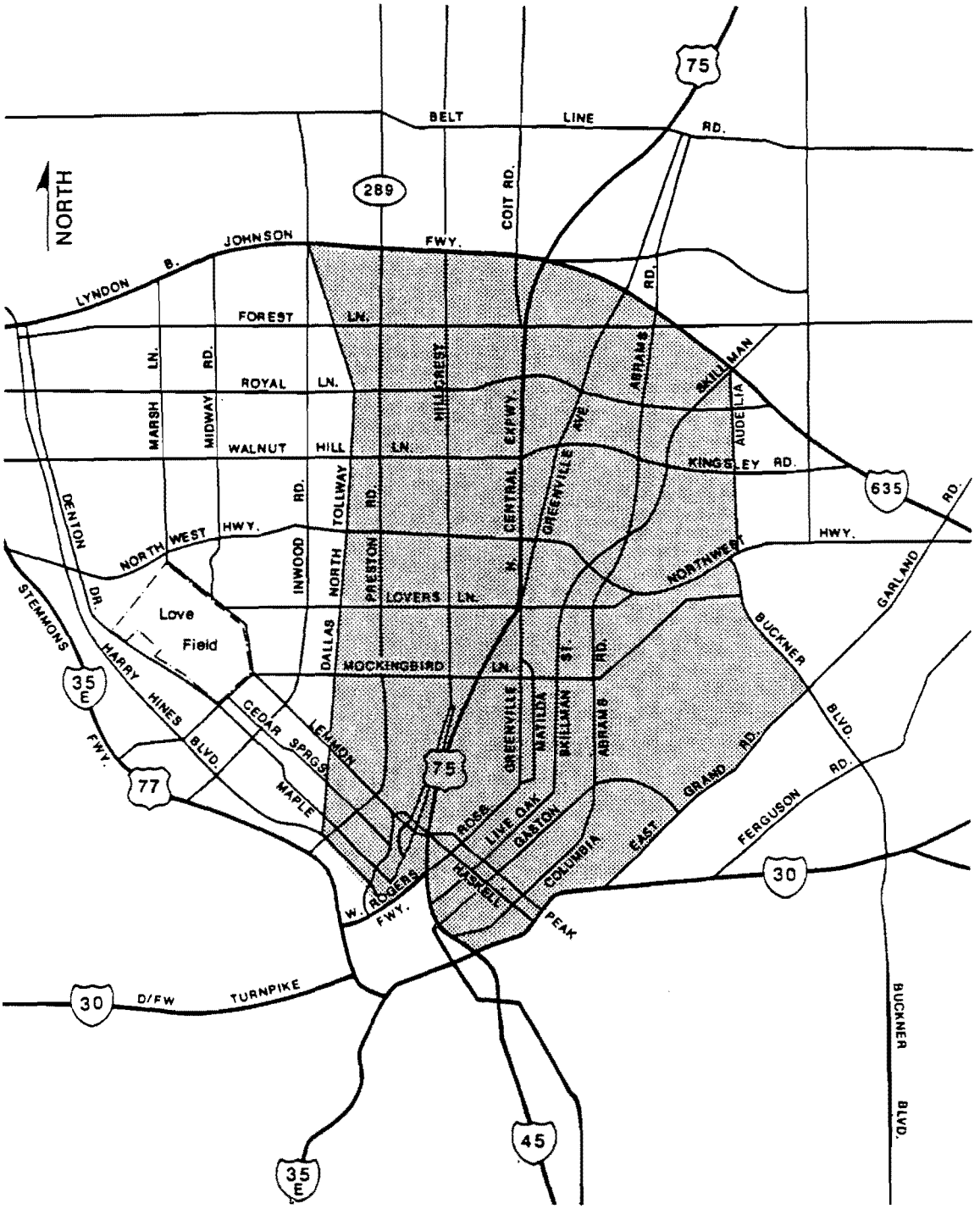


Figure 1. US-75 North Central Expressway Corridor in Dallas

The body of this report is divided into two sections. First, the traffic monitoring plan, which has been documented in previous reports, is reviewed. Then, the observed conditions during May 1992 are summarized.

TRAFFIC MONITORING PLAN

This section describes the plan used to study the corridor traffic conditions and travel patterns during the reconstruction of the US-75 North Central Expressway south of the I-635 LBJ Freeway. The monitoring effort has two components: (1) traffic data collection and (2) automobile and transit users survey.

Traffic Data Collection

Table 1 summarizes the traffic data collection in the North Central corridor. The traffic data collection has three components:

- Screen line traffic volume counts,
- Vehicle occupancy and classification counts, and
- Travel time runs.

Data are collected two times during the year and at the same times of the year (May and October). For comparison purposes, this report documents only data for routes that are located within the North Central corridor as defined by the Task Force. As shown in the table, data have also been collected on routes that are located outside the corridor boundaries (e.g., Inwood, Lemmon, etc.) to evaluate possible diversion from the corridor. These data have been analyzed and will be documented when necessary. To control for seasonal variations in traffic conditions and patterns, the principal comparisons are among data collected during the same month of the year (e.g., May 1990 versus May 1992). However, traffic volumes on US-75 are seasonally adjusted so that more detailed comparisons can be made.

Screen Line Traffic Volume Counts

Screen line traffic volume counts are used to monitor traffic patterns throughout the corridor. By definition, a screen line is a line drawn through the corridor or may be defined by a river, railroad, or other geographical barrier. Traffic volume counts are taken on each route crossing the screen line to study the trips moving through the corridor. The sum of the traffic volume counts along the screen line is the total corridor traffic volume. Changes in traffic patterns are measured as changes in individual routes' percentage of the total corridor traffic volume.

Traffic patterns are being observed at four screen lines, which are designated by the routes which the screen lines follow: Oak Lawn/Lemmon/Peak, Mockingbird/ Buckner, Loop 12, and US-75 North Central Expressway. Three screen lines (Oak Lawn/Lemmon/Peak, Mockingbird/Buckner, and Loop 12) are being used to identify changes in traffic patterns on north-south routes. The US-75 screen line, which bisects the Expressway, was established to measure changes in east-west traffic patterns.

TABLE 1. US-75 North Central Expressway Corridor Data Collection Inventory

Type of Data		Route	Before Construction		During Construction			
			October 1989	May 1990	October 1990	May 1991	October 1991	May 1992
Traffic Volumes	Oak Lawn / Lemmon / Peak Screen Line	Harry Hines		X			X	X
		DNT		X	X	X	X	X
		Maple		X			X	X
		Cedar Springs		X	X	X	X	X
		Lemmon		X	X	X	X	X
		Oak Lawn		X	X	X	X	X
		Turtle Creek		X	X	X	X	X
		Cole/McKinney		X	X	X	X	X
		US-75		X	X	X	X	X
		Ross		X	X	X	X	X
		Live Oak		X	X	X	X	X
		Gaston		X	X	X	X	X
		Columbia		X			X	X
	Mockingbird / Buckner Screen Line	Harry Hines	X				X	X
		Denton	X				X	X
		Lemmon	X	X			X	X
		Inwood	X	X			X	X
		DNT	X	X	X	X	X	X
		Preston	X	X	X	X	X	X
		Hillcrest	X	X	X	X	X	X
		US-75	X	X	X	X	X	X
		Greenville	X	X	X	X	X	X
		Matilda	X	X	X	X	X	X
		Skillman	X	X	X	X	X	X
		Abrams	X	X	X	X	X	X
		Garland	X	X			X	X
	Loop 12 Screen Line	Midway		X	X	X	X	X
		Inwood		X	X	X	X	X
		DNT		X	X	X	X	X
		Preston		X	X	X	X	X
		Hillcrest		X	X	X	X	X
		US-75		X	X	X	X	X
		Greenville		X	X	X	X	X
		Skillman		X	X	X	X	X
		Abrams		X	X	X	X	X

TABLE 1. US-75 North Central Expressway Corridor Data Collection Inventory (Continued)

Type of Data		Route	Before Construction		During Construction			
			October 1989	May 1990	October 1990	May 1991	October 1991	May 1992
Traffic Volumes	US-75 Screen Line	Hall		X		X	X	X
		Lemmon		X		X	X	X
		Haskell		X		X	X	X
		Fitzhugh		X		X	X	X
		Henderson		X		X	X	X
		Monticello		X		X	X	X
		McCommas		X		X	X	X
		Mockingbird		X	X	X	X	X
		Yale		X	X	X	X	X
		University		X	X	X	X	X
		Lovers		X	X	X	X	X
		Southwestern		X	X	X	X	X
		Caruth Haven		X	X	X	X	X
		Loop 12		X	X	X	X	X
		Park Lane		X	X	X	X	X
		Walnut		X	X	X	X	X
		Royal		X	X	X	X	X
		Forest		X	X	X	X	X
Vehicle Classification & Occupancy		US-75		X	X	X	X	X
		Preston		X				
		Skillman		X				
Travel Times	North - South Routes	Midway	X	X				
		Inwood	X	X				
		DNT	X	X	X	X	X	X
		Preston	X	X	X	X	X	X
		Hillcrest	X	X	X		X	X
		US-75 Frontage		X	X	X	X	X
		US-75	X	X	X	X	X	X
		Greenville	X	X	X	X	X	X
		Abrams	X	X		X	X	X
		Skillman	X	X		X	X	X
		Garland	X	X			X	X
	East - West Routes	Lemmon/Peak		X				
		Mockingbird		X				
		Loop 12		X		X	X	X
		Royal				X	X	X

Figure 2 identifies the May 1992 count locations along the four screen lines. These locations have been monitored during earlier studies. In October 1989 traffic patterns were monitored only at the screen line south of Mockingbird/ Buckner. The May 1990 study, the principal data collection effort before construction, included all four screen lines. The October 1990 study, the first data collection effort during construction, focused on the northern half of the corridor, which would be most affected by the construction activities that were underway at the time on the N1 and N2 segments of the North Central project. The May 1991, October 1991, and May 1992 studies closely resembled the May 1990 data collection effort.

Directional 24-hour traffic volumes are collected for at least one mid-week day (i.e., Tuesday, Wednesday, and/or Thursday) at the screen line count locations during the study period. The traffic volume data collection is performed using several methods: (1) pneumatic tube counters to collect most of the traffic volumes on arterial streets in the corridor, (2) a video camera and time-lapse video tape recorder to record traffic on US-75, and (3) toll booth data to estimate traffic volumes on Dallas North Tollway.

To better estimate the volume changes on the US-75 North Central Expressway that are attributable to the construction project, Automatic Traffic Recorder (ATR) stations in the Dallas metropolitan area that are not affected by the project were selected as control locations. The seasonal patterns on US-75 before construction have been shown in past studies to be comparable to those patterns on other freeways in the Dallas area. Daily traffic volumes are obtained from the ATR stations to investigate the traffic volume trends in the Dallas area as compared to those on US-75 during construction. The ATR volume data are used to estimate the traffic volume on US-75 that normally would have been observed in the absence of the construction project. This method allows the impacts of the construction project to be isolated from normal daily and seasonal variations in traffic volumes.

Vehicle Occupancy and Classification Counts

Vehicle occupancy and classification data are collected on the US-75 mainlanes north of the Mockingbird/Buckner screen line during the traffic monitoring studies. The count location is identified in Figure 2.

Vehicles are grouped into four categories: passenger vehicles, commercial vehicles, buses, and motorcycles. Passenger vehicles include all cars as well as all pickup trucks and vans that have no commercial identification.

Travel Time Runs

Travel times and speeds are monitored on major north-south routes in the corridor and several east-west routes that traverse the corridor. All north-south routes extend between the I-635 LBJ Freeway and the Dallas central business district. East-west routes coincide with the east-west screen lines.

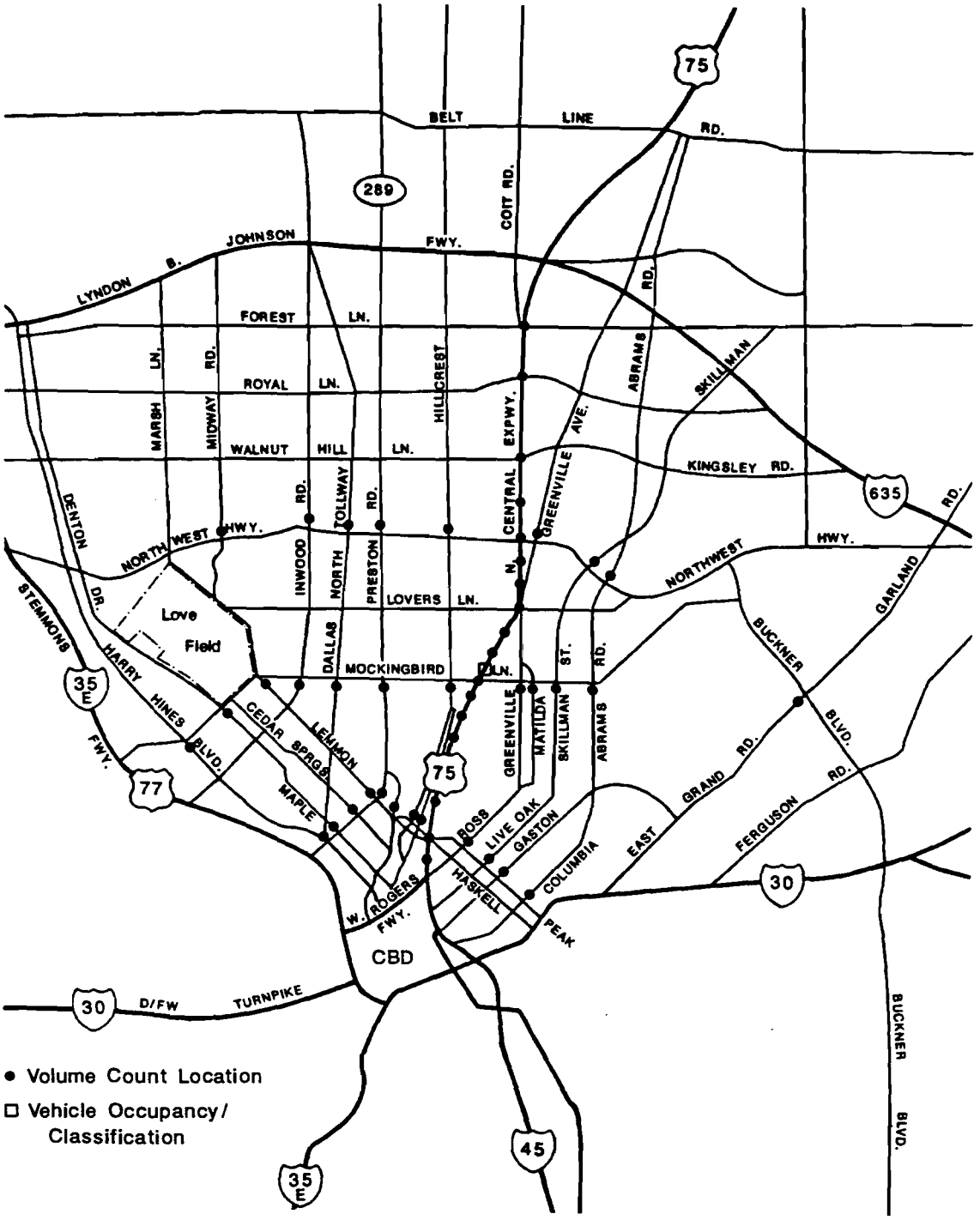


Figure 2. US-75 North Central Expressway Corridor Traffic Volume and Vehicle Occupancy and Classification Count Locations

Table 2 provides a summary of the travel time routes and the number of travel time run repetitions on each route during the six monitoring studies. The street name appearing in bold-face type represents the major street on each route and is used to designate the route. Figure 3 identifies the eleven routes monitored during May 1992.

Travel time data are collected using the floating car technique in which the driver of the test vehicle approximates the median speed of the traffic stream by passing as many vehicles as pass the driver. Data collection vehicles start at each end of the corridor at half-hour intervals from 6:00 to 9:00 A.M. and 3:00 to 7:00 P.M. Travel times on US-75 are also collected between 9:00 A.M. and 2:00 P.M. Travel times are measured between each pair of signalized cross streets and for the entire route. Stopped delays are also recorded at the signalized intersections. In order to compute average travel speeds, the distance between each signalized intersection was measured using a vehicle-installed distance measuring instrument. Peak hour average travel times and average travel speeds are computed for the A.M. peak using the 7:00, 7:30, and 8:00 A.M. travel time runs and for the P.M. peak using the 5:00, 5:30, and 6:00 P.M. runs.

Automobile and Transit User Surveys

Surveys of automobile and transit users in the North Central corridor have been conducted as part of the May 1990, October 1990, May 1991, October 1991, and May 1992 studies. Panel members (i.e., automobile and transit users who agreed to be surveyed biannually) were recruited from license plate and onboard bus surveys conducted during May 1990 at the Loop 12 screen line.

The role of the surveys in the overall monitoring effort is to help explain the observed changes in traffic conditions and patterns. The surveys obtain information on the perceptions and travel behavior of individual automobile and transit users in the corridor. Periodically surveying the same panel members permits changes in individual perceptions and behavior to be tracked. Details of the surveying effort and results are documented in other reports (*4-8*).

TABLE 2. Travel Time Routes in the US-75 North Central Expressway Corridor

Route	Number of Travel Time Run Repetitions					
	October 1989	May 1990	October 1990	May 1991	October 1991	May 1992
US-75 (North Central Expressway)	1	2	3	3	3	3
US-75 Frontage Rd.	-	1	3	1	1	1
Dallas North Tollway/Harry Hines/Akard	1	1	1	1	1	1
Preston/Cedar Springs/Field	1	3	1	1	1	1
Hillcrest/McKinney/Akard	1	1	1	-	1	1
Greenville/Ross	1	3	1	1	1	1
Abrams/Gaston	1	1	-	1	1	1
Skillman/Live Oak	1	1	-	1	1	1
Garland/Gaston	1	1	-	-	1	1
Oak Lawn/**Lemmon**/Peak/Haskell	-	1	-	-	-	-
Mockingbird	-	1	-	-	-	-
Loop 12	-	1	-	1	1	1
Royal	-	-	-	1	1	1

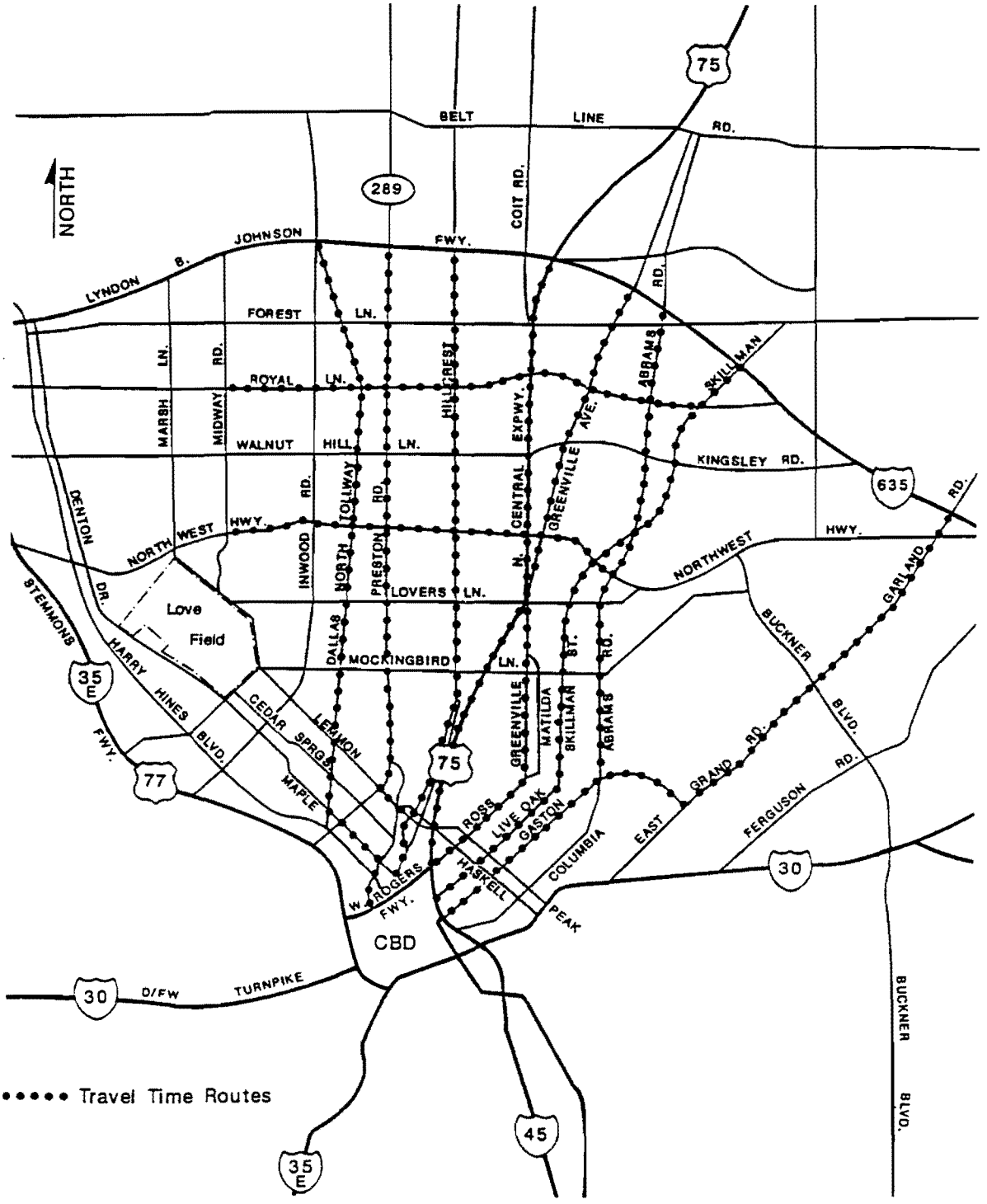


Figure 3. Travel Time Routes

MAY 1992 TRAFFIC CONDITIONS

This section documents the traffic conditions during May 1992, approximately two years after the US-75 North Central Expressway reconstruction project began. Data collected before construction began and during the first sixteen months of the project are documented in previous reports (*1,2,3*). The changes in corridor-wide traffic patterns, vehicle occupancy and classification, and travel times and average travel speeds are documented in this section. Summaries of the traffic volume and travel time data collected during May 1992 are presented in Appendices A through E.

Screen Line Traffic Volumes

The May 1992 screen line traffic volume counts are summarized in Appendices A, B, and C. Appendix A contains tables summarizing the hourly volume counts on each route at each screen line. Appendix B contains figures summarizing each route's percentage of the total screen line volume during May 1990, May 1991, and May 1992; individual figures are presented for each of four screen lines and each of three time periods: A.M. peak (6:00-9:00 A.M.), P.M. peak (3:00-7:00 P.M.), and 24 hours. Appendix C contains similar figures that summarize the actual change in volumes on each route between May 1990, May 1991, and May 1992.

Screen line traffic volumes are evaluated for three time periods (A.M. peak, P.M. peak, and 24 hours) and are compared only for the May studies (i.e., traffic patterns during May 1992 are compared to May 1990 before construction patterns.) The evaluation of US-75 traffic volumes, however, compares both May and October data to better estimate the traffic impacts of the project. The traffic patterns on the north-south routes and the east-west routes are analyzed separately.

The total corridor traffic volumes at each screen line for May 1990 and May 1992 and the associated changes are summarized in Table 3. In general, traffic volumes appear to have decreased in the North Central corridor during May 1992. Daily corridor traffic volumes dropped at the Oak Lawn/Lemmon/Peak screen line by 3 percent (13,706 vehicles) and at the Mockingbird screen line by 4 percent (15,923 vehicles). There was almost no change in total corridor traffic volumes at the Loop 12 screen line. The largest change during May 1992 took place along the US-75 screen line where east-west traffic volumes decreased by 12 percent (51,108 vehicles).

Total corridor traffic volumes appear to have decreased during both peak and off-peak periods of the day; however, the majority of the reduction took place during the midday off-peak and nighttime hours. During the peak periods, the corridor carries 46-47 percent of the daily traffic in 30 percent of the day. The off-peak period, which represents 25 percent of the time, consists of 33-34 percent of the daily traffic. The nighttime period which represents the remaining 45 percent of the time carries only between 19 and 21 percent of the daily traffic. Although corridor peak period traffic volumes dropped during May 1992, the reductions were only 41 percent or less of the total daily reductions. Approximately 59 percent or more of the daily reductions occurred during the off-peak

TABLE 3. Total US-75 North Central Expressway Corridor Traffic Volumes

Screen Line	Period	Direction	Traffic Volumes (veh)			
			May 1990	May 1992	Change	% Change
Oak Lawn/ Lemmon/ Peak	A.M. Peak	Northbound	33,012	31,476	-1,536	-4.65
		Southbound	48,710	47,671	-1,039	-2.13
		Total	81,722	79,147	-2,575	-3.15
	P.M. Peak	Northbound	74,756	72,603	-2,153	-2.88
		Southbound	57,367	56,465	-902	-1.57
		Total	132,123	129,068	-3,055	-2.31
	24 Hour	Northbound	231,108	222,395	-8,713	-3.77
		Southbound	222,205	217,212	-4,993	-2.25
		Total	453,313	439,607	-13,706	-3.02
Mockingbird	A.M. Peak	Northbound	26,744	27,473	729	2.73
		Southbound	40,435	37,396	-3,039	-7.52
		Total	67,179	64,869	-2,310	-3.44
	P.M. Peak	Northbound	59,502	58,175	-1,327	-2.23
		Southbound	48,089	46,659	-1,430	-2.97
		Total	107,591	104,834	-2,757	-2.56
	24 Hour	Northbound	190,678	185,834	-4,844	-2.54
		Southbound	187,818	176,739	-11,079	-5.90
		Total	378,496	362,573	-15,923	-4.21
Loop 12	A.M. Peak	Northbound	25,061	24,237	-824	-3.29
		Southbound	35,790	35,976	186	0.52
		Total	60,851	60,213	-638	-1.05
	P.M. Peak	Northbound	54,174	53,808	-366	-0.68
		Southbound	46,146	47,024	878	1.90
		Total	100,320	100,832	512	0.51
	24 Hour	Northbound	174,283	172,206	-2,077	-1.19
		Southbound	175,742	177,975	2,233	1.27
		Total	350,025	350,181	156	0.04
US-75	A.M. Peak	Eastbound	18,402	17,250	-1,152	-6.26
		Westbound	52,147	45,282	-6,865	-13.16
		Total	70,549	62,532	-8,017	-11.36
	P.M. Peak	Eastbound	66,676	62,316	-4,360	-6.54
		Westbound	53,892	45,981	-7,911	-14.68
		Total	120,568	108,297	-12,271	-10.18
	24 Hour	Eastbound	195,077	178,098	-16,979	-8.70
		Westbound	225,302	191,173	-34,129	-15.15
		Total	420,379	369,271	-51,108	-12.16

and nighttime periods. Most of the reductions in total north-south corridor traffic volumes took place at nighttime when the corridor carries the least amount of traffic. East-west corridor traffic volumes decreased primarily during the midday off-peak period.

To better understand the total corridor traffic volume changes and corridor-wide traffic patterns, individual routes that cross the screen lines are evaluated. These individual changes provide more detailed information regarding the north-south and east-west traffic patterns in the corridor.

Traffic Patterns on North-South Routes

The north-south traffic patterns are evaluated for each of the three east-west screen lines that cross the corridor. Then, a detailed analysis of US-75 traffic volumes including comparisons to control locations in the Dallas area is provided.

Oak Lawn/Lemmon/Peak Screen Line

At the Oak Lawn/Lemmon/Peak screen line, located at the southern end of the corridor and closest to downtown Dallas, the total daily north-south corridor volume during May 1992 was approximately 439,610 vehicles. As previously mentioned, the daily corridor volume in May 1992 was 3 percent lower than in May 1990 and most of the reduction occurred during the nighttime period. However, changes in peak period traffic volumes were observed along the screen line. Figures B-1 through B-3 summarize each route's percentage of the total screen line volume for the A.M. and P.M. peak and 24-hour periods. Corresponding Figures C-1 through C-3 show the change in traffic volume on individual routes along the screen line.

The data show that over the two-year period A.M. peak period traffic volumes on US-75 decreased while traffic volumes on the Dallas North Tollway (DNT) increased (see Figure C-1). The changes on these routes were greater for southbound (peak direction) traffic than northbound traffic. Although US-75 continues to carry more total north-south traffic than DNT, it appears that during May 1992 DNT carried more peak direction traffic than US-75 (see Figure B-1, b). The southbound volume on US-75 dropped from 30 percent of the total screen line volume in May 1990 to 24 percent in May 1992. Conversely, DNT southbound volume increased from 19 percent to 26 percent of the total screen line volume. Like the peak direction, northbound traffic volume on US-75 decreased while DNT volume increased; however, US-75 continues to carry the greatest portion (37 percent) of the northbound screen line traffic volume (see Figure B-1, a). The other routes in the corridor had only minor fluctuations (less than 1 percent) in each route's percentage of total screen line traffic.

During the P.M. peak period, there was a larger reduction in total corridor traffic volume than in the morning peak period; however, the reduction was not concentrated on US-75 but was distributed across all the routes (see Figure C-2). Again, US-75 northbound (peak direction) traffic decreased and DNT traffic volume increased. More

volume changes were observed in the peak direction than in the off-peak direction. Even though US-75 traffic volumes decreased in the P.M. peak period, the expressway continues to carry the largest percentage of the total corridor peak direction volume (see Figure B-2).

Daily traffic volumes reveal similar results. The observed US-75 24-hour traffic volume substantially decreased while DNT traffic increased (see Figure C-3). Volume changes also occurred on other routes in the corridor but none of these routes' percentage of total screen line traffic changed by more than 1 percent (see Figure B-3).

Mockingbird/Buckner Screen Line

The total north-south traffic volume crossing the Mockingbird/Buckner screen line (the middle screen line of the three east-west screen lines) was 362,573 vehicles, approximately 4 percent lower than in May 1990. A majority of the volume reduction took place during off-peak periods; nonetheless, minor changes occurred during the peak periods. Each route's percentage of the total screen line traffic volume is shown in Figures B-4 through B-6 for the A.M. and P.M. peak and 24-hour periods. The volume changes are summarized in Figures C-4 through C-6 for similar time periods.

The distribution of traffic volumes along the Mockingbird/Buckner screen line during the A.M. peak period remained similar to May 1990 volumes. A reduction in US-75 traffic volume was observed in May 1992 and most of this reduction occurred in southbound (peak direction) traffic (see Figure C-4). No route's percentage of the total screen line traffic changed by more than 1 percent during the A.M. peak period (see Figure B-4).

Traffic volumes during the P.M. peak period changed more than during the A.M. peak period. While peak direction traffic volumes on US-75 only slightly decreased, larger reductions were observed on other routes (Skillman, Abrams, and Garland) in the corridor (see Figure C-5). However, fluctuations in each route's percentage of the total screen line traffic volume were less than 3 percent between May 1990 and May 1992 (see Figure B-5).

The 24-hour corridor traffic volumes decreased in both directions. Most routes along the screen line had lower daily traffic volumes in May 1992 than in May 1990 (see Figure C-6). The corridor-wide traffic patterns show that there was no more than 2 percent fluctuation in each route's percentage of the total screen line traffic volume (see Figure B-6).

Loop 12 Screen Line

At the Loop 12 screen line, which is the northernmost screen line and is located closest to the ongoing construction project on US-75, the total daily north-south traffic volume was 350,181 vehicles during May 1992. This corridor-wide traffic volume was relatively identical to the May 1990 before construction volume. Minor changes in traffic

volumes on individual routes were observed during the peak and 24-hour periods. Figures B-7 through B-9 summarize each route's percentage of the total screen line traffic volume for the A.M. and P.M. peak and 24-hour periods. Likewise, Figures C-7 through C-9 show changes in traffic volume on each route for the same periods.

During the A.M. peak period, the traffic patterns show only minor fluctuations (less than 1 percent) in each route's percentage of total screen line traffic between May 1990 and May 1992 (see Figure B-7). In May 1990 before construction began, DNT carried more A.M. peak direction (southbound) traffic than US-75 (33 percent compared to 26 percent.) DNT's proportion of total screen line traffic increased by 1 percent in May 1992 while the US-75 proportion remained approximately the same. Thus, DNT continues to have the highest A.M. peak direction traffic volume along the screen line.

Each route's percentage of the total screen line traffic volume changed by less than 2 percent between May 1990 and May 1992 during the P.M. peak period (see Figure B-8). DNT peak direction (northbound) volume represented 28 percent of the total screen line volume in May 1990 while US-75 carried 29 percent of the traffic. In May 1992, because DNT peak direction traffic volume increased while other routes decreased, the tollway's percentage of the total screen line volume increased to 30 percent and US-75 remained at 29 percent. Therefore, DNT exceeded US-75 with the highest P.M. peak direction traffic volume in the corridor.

Daily traffic patterns at the Loop 12 screen line reveal that each route's percentage of the total screen line traffic volume changed less than 1 percent between May 1990 and May 1992 (see Figure B-9). The largest change in 24-hour traffic volumes along the screen line occurred on US-75 and DNT. In general, traffic volumes decreased on US-75 and increased on DNT (see Figure C-9).

US-75 North Central Expressway

The screen line analysis provided an overall picture of the corridor-wide north-south traffic patterns and found that observed US-75 traffic volumes were generally lower in May 1992 than in May 1990 before construction began. To study these changes and better estimate the impacts of the construction project, US-75 traffic volumes were evaluated relative to control locations in the Dallas area.

Figure 4 shows the daily traffic volume on US-75 at the three screen line count locations from October 1989 to May 1992 and the corresponding average ATR traffic volumes for the Dallas area. The US-75 traffic patterns generally follow the trends at control locations in the Dallas area before construction. Prior to May 1992, other than the normal variation in traffic volumes due to seasonal patterns, the total traffic on US-75 during construction had not changed significantly with the exception of the substantial decrease in traffic at Loop 12 during October 1991. However, the trend lines for the observed US-75 traffic volumes at Lemmon and Mockingbird deviated from the control locations in May 1992. The considerably low volume on US-75 at Loop 12 in October 1991 increased to a more reasonable level in May 1992.

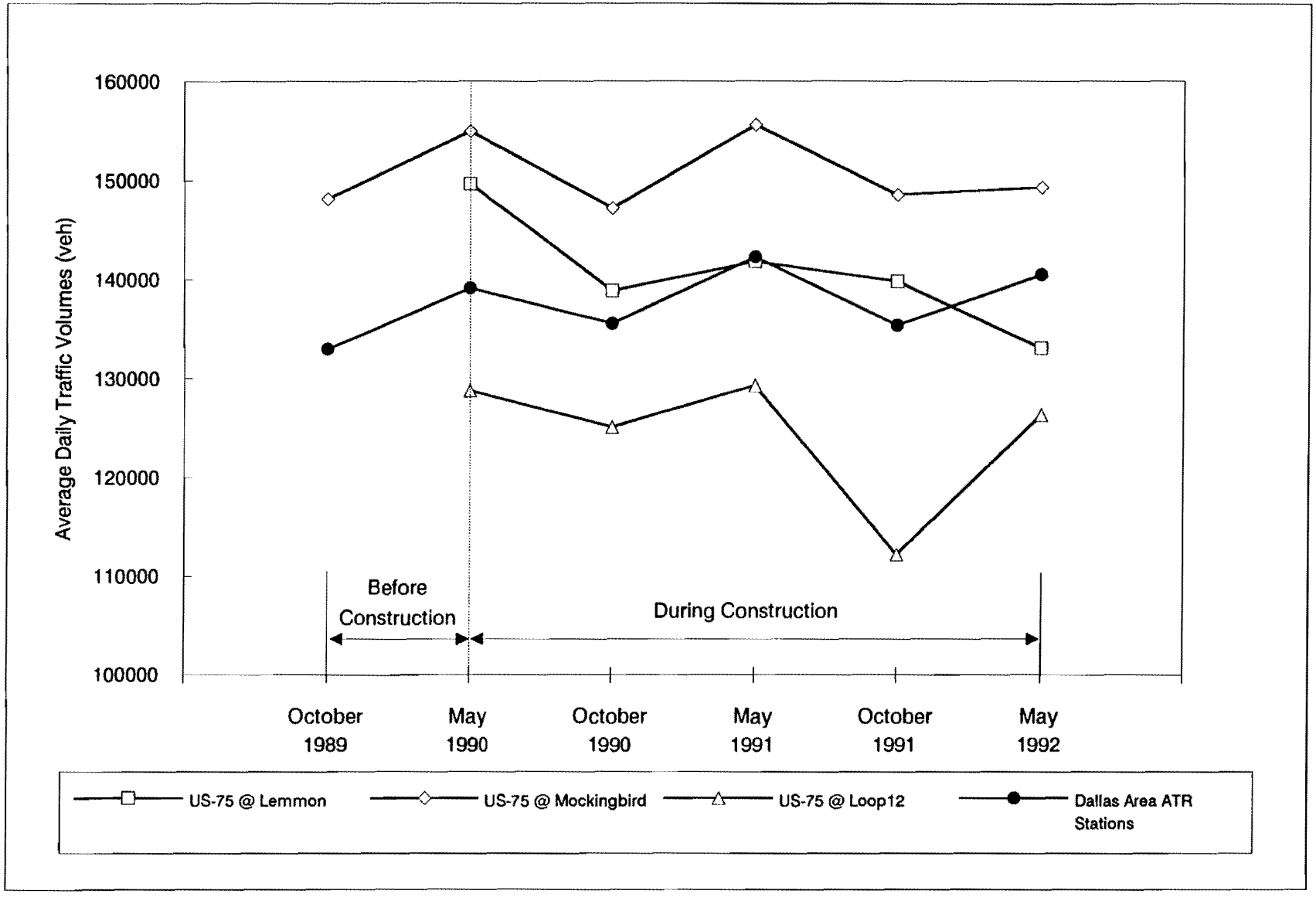


Figure 4. Daily Traffic Volumes on US-75 Compared to Automatic Traffic Recorder Stations in the Dallas Area

Table 4 summarizes the estimated changes in US-75 daily traffic volumes at the three screen line count locations in May 1992. The changes in US-75 traffic volumes range from an estimated reduction of 6 percent at Loop 12 to 9 percent at Lemmon. These results show that some diversion from US-75 took place during May 1992.

US-75 traffic volumes appear to have decreased during all periods of the day. At Lemmon, where the largest reduction was observed, approximately 46 percent of the estimated reduction occurred during the A.M. and P.M. peak periods, 37 percent at nighttime, and the remaining 17 percent during the midday off-peak period. The lower volumes at Lemmon may have been caused by the reconstruction project underway at the Woodall-Rogers and US-75 interchange located just south of Lemmon. The majority of the reductions at Mockingbird and Loop 12 happened during the off-peak and nighttime hours. These reductions were likely a result of off-peak lane closures on US-75 during May 1992.

Traffic Patterns on East-West Routes

Traffic crosses US-75 on eighteen routes between the I-635 LBJ Freeway and the Woodall-Rogers Freeway. During May 1992, eleven of the eighteen routes carried at least 5 percent of the total 24-hour east-west traffic. Loop 12 continues to be the major east-west route, carrying approximately 16 percent of the 24-hour screen line volume in May 1992. The directional distribution of the total daily traffic crossing US-75 is nearly split evenly. In the A.M. peak period, however, the westbound traffic is much greater than eastbound traffic. It is possible that a portion of these westbound volumes are crossing US-75 to access the southbound expressway lanes. The directional split comes closer together in the P.M. peak period where eastbound traffic is slightly greater than westbound traffic.

The total daily east-west traffic volume crossing the US-75 screen line in May 1992 was 369,271 vehicles, approximately 12 percent lower than in May 1990. An estimated 60 percent of this volume reduction occurred during off-peak periods (i.e., 40/20 percent between the midday off-peak and nighttime periods, respectively.) The remaining 40 percent took place during the A.M. and P.M. peak periods. It appears that the westbound traffic decreased by a larger amount than eastbound traffic. Figures B-10 through B-12 show the traffic distribution along the US-75 screen line for the A.M. and P.M. peak and 24-hour periods. Figures C-10 through C-12 summarize the volume changes on each route crossing US-75 for the peak and 24-hour periods.

During the A.M. peak period, westbound traffic patterns appear to have changed more than eastbound traffic patterns (see Figure B-10). Eastbound cross-street route's percentage of total eastbound traffic volumes had only minor fluctuations (less than 2 percent) between May 1990 and May 1992. Differences in the westbound route's percentage of total westbound screen line traffic were as much as 4 percent. Westbound traffic volumes decreased on most routes crossing US-75 with the largest reduction at Forest Lane (see Figure C-10).

TABLE 4. Changes in Daily Traffic Volumes on US-75 During May 1992

Screen Line Count Location	Direction	Daily Traffic Volumes				
		Before (May 1990)	During Construction (May 1992)			
		Observed	Estimated[a]	Observed	Change	% Change
Lemmon	Northbound	76,060	74,020	68,376	-5,644	-7.63
	Southbound	73,618	71,644	64,746	-6,898	-9.63
	Total	149,678	145,664	133,122	-12,542	-8.61
Mockingbird	Northbound	79,212	81,880	75,692	-6,188	-7.56
	Southbound	75,727	78,277	73,591	-4,686	-5.99
	Total	154,939	160,157	149,283	-10,874	-6.79
Loop 12	Northbound	68,100	71,206	64,939	-6,267	-8.80
	Southbound	60,677	63,444	61,438	-2,006	-3.16
	Total	128,777	134,650	126,377	-8,273	-6.14

[a] Volumes were estimated by seasonally adjusting May 1990 before volumes.

Like the morning peak period patterns, P.M. peak period traffic fluctuated more in the westbound direction (see Figure B-11). Westbound traffic patterns show that each route's percentage of the total westbound screen line volume changed by as much as 6 percent between May 1990 and May 1992. Again, the largest reduction was at Forest Lane (see Figure C-11). Cross-street westbound traffic volumes increased at Loop 12, Park, and Walnut Hill.

The 24-hour traffic patterns show fluctuations in each cross-street route's percentage of the total screen line traffic to be as large as 5 percent between May 1990 and May 1992 (see Figure B-12). Most of the cross-streets experienced lower traffic volumes in May 1992 than in May 1990. The largest decrease occurred at Forest Lane (see Figure C-12). The majority of the reduction in total screen line traffic volume occurred in the westbound direction. The 24-hour volumes suggest that cross-street traffic during May 1992 could have been affected by the N1 and N2 phases of construction. The rather large volume reduction on Forest Lane may have been caused by the construction of the Coit flyover and Forest Lane-US-75 interchange that was underway during May 1992.

Vehicle Occupancy and Classification

Table 5 summarizes the average occupancy of passenger vehicles on the US-75 North Central Expressway during the monitoring studies. The data indicate that the average passenger vehicle occupancy is generally lower in the A.M. peak period than in the P.M. peak period and the peak period, peak direction traffic has a lower vehicle occupancy than the off-peak direction traffic. The average passenger vehicle occupancy on US-75 in May 1992 increased when compared to recent studies. During the A.M. peak period, the percentage of single-occupant passenger vehicles decreased from 88 percent in October 1991 to 87 percent in May 1992; thus, the average passenger vehicle occupancy increased from 1.14 to 1.16 persons per vehicle. Although the number of persons per vehicle on US-75 increased, the A.M. peak period occupancy was below the May 1990 before construction level. During the P.M. peak period, the percentage decreased from 83 percent to 79 percent, and the average passenger vehicle occupancy increased from 1.21 to 1.25. This increase raises the average passenger vehicle occupancy above the occupancy observed in May 1990 before construction began. Even though the average passenger vehicle occupancy appears to have slightly increased during May 1992, the majority of the automobile users on US-75 continue to drive alone.

Table 6 summarizes the vehicle classification data. During May 1992, the peak period, peak direction vehicle mix on US-75 averaged 96-97 percent passenger vehicles, 2-3 percent commercial trucks, and 1 percent other (bus and motorcycle). The A.M. peak period, peak direction (southbound) traffic stream contained a higher percentage of passenger vehicles and a lower percentage of commercial trucks than observed during previous studies. In the P.M. peak period, however, the peak direction (northbound) vehicle mix was consistent with past studies (i.e., the percentages were within the range of data observed in earlier studies.) The US-75 vehicle mix in May 1992 contained more passenger vehicles and less commercial trucks than before construction indicating that trucks may be diverting away from US-75 to avoid the construction project.

TABLE 5. Average Passenger Vehicle Occupancy on US-75

Time Period	Direction	Average Occupancy (persons/vehicle)				
		May 1990	October 1990	May 1991	October 1991	May 1992
A.M. Peak	Northbound	1.23	1.18	1.14	1.19	1.23
	Southbound	1.19	1.08	1.08	1.09	1.11
	Both	1.20	1.12	1.11	1.14	1.16
P.M. Peak	Northbound	1.19	1.17	1.16	1.18	1.22
	Southbound	1.28	1.26	1.18	1.25	1.29
	Both	1.22	1.21	1.17	1.21	1.25

Note: Peak period, peak direction data are underlined.

TABLE 6. Vehicle Classification on US-75

Time Period	Vehicle Type	Percent of Vehicles									
		May 1990		October 1990		May 1991		October 1991		May 1992	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
A.M. Peak	Passenger Vehicle	89.56	95.00	93.30	96.50	92.80	96.03	94.82	96.84	92.93	97.12
	Commercial Truck	9.39	3.98	5.70	2.38	6.13	3.06	4.20	2.36	6.09	1.92
	Bus	0.98	0.83	0.93	0.99	0.89	0.83	0.95	0.77	0.92	0.90
	Motorcycle	0.07	0.17	0.07	0.10	0.10	0.08	0.03	0.03	0.06	0.06
P.M. Peak	Passenger Vehicle	94.40	94.30	94.40	94.10	95.60	95.40	97.53	96.29	96.47	96.02
	Commercial Truck	3.78	4.40	4.36	4.83	3.08	3.83	1.59	2.92	2.54	3.23
	Bus	1.04	1.10	0.97	0.88	1.03	0.67	0.87	0.77	0.84	0.62
	Motorcycle	0.28	0.10	0.18	0.10	0.24	0.10	0.01	0.02	0.15	0.13

Note: Peak period, peak direction data are underlined.

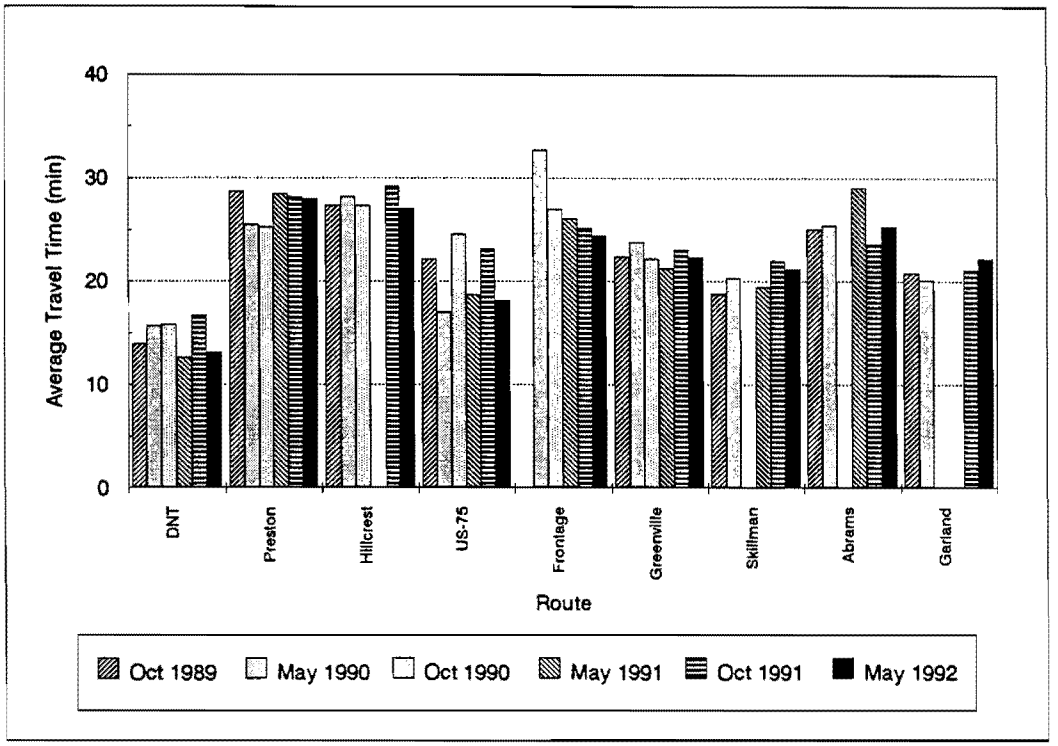
Travel Times and Average Travel Speeds

Appendix D contains tables summarizing the travel times along each route during May 1992. Figures showing travel times collected during all of the monitoring studies are also included. Appendix E contains tables and figures that summarize the corresponding average travel speeds.

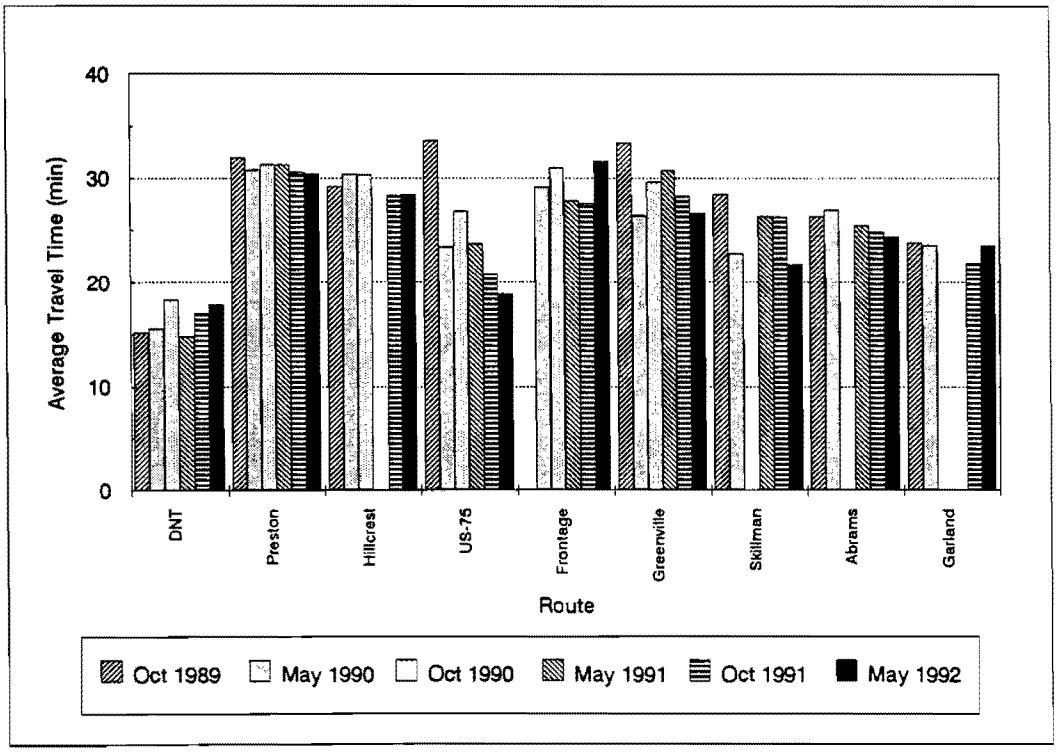
The average peak hour, peak direction travel times and travel speeds on the north-south routes in the North Central Expressway corridor are summarized in Figures 5 and 6. During May 1992, average peak hour travel times in both the A.M. (southbound) and P.M. (northbound) peak directions range between 13 and 32 minutes. Compared to May 1990 before construction began, A.M. peak hour average travel times increased on Preston and Garland by 2 minutes and on US-75 and Skillman by 1 minute. Average travel times decreased on DNT by 3 minutes, US-75 Frontage Road by 8 minutes, and Hillcrest and Greenville by 1 minute. The rather large 8 minute reduction on US-75 Frontage Road is most likely due to incidents during the May 1990 A.M. peak travel time runs that made the average travel times higher than normal. In the P.M. peak hour, average peak direction travel times were lower on most routes during May 1992 than in May 1990. Travel times dropped on US-75 by 5 minutes, Abrams by 3 minutes, Hillcrest by 2 minutes, and Skillman by 1 minute. The average travel time on US-75 during the P.M. peak hour was lower in May 1992 than during any of the previous studies. The corresponding average travel speed increased from 24 mph in May 1990 to 30 mph in May 1992. The only increase in P.M. peak hour average travel times occurred on DNT and US-75 Frontage Road, both of which increased by 2 minutes. The travel time changes fall within the range of changes observed during earlier monitoring studies.

DNT had the lowest travel times of all the routes in the corridor. Also, the average travel speeds are higher on DNT than on the other routes. In the A.M. peak hour, DNT average travel speeds increased from 41 mph in May 1990 to 47 mph in May 1992. P.M. peak hour average travel speeds, however, decreased from 39 mph in May 1990 to 34 mph in May 1992. Even though there was some reduction in average travel speeds during the P.M. peak period, the speeds on DNT remained higher than other routes in the corridor.

Figures 7 and 8 show the travel times and average travel speeds on US-75 from 6:00 a.m. to 7:00 p.m. The travel times and speeds indicate that the construction underway on the N1 and N2 sections during May 1992 had minimal impact on US-75 peak period travel. During May 1992, A.M. peak period, peak direction (southbound) travel times on US-75 were slightly higher than before construction in May 1990. This change occurred primarily between 7:30 a.m. and 8:00 a.m. The total travel time at 7:30 a.m. increased by approximately 3 minutes between May 1990 and May 1992. The P.M. peak period, peak direction (northbound) travel times during May 1992 were generally lower than previous travel times. In the off-peak direction, travel times and speeds on US-75 during May 1992 were similar to those collected previously. Travel times observed during the midday off-peak period in May 1992 appear to be normal.

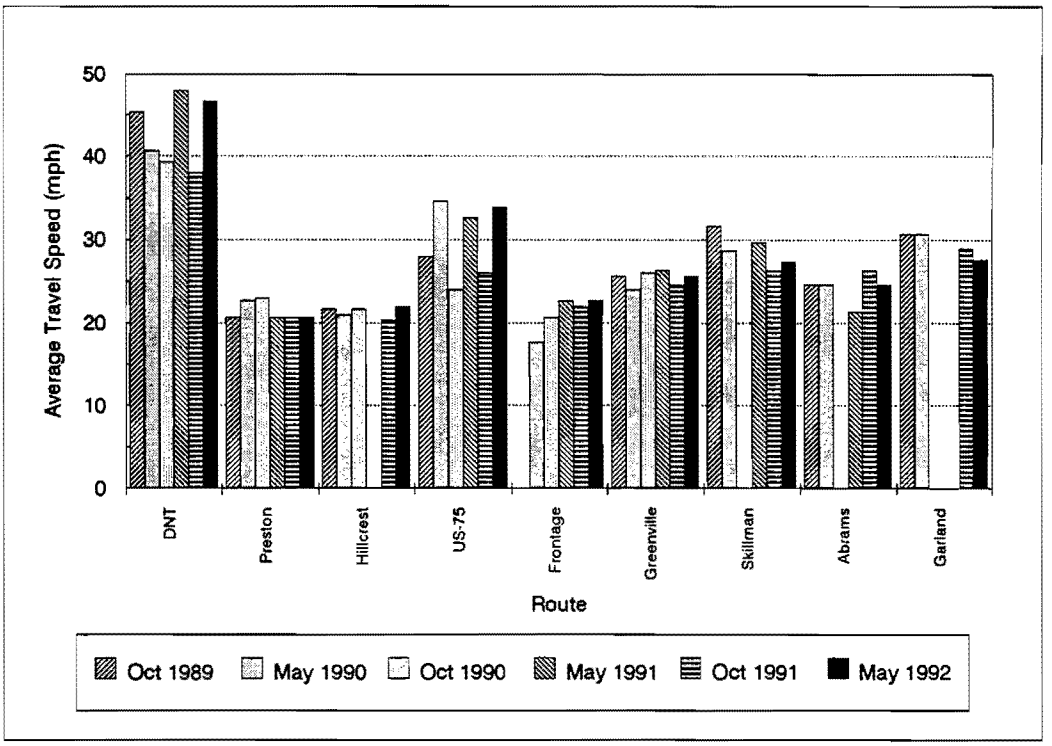


(a) A.M. Peak

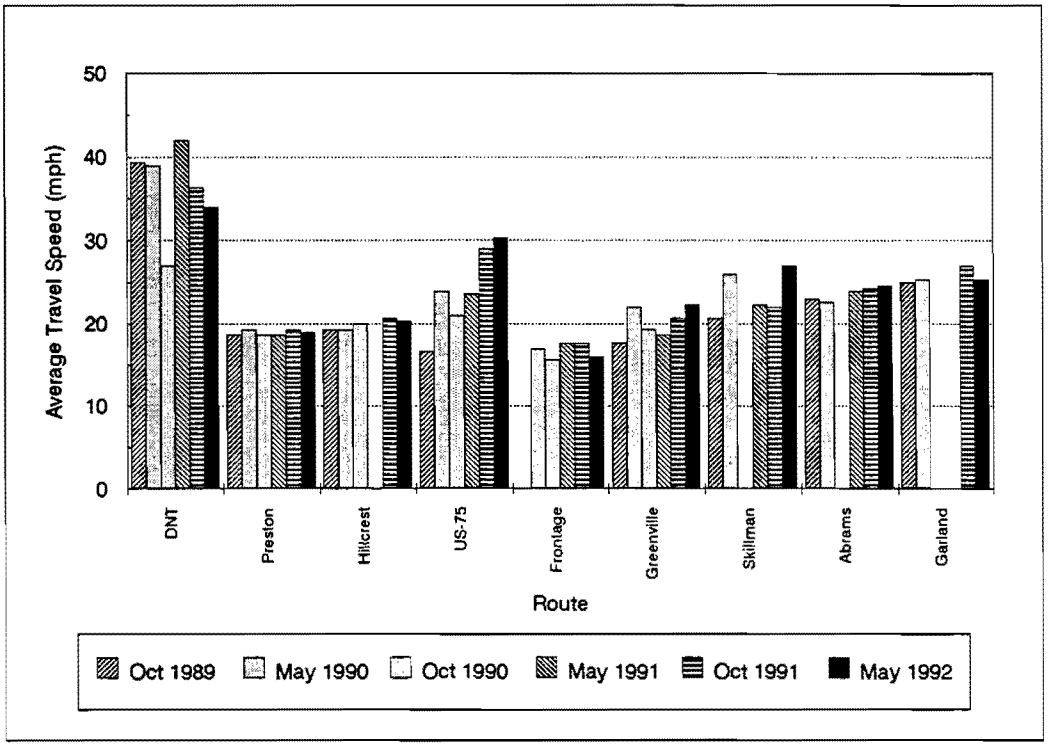


(b) P.M. Peak

Figure 5. Average Peak Hour, Peak Direction Travel Times Between I-635 and Central Business District

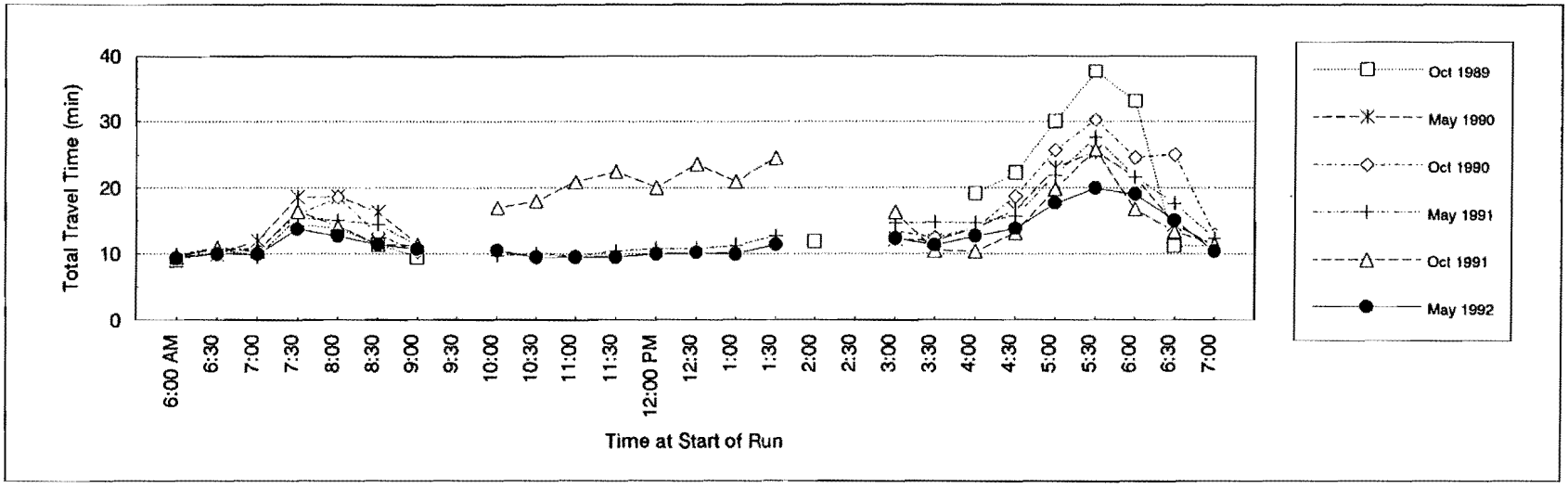


(a) A.M. Peak

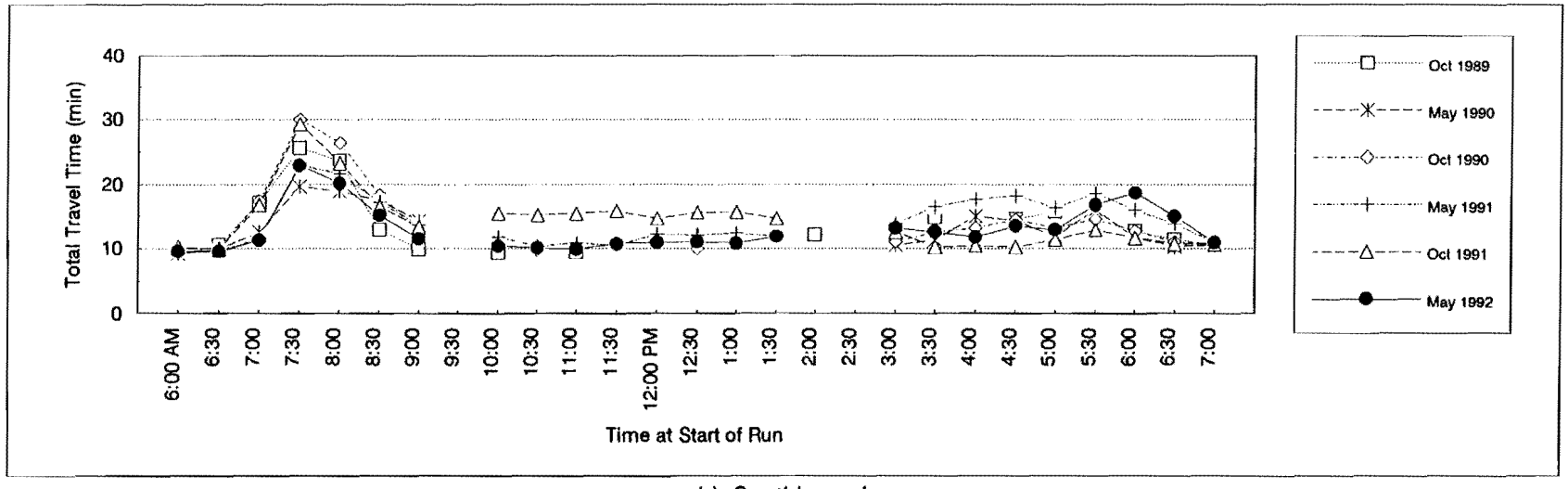


(b) P.M. Peak

Figure 6. Average Peak Hour, Peak Direction Travel Speeds Between I-635 and Central Business District

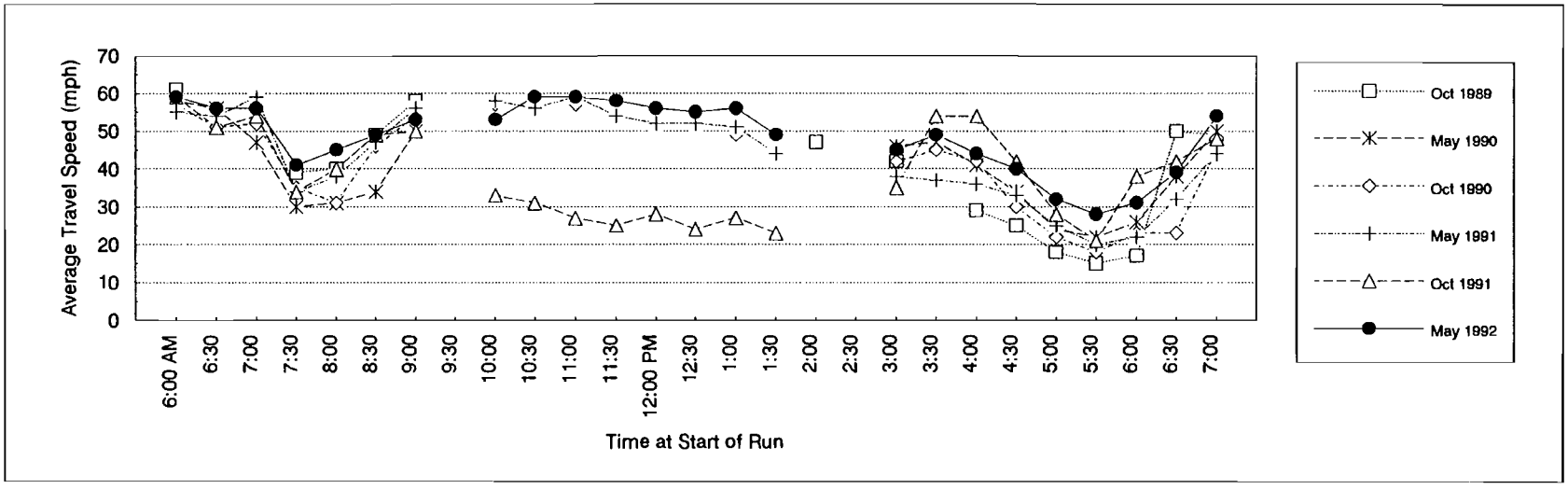


a) Northbound

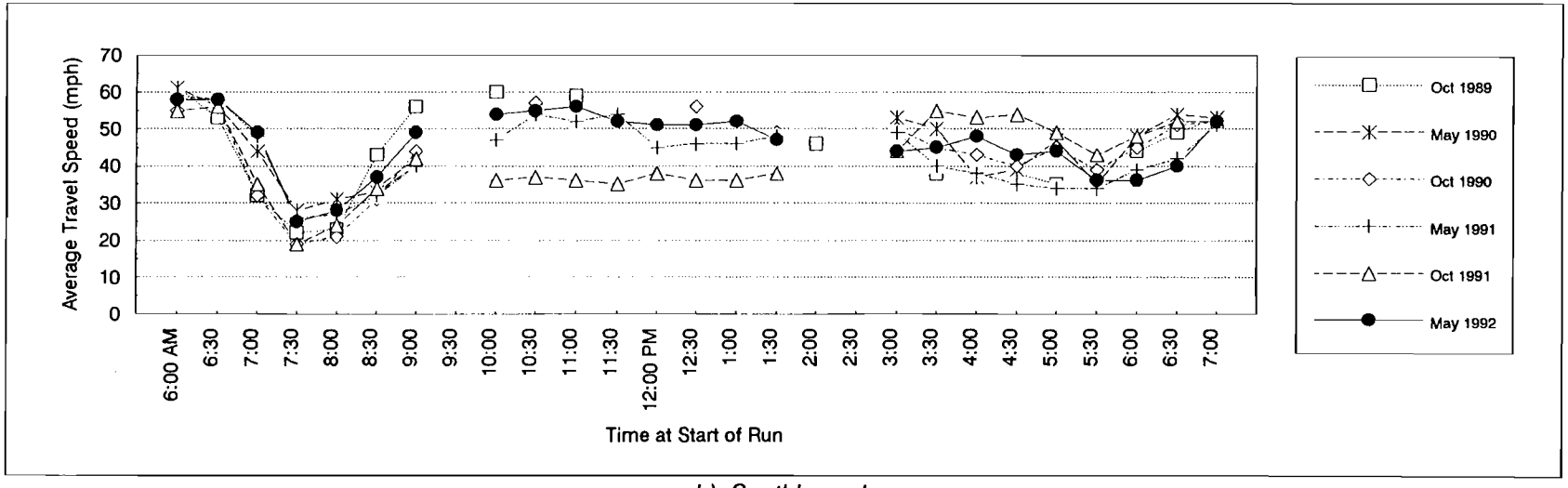


b) Southbound

Figure 7. Total Travel Time on US-75 Between I-635 and Central Business District



a) Northbound



b) Southbound

Figure 8. Average Travel Speed on US-75 Between I-635 and Central Business District

SUMMARY

The results indicate that the reconstruction activities underway during the May 1992 traffic data collection efforts had minimal impact on peak period traffic conditions and patterns in the corridor; however, some changes in daily traffic patterns were observed. The results of the May 1992 traffic data collection efforts are summarized as follows:

- The total daily corridor traffic volumes appear to have decreased in the US-75 North Central Expressway corridor during May 1992. Reductions of 3-4 percent in total north-south volumes were observed in the southern portion of the corridor. Daily east-west traffic crossing US-75 North Central Expressway decreased by 12 percent suggesting that the project could be having an effect on east-west traffic movements in the corridor. Most of the volume reduction, however, occurred during off-peak periods of the day (i.e., midday off-peak and nighttime hours.)

- Daily traffic volumes on US-75 North Central Expressway, when compared to control locations in the Dallas area, decreased by 6 to 9 percent. The majority of the US-75 North Central Expressway reduction took place during off-peak periods. In general, daily traffic patterns indicate that volumes decreased on US-75 North Central Expressway and increased on the Dallas North Tollway during construction. The increased traffic on Dallas North Tollway could represent some diversion from US-75 but most likely is due to the growth in development north of Dallas.

- Peak period, peak direction traffic patterns have not changed significantly due to the construction project. Only minor changes in peak direction patterns were observed in May 1992. The Dallas North Tollway experienced slightly higher traffic volumes and US-75 North Central Expressway volumes were generally lower than before construction. Peak period east-west traffic patterns appeared to fluctuate more than north-south traffic patterns.

- Peak-period traffic on the US-75 North Central Expressway consists primarily of passenger vehicles (96-97 percent) of which 79 to 88 percent carry only a single occupant. The average passenger vehicle occupancy slightly increased from October 1991 to May 1992. A.M. peak period average vehicle occupancy remains lower than before construction, whereas the occupancy during the P.M. peak period was higher than before construction.

- Peak hour, peak direction average travel times on the US-75 North Central Expressway between the I-635 LBJ Freeway and the Dallas central business district were not significantly affected by the construction project during May 1992. The A.M. peak average travel time was approximately 1 minute longer; however, the total travel time at 7:30 a.m. was approximately 3 minutes longer. The average travel time during the P.M. peak was actually 5 minutes shorter than before construction. Off-peak period travel times were unchanged during May 1992. Other routes in the corridor experienced only minor changes in

peak hour, peak direction average travel times. The Dallas North Tollway peak hour, peak direction travel times were 2-3 minutes higher than before construction.

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APPENDIX A

MAY 1992 SCREEN LINE TRAFFIC VOLUMES

TABLE A-1. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1992): Northbound

Hour Ending	Route													Total
	Harry Hines	DNT	Maple	Cedar Springs	Lemmon	Oak Lawn	Turtle Creek	McKinney	US-75	Ross	Live Oak	Gaston	Columbia	
1	60	244	95	170	201	114	62	86	998	111	66	89	73	2368
2	45	142	58	90	130	59	28	49	514	63	34	61	48	1321
3	32	121	47	76	118	48	21	33	398	45	24	41	41	1042
4	20	71	21	38	71	22	10	20	288	21	18	36	18	654
5	19	127	20	27	82	27	4	18	350	19	15	15	29	751
6	119	359	49	63	239	41	13	19	1024	35	27	38	76	2100
7	690	1460	154	163	839	153	39	47	3270	110	85	106	114	7230
8	1263	2789	299	339	1384	429	147	173	4187	302	196	238	212	11958
9	996	2808	357	322	1177	627	238	247	4241	468	280	272	255	12289
10	483	1969	317	311	928	569	268	249	3696	421	283	305	274	10072
11	460	1754	353	369	939	590	299	293	3161	487	375	397	343	9818
12	585	2292	496	515	1335	806	498	468	3689	663	633	572	443	12996
13	843	2242	513	600	1639	952	592	570	3805	658	698	592	466	13969
14	594	2388	467	513	1316	854	531	542	3764	617	558	512	393	13050
15	603	2542	444	522	1289	767	472	526	3779	678	500	558	440	13120
16	551	2736	459	530	1249	796	494	451	4353	752	614	702	610	14296
17	898	4289	520	585	1438	894	701	637	4710	1216	1090	1047	1040	18864
18	767	5176	574	769	1747	1088	1295	1103	4821	1593	1695	1342	1431	23402
19	367	3501	395	665	1332	802	791	656	4471	830	852	744	634	16039
20	232	1958	290	529	986	595	433	432	3392	452	394	426	310	10428
21	174	1237	258	513	881	467	307	330	2684	346	324	331	232	8085
22	192	1157	265	491	770	412	265	305	2796	294	240	293	205	7684
23	203	1017	225	402	617	320	223	269	2414	265	201	203	169	6528
24	95	617	180	279	394	211	139	205	1571	176	136	181	146	4331
24 Hr. Total	9891	42995	6856	8881	21098	11643	7872	7728	68376	10617	9338	9099	8001	222396

TABLE A-2. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1992): Southbound

Hour Ending	Route													Total
	Harry Hines	DNT	Maple	Cedar Springs	Lemmon	Oak Lawn	Turtle Creek	Cole	US-75	Ross	Live Oak	Gaston	Columbia	
1	63	172	129	156	206	101	27	50	726	79	39	56	34	1836
2	32	85	96	105	103	55	15	29	440	46	30	34	28	1099
3	27	70	131	103	86	51	16	25	350	51	22	34	16	981
4	25	45	57	44	62	31	7	15	257	38	12	27	11	630
5	24	69	28	41	52	19	4	13	371	39	23	31	28	741
6	68	259	49	53	120	41	25	28	967	87	92	107	75	1971
7	221	1679	147	159	400	198	126	138	3044	383	453	443	309	7699
8	522	5132	370	440	1111	714	667	543	4657	1126	1783	1179	1065	19310
9	639	5468	465	590	1405	978	1116	830	3614	1431	2019	1190	919	20665
10	523	3290	383	460	897	686	553	341	4066	669	662	592	351	13473
11	507	2150	330	428	845	654	377	305	3310	524	455	446	232	10563
12	629	2268	392	484	1022	769	456	402	3495	538	544	465	274	11718
13	671	2181	524	599	1392	1005	591	471	3692	730	763	581	351	13551
14	661	2426	502	611	1413	960	617	470	4341	736	677	584	326	14322
15	659	2355	436	551	1238	844	453	343	4023	627	517	498	294	12837
16	924	2613	470	576	1364	814	367	297	4448	656	457	448	278	13712
17	1409	3017	454	593	1503	782	392	408	4498	669	454	407	264	14849
18	1524	3164	483	826	1559	790	445	361	4737	564	451	379	212	15295
19	623	3121	340	541	1271	745	405	320	3817	472	389	373	191	12608
20	355	1671	253	447	988	566	323	259	2824	363	306	304	155	8812
21	249	1075	209	391	797	517	200	226	2105	285	246	241	138	6679
22	179	973	165	336	690	440	147	180	2104	259	173	192	107	5945
23	135	696	150	272	547	347	105	152	1666	213	128	178	96	4685
24	128	385	131	223	428	194	57	94	1194	144	75	110	67	3229
24 Hr. Total	10797	44364	6691	8810	19499	12300	7491	6297	64746	10730	10767	8901	5819	217211

TABLE A-3. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1992): Northbound

Hour Ending	Route									Total
	DNT	Preston	Hillcrest	US-75	Greenville	Matilda	Skillman	Abrams	Garland	
1	223	41	16	1220	115	43	69	81	148	1955
2	134	21	7	656	73	31	43	52	84	1102
3	102	19	6	504	46	25	29	40	69	839
4	69	9	2	256	22	8	22	27	42	457
5	111	13	2	374	12	8	10	25	64	618
6	312	33	9	959	25	32	45	76	190	1680
7	1382	109	52	3376	100	118	207	304	581	6229
8	2662	348	263	4201	243	393	578	729	949	10368
9	2668	549	478	4184	246	429	630	812	881	10878
10	1907	521	276	3724	199	268	418	675	858	8846
11	1718	544	313	3629	228	249	461	651	904	8693
12	2150	689	410	4084	229	283	509	688	1070	10112
13	2118	673	432	4340	279	351	595	643	1067	10498
14	2312	743	440	4414	277	365	569	632	1028	10779
15	2416	747	452	4515	270	371	567	676	1216	11229
16	2772	719	467	4529	290	447	677	747	1374	12023
17	4042	805	551	5056	333	563	1050	813	1631	14844
18	5083	1034	761	5046	357	827	1327	977	1888	17299
19	3816	794	490	4810	331	598	1039	877	1454	14009
20	1777	515	294	4216	313	332	555	635	1057	9694
21	1150	370	217	3418	305	253	388	493	879	7472
22	952	336	145	3091	311	211	302	402	711	6463
23	883	196	109	2904	233	139	195	281	492	5433
24	598	116	55	2188	211	97	143	193	356	3955
24 Hr. Total	41155	9943	6246	75692	5046	6440	10428	11528	18994	185474

TABLE A-4. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1992): Southbound

Hour Ending	Route									Total
	DNT	Preston	Hillcrest	US-75	Greenville	Matilda	Skillman	Abrams	Garland	
1	154	41	13	829	95	17	65	94	151	1458
2	79	15	9	496	42	7	31	52	68	799
3	54	11	5	373	33	4	26	32	53	592
4	51	13	1	259	12	3	11	23	33	405
5	70	14	1	315	13	1	15	24	61	514
6	283	20	5	1012	21	3	47	51	216	1858
7	1706	138	56	3281	120	12	298	231	935	6775
8	4608	568	276	5422	452	57	1067	803	1930	15183
9	4707	868	467	5385	462	70	1069	801	1631	15437
10	3085	603	246	4017	291	57	390	600	1106	10396
11	1993	598	256	3711	310	57	331	643	995	8895
12	2063	687	300	3962	369	73	331	657	1049	9490
13	2046	703	315	4349	423	105	382	672	1064	10058
14	2247	698	311	4655	388	96	398	656	1092	10538
15	2276	669	304	4435	362	93	410	666	1102	10316
16	2407	654	371	4842	375	105	450	702	1266	11173
17	2773	661	353	4894	442	118	518	748	1203	11710
18	3157	713	372	4969	482	179	552	897	1270	12591
19	2584	635	314	4292	487	144	569	935	1226	11187
20	1534	458	228	3510	468	115	417	766	991	8487
21	905	377	151	2612	384	103	330	544	853	6260
22	918	285	132	2470	369	85	286	539	691	5774
23	637	169	77	2054	267	64	210	328	466	4272
24	346	91	37	1467	198	33	122	187	270	2751
24 Hr. Total	40684	9688	4599	73591	6862	1601	8323	11651	19722	176720

TABLE A-5. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1992): Northbound

Hour Ending	Route							Total
	DNT	Preston	Hillcrest	US-75	Greenville	Skillman	Abrams	
1	257	35	28	918	252	228	124	1842
2	138	15	17	710	161	122	87	1229
3	124	9	18	609	143	101	53	1057
4	65	9	7	298	41	52	43	514
5	119	16	5	308	34	31	32	545
6	304	35	14	760	49	64	66	1291
7	1353	130	130	2814	223	218	220	5088
8	2752	405	390	3895	715	541	508	9207
9	2663	511	571	4005	954	599	640	9943
10	1802	540	481	3326	659	448	540	7796
11	1591	623	443	3160	683	453	586	7538
12	1952	774	502	3779	979	618	638	9243
13	1953	834	555	3854	1349	696	746	9988
14	2236	852	562	3908	1299	689	736	10282
15	2397	860	605	4035	1081	769	728	10476
16	2833	804	595	4220	1098	946	792	11289
17	4032	781	700	3969	1413	1403	826	13125
18	5454	969	964	3652	1957	2302	984	16283
19	3792	812	710	3771	1454	1641	934	13114
20	2026	537	485	3412	1130	994	757	9341
21	1339	405	380	2749	870	884	650	7277
22	1195	353	325	2516	819	747	554	6510
23	1065	190	169	2402	650	549	371	5396
24	666	91	86	1869	479	394	249	3834
24 Hr. Total	42109	10590	8742	64939	18492	15490	11844	172207

TABLE A-6. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1992): Southbound

Hour Ending	Route							Total
	DNT	Preston	Hillcrest	US-75	Greenville	Skillman	Abrams	
1	153	30	26	837	219	133	98	1497
2	90	19	11	457	108	74	55	815
3	60	13	12	364	76	55	47	627
4	46	10	8	236	34	49	22	407
5	65	10	8	329	23	49	29	513
6	381	38	26	900	62	162	57	1627
7	2098	186	155	2734	356	730	240	6497
8	5390	815	744	3355	1772	2304	619	14999
9	4683	1224	1028	3297	1660	1911	677	14480
10	2951	874	725	3465	852	851	604	10321
11	2109	813	595	3464	779	733	618	9111
12	2205	904	721	3600	1034	726	717	9908
13	2099	900	659	3617	1410	781	776	10242
14	2224	903	634	3461	1206	773	731	8932
15	2361	679	639	3637	1023	725	776	10040
16	2726	867	721	3812	1085	758	781	10751
17	3317	899	929	3576	1232	829	897	11679
18	3716	1003	1147	3691	1490	957	1074	13078
19	3011	875	942	3485	1247	963	994	11517
20	1717	549	567	2998	1050	840	780	8502
21	1107	387	374	3038	865	725	628	7123
22	988	299	294	2939	758	583	464	6326
23	710	156	166	2433	601	430	326	4822
24	366	73	80	1713	409	279	196	3117
24 Hr. Total	44571	12728	11211	61438	19351	16423	12208	177930

TABLE A-7. US-75 Screen Line Average Traffic Volumes (May 1992): Eastbound

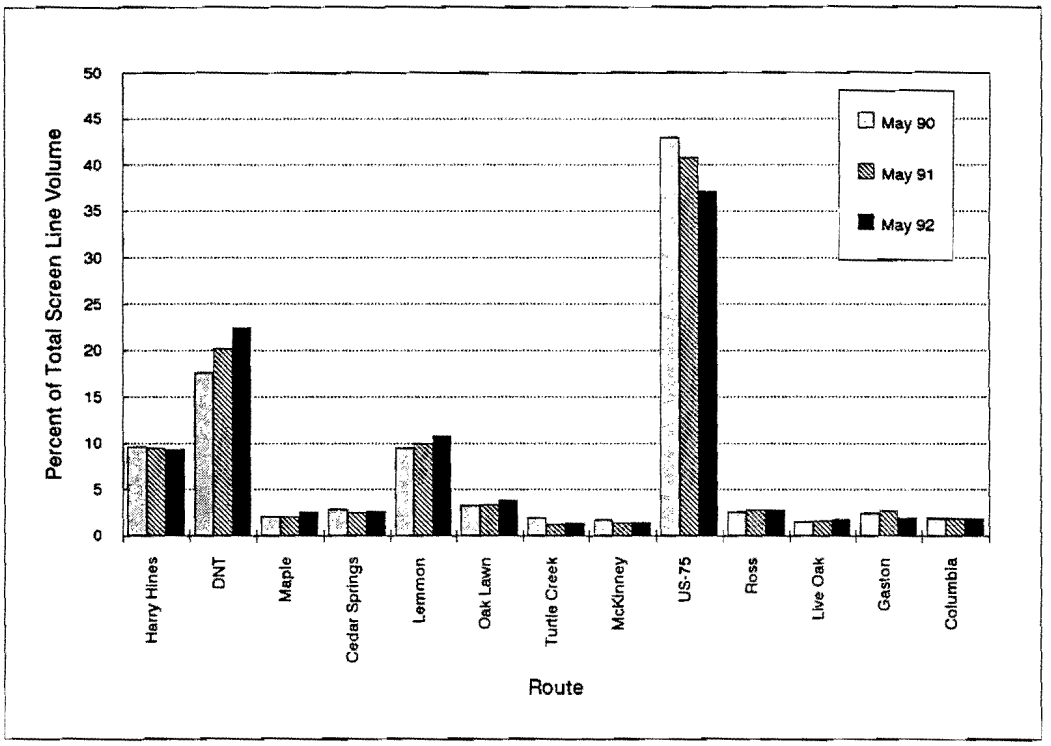
Hour Ending	Route																		Total
	Hall	Lemmon	Haskell	Fitzhugh	Henderson	Monticello	McCommas	Mockingbird	Yale	University	Lovers	South western	Caruth Haven	Loop 12	Park Lane	Walnut	Royal	Forest	
1	28	133	89	287	121	13	26	136	14	27	151	16	56	287	116	110	66	71	1745
2	14	86	45	171	69	4	17	60	7	13	64	8	24	149	72	52	31	34	922
3	12	67	43	186	47	2	10	34	6	8	37	7	18	139	41	61	24	23	767
4	7	29	27	77	32	2	6	30	1	5	19	4	10	89	24	48	9	19	438
5	5	29	24	59	22	1	5	25	1	1	19	3	7	49	29	35	14	18	346
6	11	69	53	86	35	5	8	49	6	8	24	6	18	116	51	81	29	49	706
7	21	229	258	250	88	15	22	124	23	33	92	29	85	346	135	437	163	209	2560
8	77	434	580	455	225	43	47	253	65	59	239	139	339	799	441	1025	561	493	6275
9	86	574	506	659	315	67	74	351	150	92	363	185	374	1055	639	1473	759	653	8374
10	94	549	437	617	418	75	109	540	108	110	372	188	204	927	507	1173	490	608	7523
11	109	603	368	651	457	98	126	580	111	130	379	182	171	1089	595	1092	450	705	7895
12	157	671	481	812	542	134	186	683	141	169	468	221	251	1302	763	1080	535	961	9555
13	171	702	657	950	699	145	217	782	159	177	621	247	309	1523	1076	1156	814	1086	11292
14	186	736	620	944	680	122	170	822	151	170	597	230	281	1605	1035	1288	632	979	11226
15	168	754	517	898	701	137	174	908	147	166	587	211	226	1852	968	1316	626	1023	11380
16	196	803	457	1053	715	145	200	970	146	188	652	231	225	1972	977	1217	802	1135	12082
17	220	936	561	1176	843	214	356	1199	138	209	727	342	263	2672	1020	1383	1129	1838	15225
18	307	1177	732	1394	1078	433	647	1490	156	413	1049	535	351	3037	1253	1788	1714	2230	19784
19	180	741	462	1127	852	262	397	1206	109	223	880	430	306	2620	1255	1420	1166	1588	15225
20	127	512	321	868	706	136	239	943	84	131	668	244	292	1744	1048	967	494	781	10303
21	93	434	254	675	576	111	197	838	64	138	550	157	233	1449	815	697	336	504	8121
22	97	364	244	703	552	87	160	718	80	142	563	127	204	1416	777	610	289	388	7521
23	58	317	242	587	411	51	111	476	49	100	416	82	151	930	436	432	223	233	5304
24	52	223	163	442	274	40	46	255	33	60	325	40	95	613	256	285	135	158	3475
24 Hr. Total	2455	11172	8138	15126	10459	2344	3550	13473	1947	2770	9863	3863	4483	27780	14330	19203	11291	15784	178042

TABLE A-8. US-75 Screen Line Average Traffic Volume (May 1992): Westbound

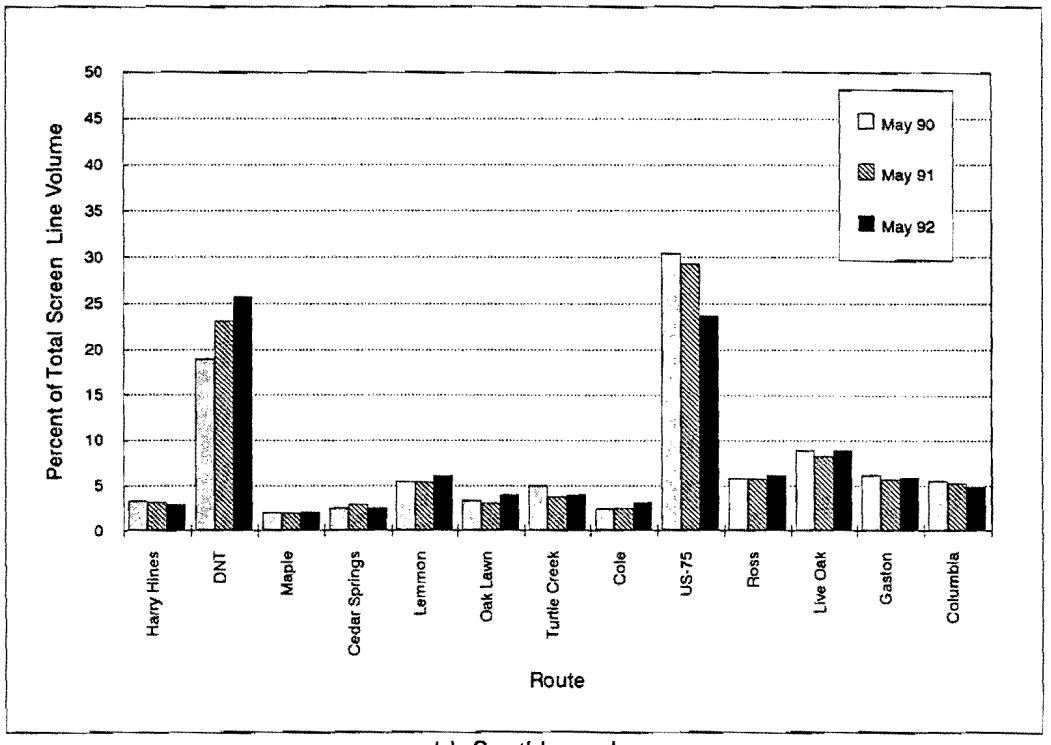
Hour Ending	Route																		Total
	Hall	Lemmon	Haskell	Fitzhugh	Henderson	Monticello	McCommas	Mockingbird	Yale	University	Lovers	South western	Caruth Haven	Loop 12	Park Lane	Walnut	Royal	Forest	
1	34	118	41	204	108	21	16	145	43	48	98	40	18	204	199	140	72	88	1636
2	20	62	25	131	66	12	11	89	32	35	54	29	13	120	97	69	41	44	950
3	16	54	22	132	58	4	8	71	27	27	67	28	10	82	78	48	34	35	802
4	11	42	12	96	38	3	6	48	5	11	18	9	5	79	37	35	22	31	507
5	19	92	19	78	32	5	2	81	6	8	18	10	6	129	36	24	22	37	622
6	54	233	49	189	92	16	9	216	25	35	82	40	18	380	94	71	68	134	1806
7	270	934	174	562	332	110	64	805	174	142	349	191	81	1584	365	429	410	742	7718
8	434	1346	395	970	856	457	277	2178	724	530	1139	693	259	3244	822	1245	1454	2016	19039
9	518	1253	445	1081	999	514	332	2189	693	644	1093	679	218	3020	809	1115	1217	1706	18526
10	272	676	239	683	619	201	137	1305	332	324	604	369	150	1783	619	939	570	965	10787
11	255	637	244	628	532	155	96	1041	263	303	496	298	133	1659	635	1029	495	912	9810
12	251	688	392	692	652	166	99	1086	267	358	544	329	178	1758	791	1302	548	985	11065
13	244	749	355	762	723	215	149	1221	309	356	615	404	187	1846	949	1423	601	1079	12185
14	247	717	322	757	672	210	150	1256	292	381	663	387	193	1748	867	1259	539	1073	11734
15	258	796	302	809	587	167	119	1109	289	370	558	318	156	1645	739	1294	583	1001	11081
16	280	773	305	813	566	158	104	1050	311	420	557	316	195	1668	801	1352	556	1002	11226
17	292	846	510	834	558	151	112	975	380	457	573	348	229	1658	802	1554	576	872	11723
18	278	793	586	834	606	166	101	1047	416	446	606	400	291	1942	876	1654	661	809	12514
19	220	603	322	643	562	181	100	1005	277	309	607	438	169	1818	766	1158	641	696	10515
20	155	447	198	517	496	129	92	919	211	243	487	324	109	1502	639	912	470	591	8441
21	122	374	155	478	398	100	65	684	115	179	349	251	87	957	474	704	284	442	6218
22	106	339	149	436	319	72	69	556	102	155	320	185	96	625	471	681	261	354	5297
23	102	308	111	426	263	55	43	444	75	123	266	133	65	483	374	484	215	242	4212
24	62	203	94	303	175	41	38	260	60	90	161	88	38	335	220	313	132	151	2762
24 Hr. Total	4520	13080	5467	13057	10311	3308	2202	19779	5427	5995	10321	6305	2903	30269	12561	19231	10451	15988	191175

APPENDIX B

MAY 1992 SCREEN LINE TRAFFIC VOLUMES: PERCENTAGE OF TOTAL SCREEN LINE VOLUME BY ROUTE

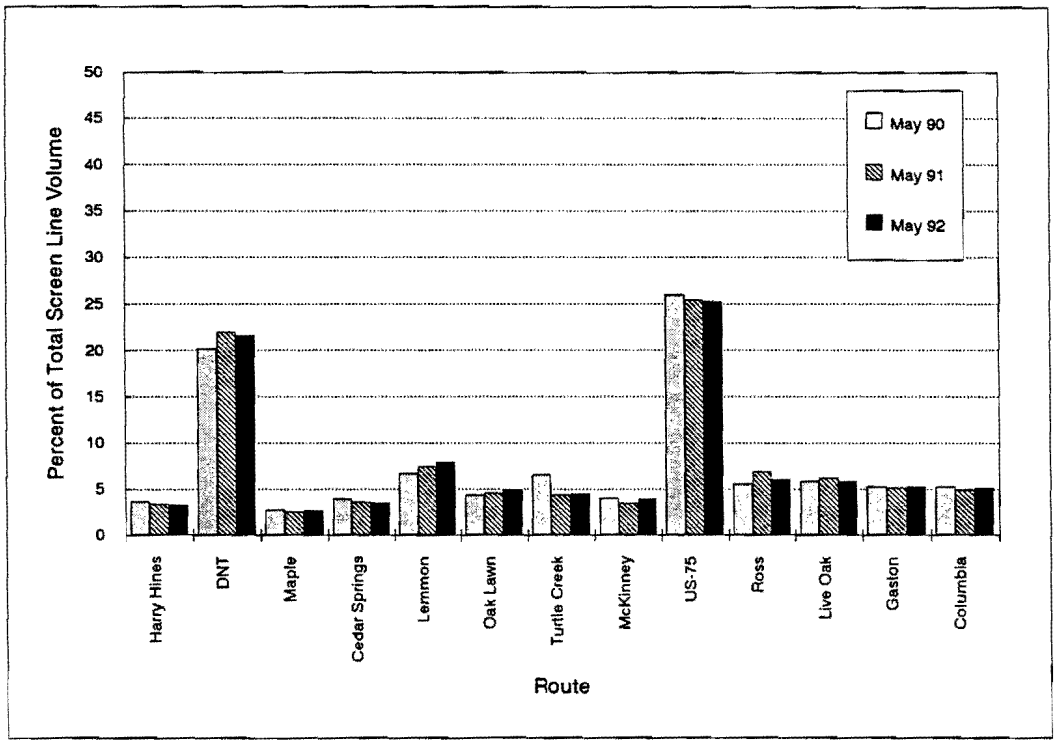


a) Northbound

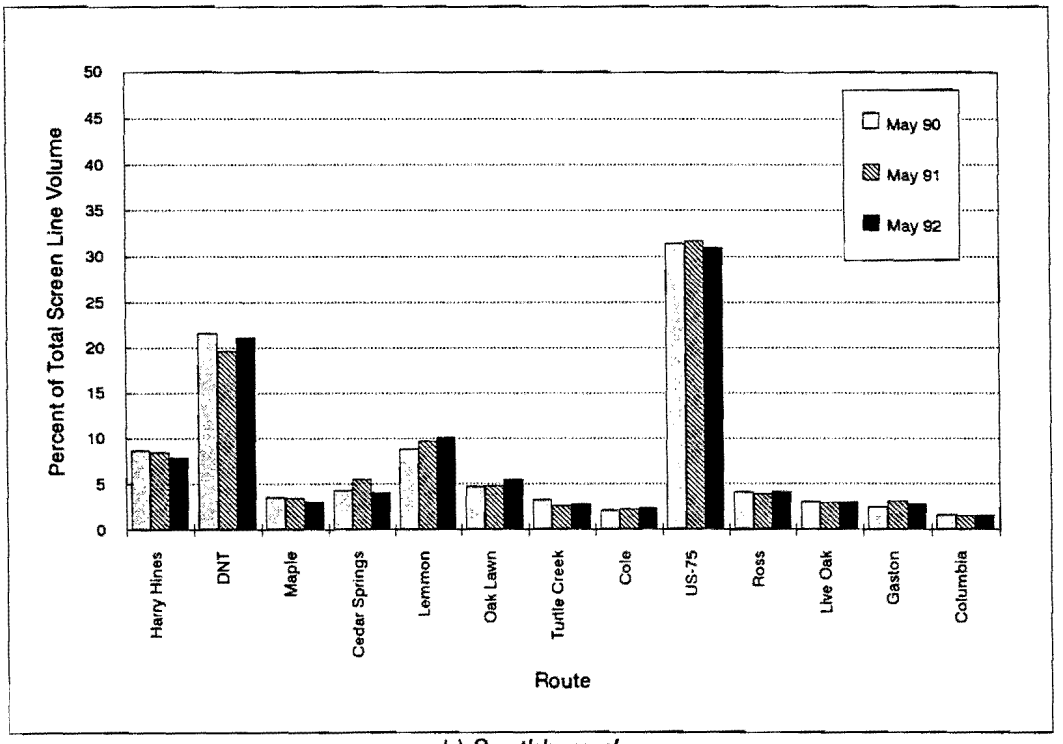


b) Southbound

Figure B-1. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - A.M. Peak Period

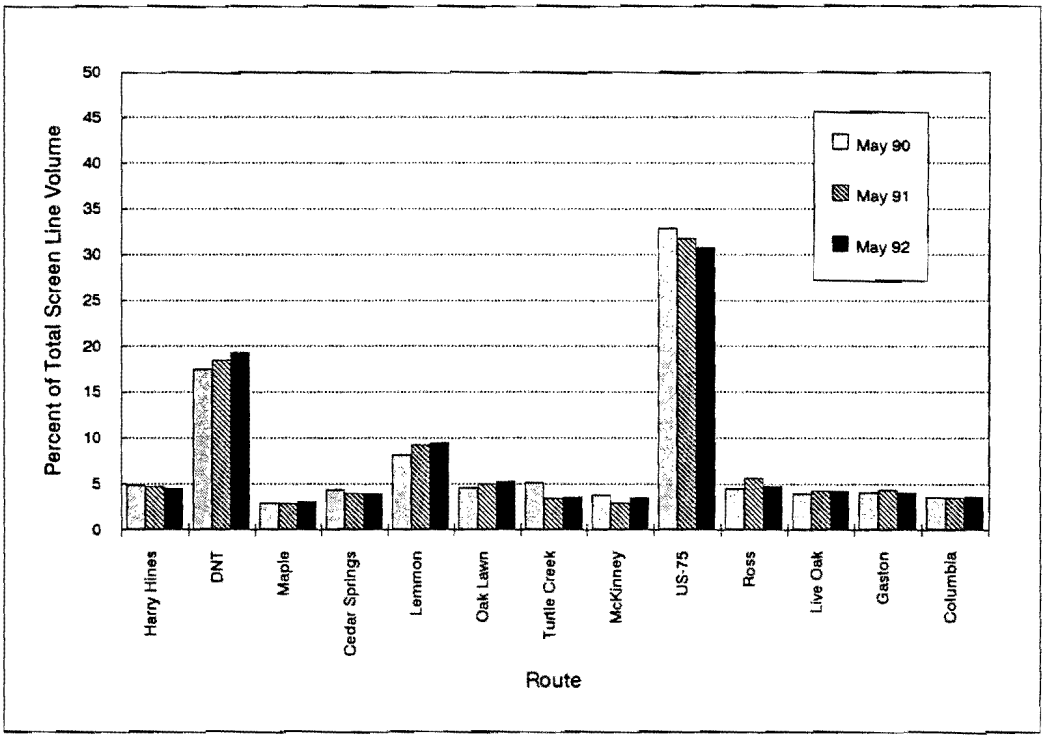


a) Northbound

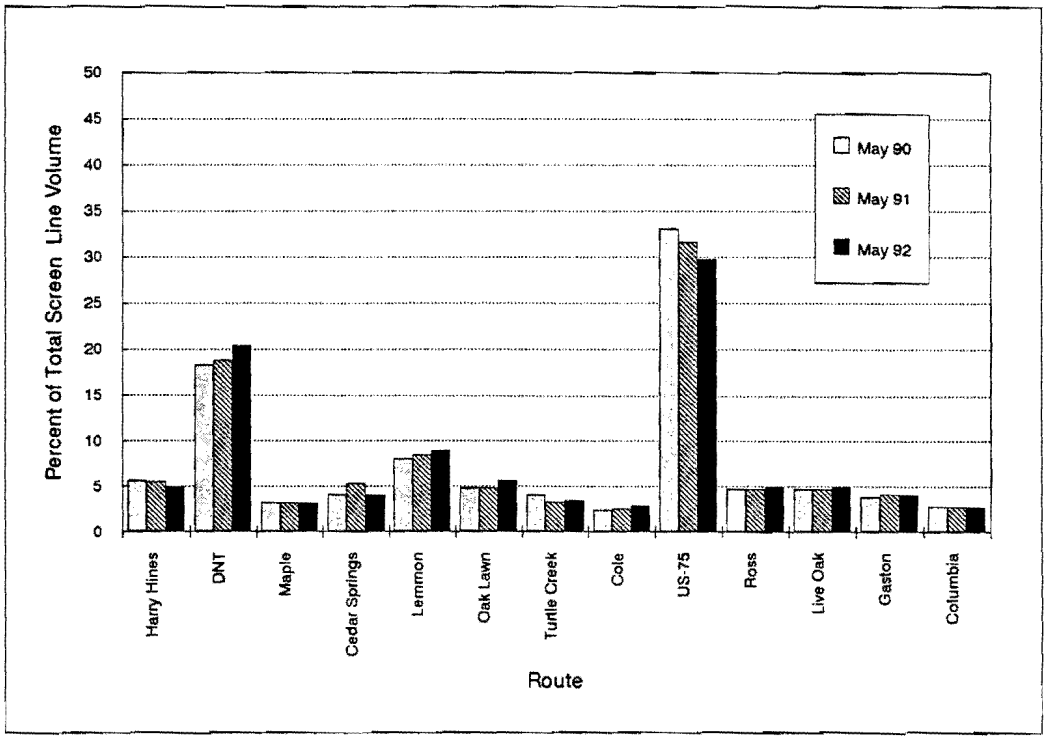


b) Southbound

Figure B-2. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - P.M. Peak Period

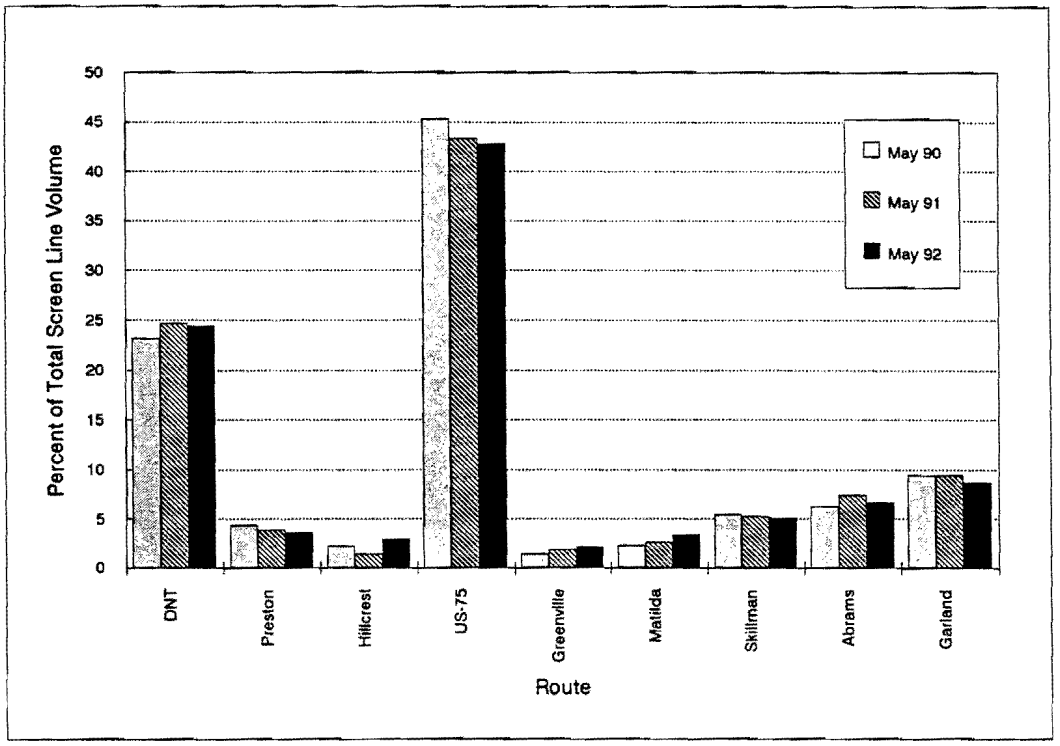


a) Northbound

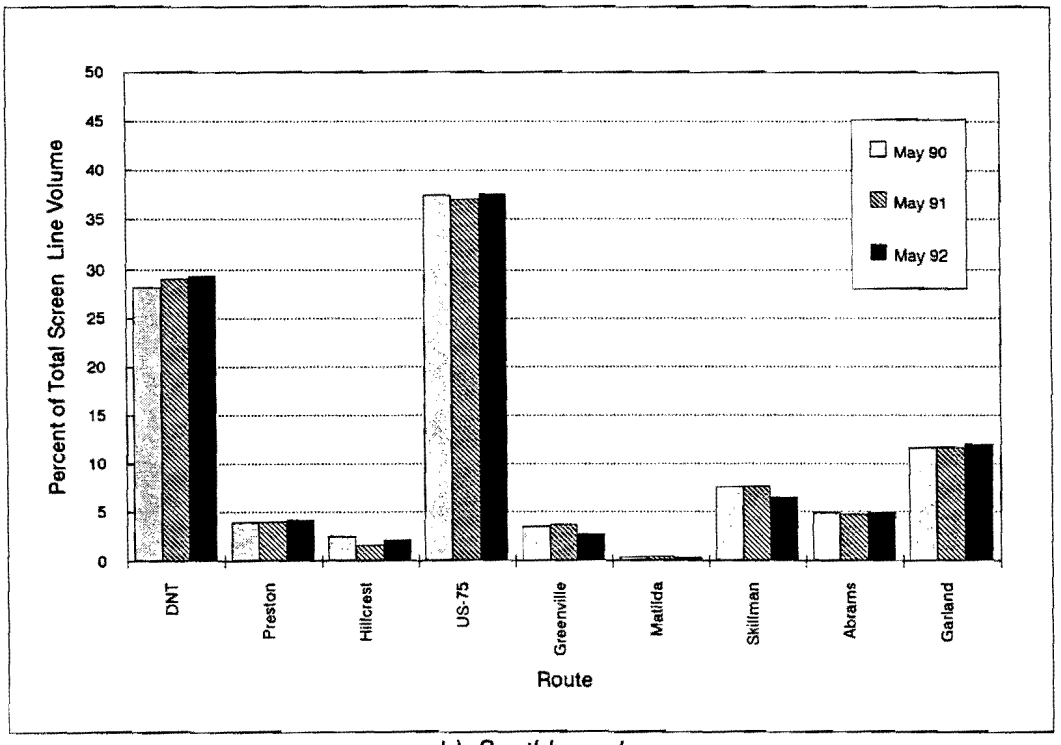


b) Southbound

Figure B-3. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - 24 Hour Period

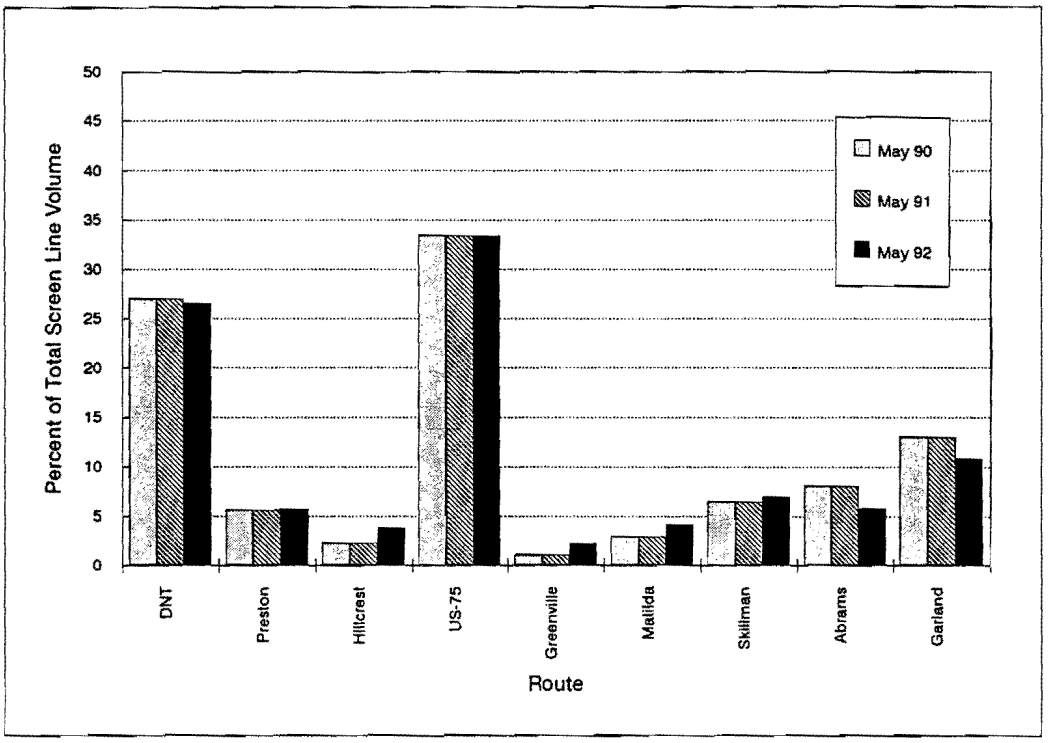


a) Northbound

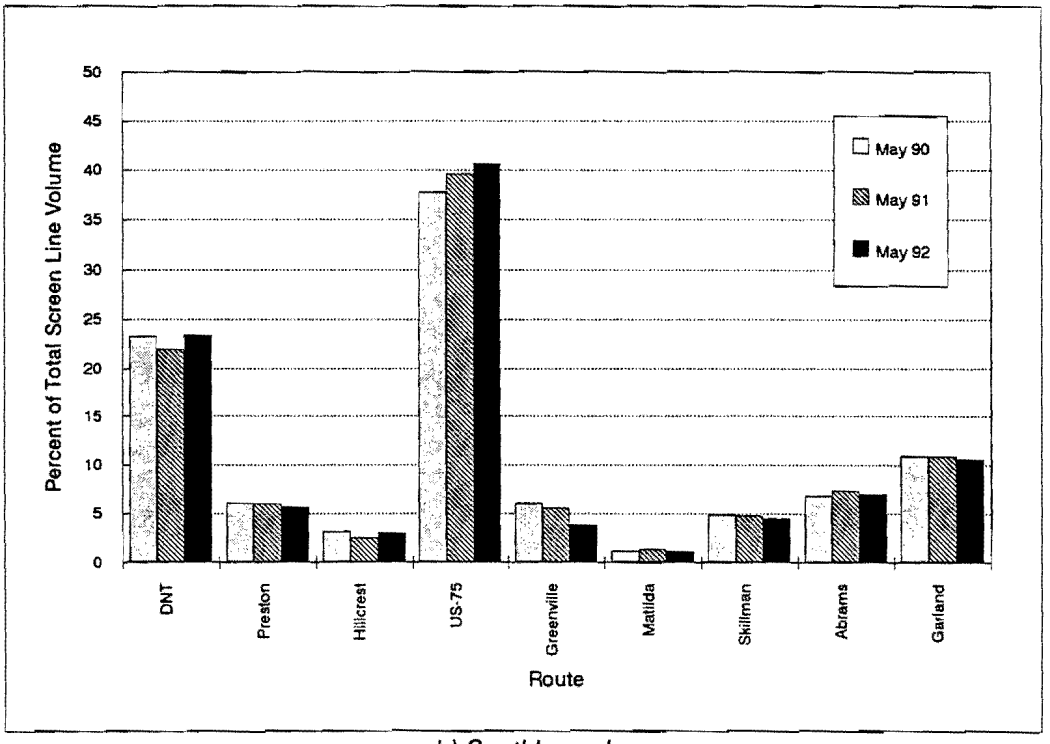


b) Southbound

Figure B-4. Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - A.M. Peak Period

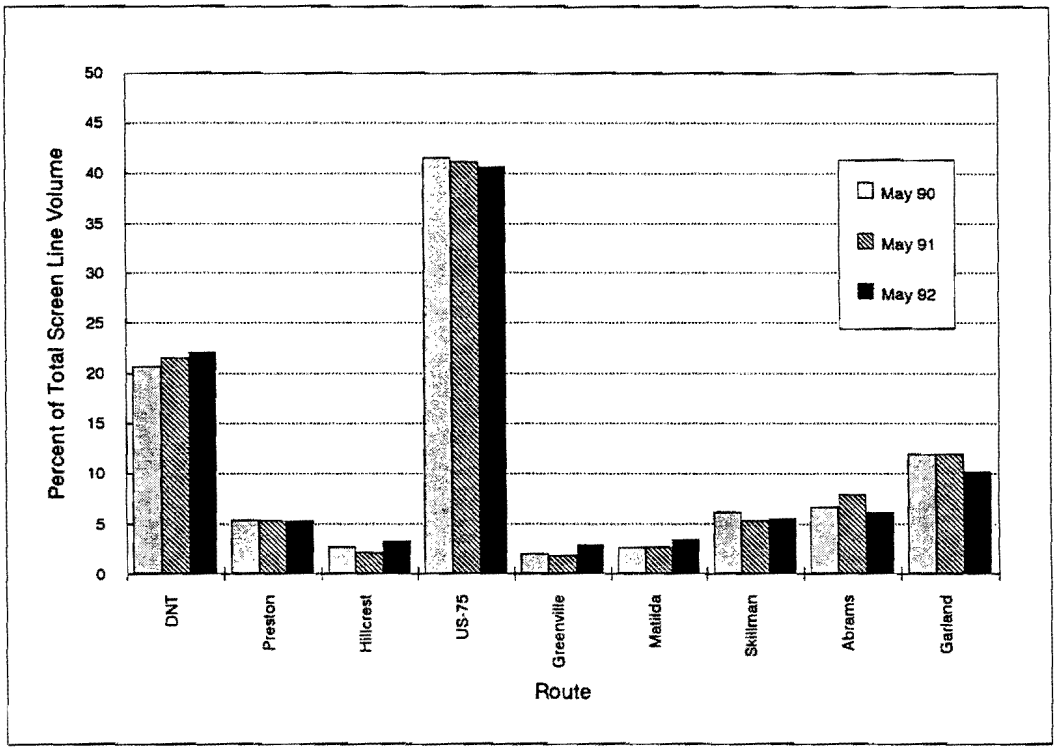


a) Northbound

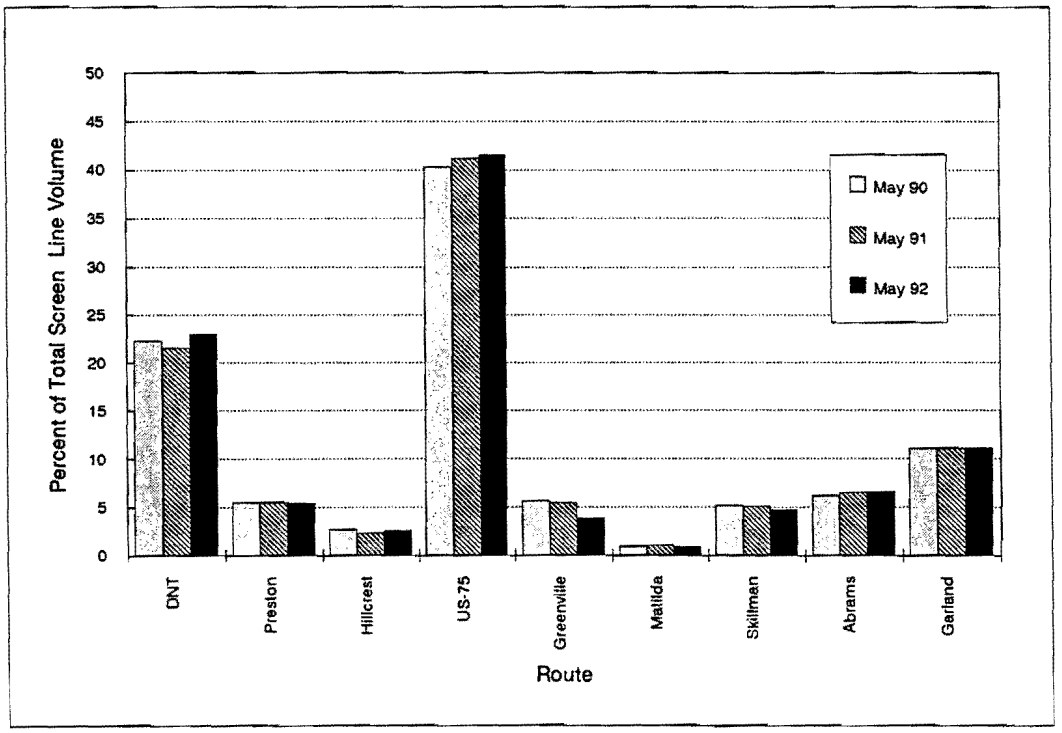


b) Southbound

Figure B-5. Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - P.M. Peak Period

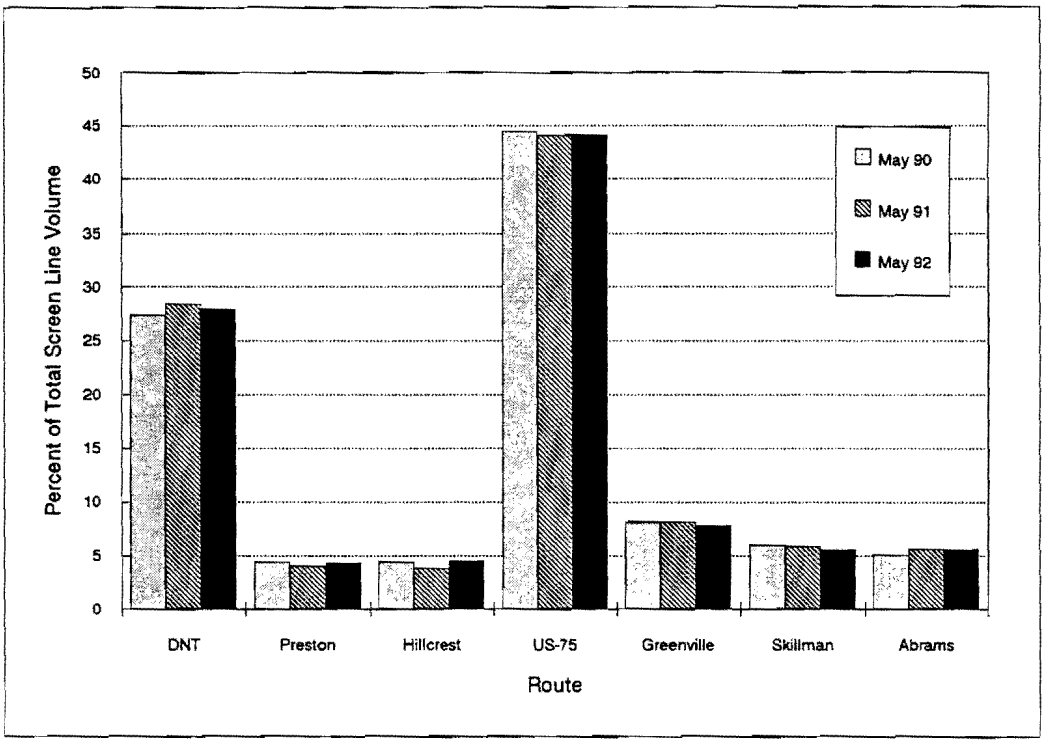


a) Northbound

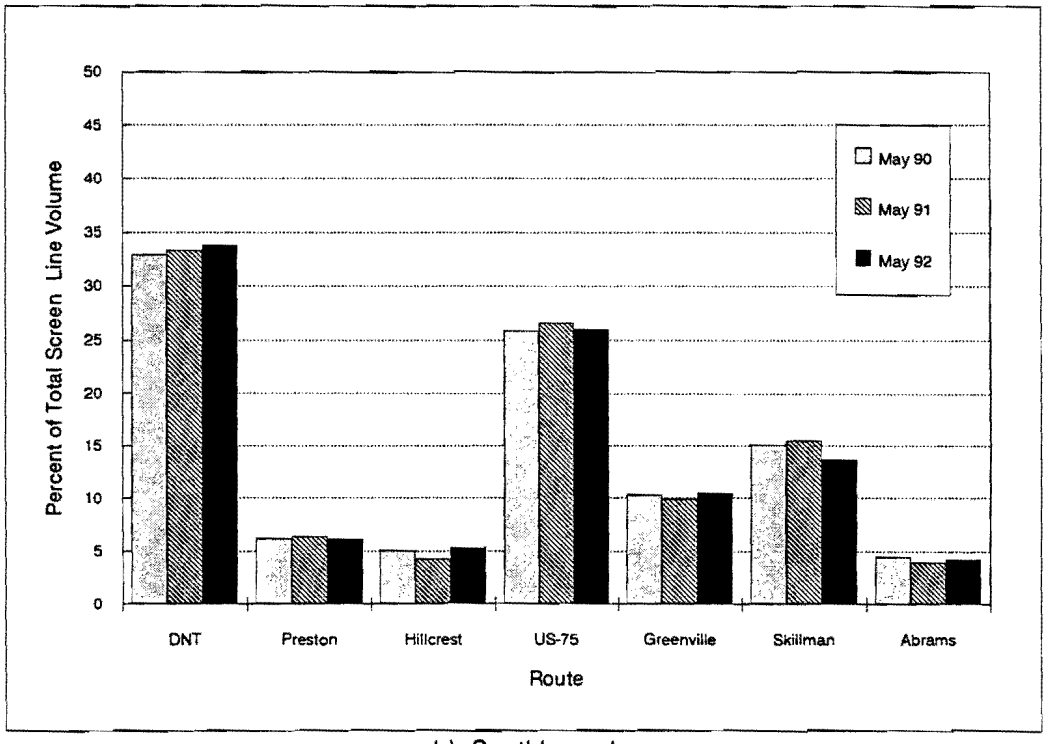


b) Southbound

Figure B-6. Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - 24 Hour Period

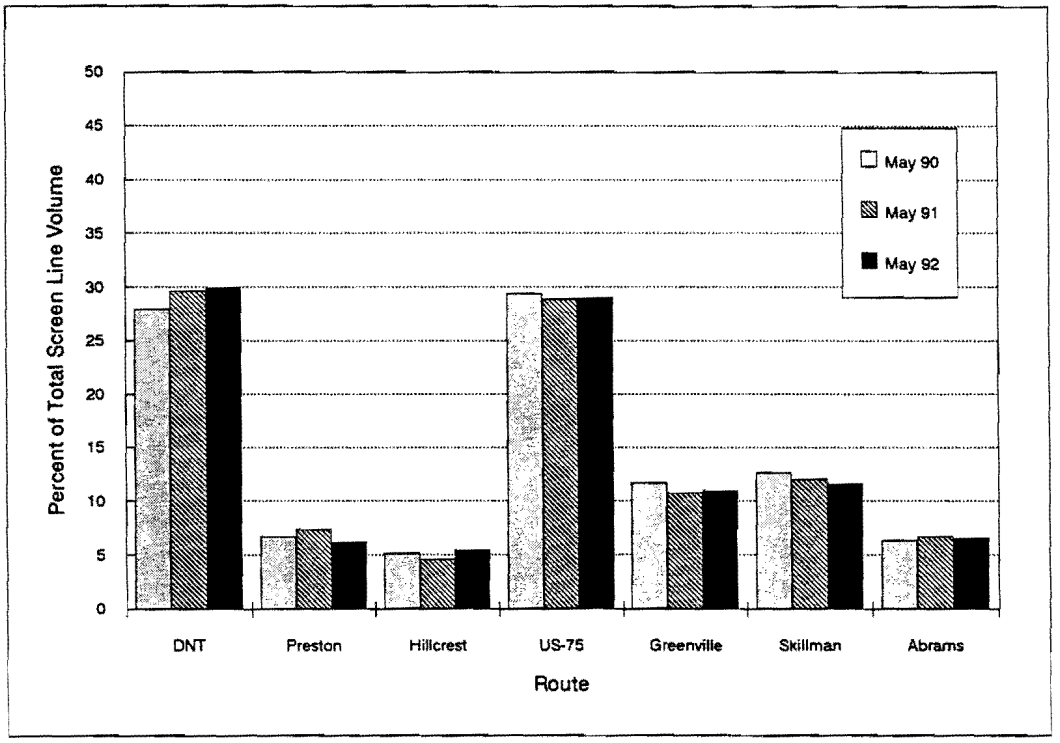


a) Northbound

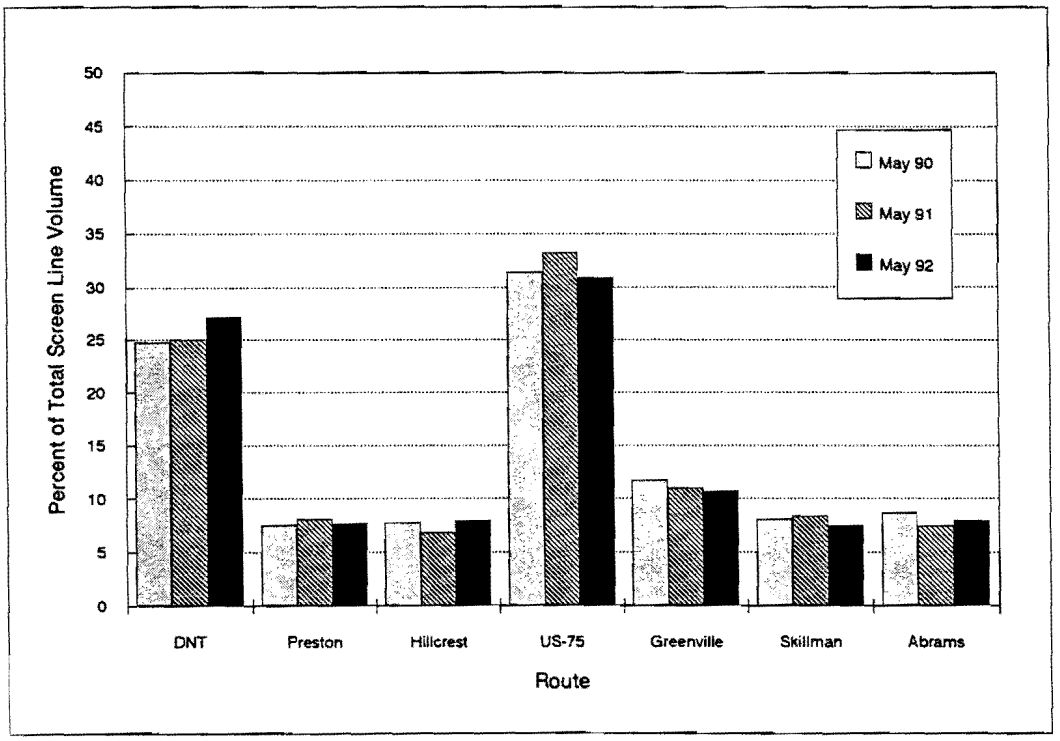


b) Southbound

Figure B-7. Percent of Total Screen Line Volume by Route:
Loop 12 - A.M. Peak Period

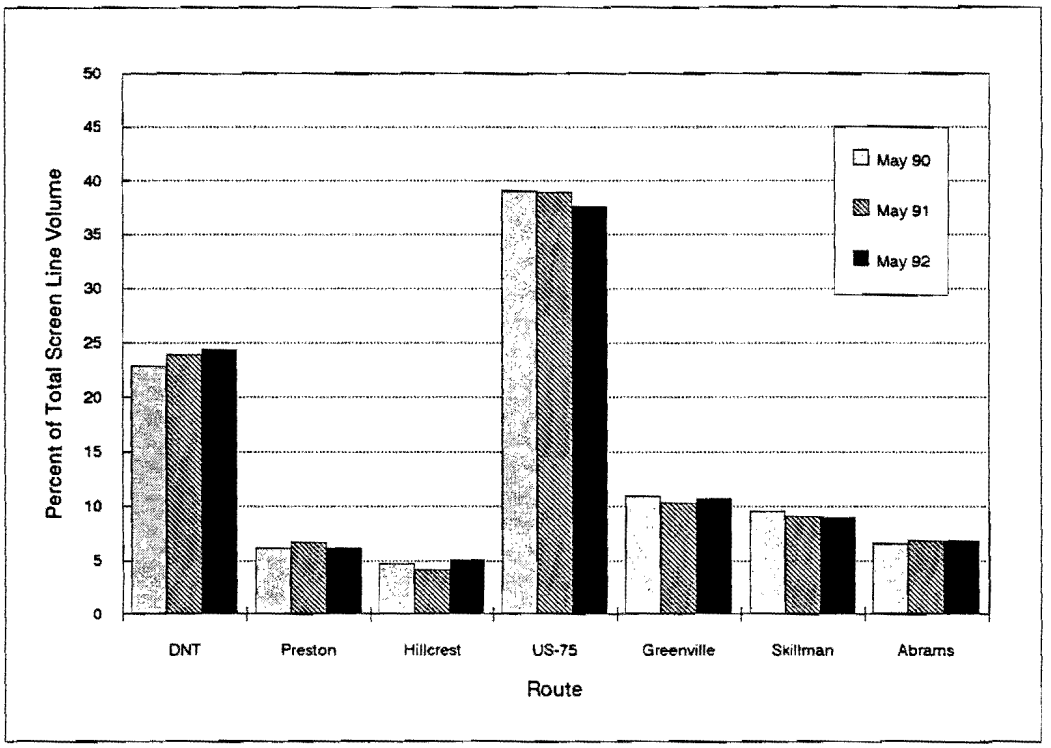


a) Northbound

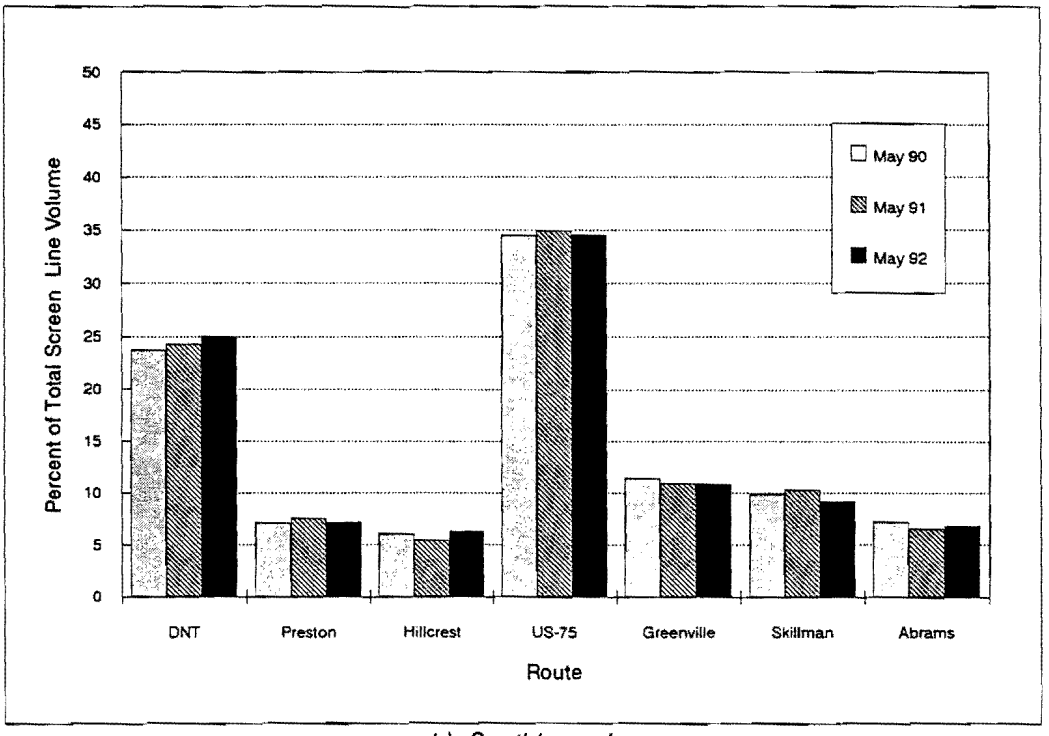


b) Southbound

Figure B-8. Percent of Total Screen Line Volume by Route:
Loop 12 - P.M. Peak Period

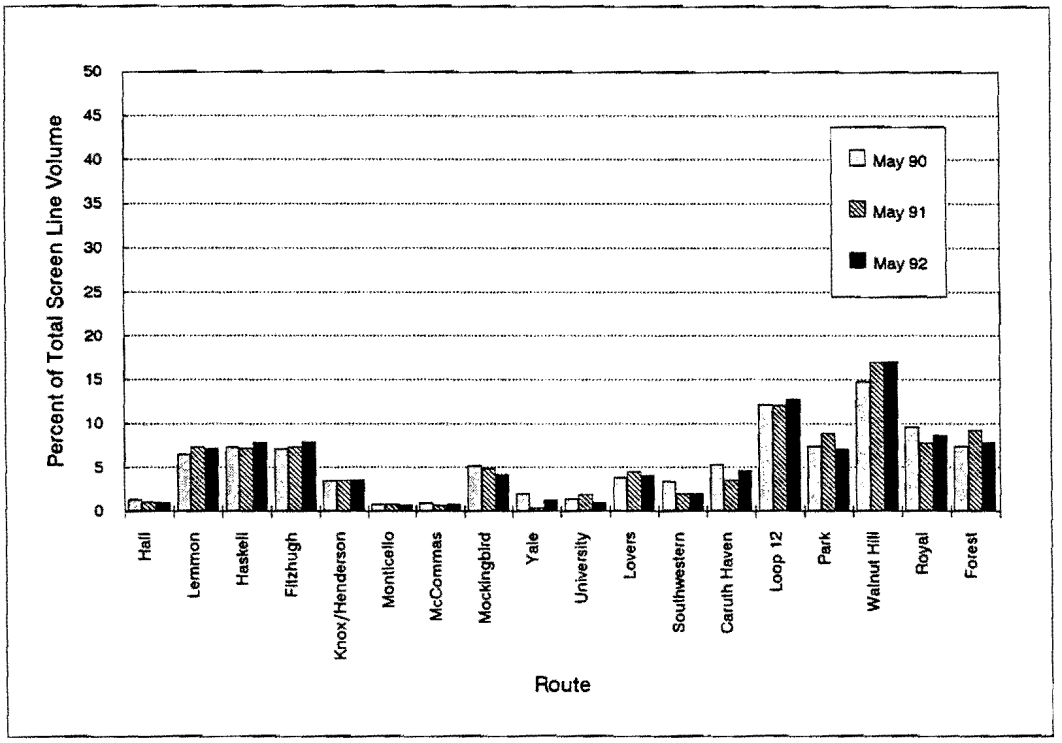


a) Northbound

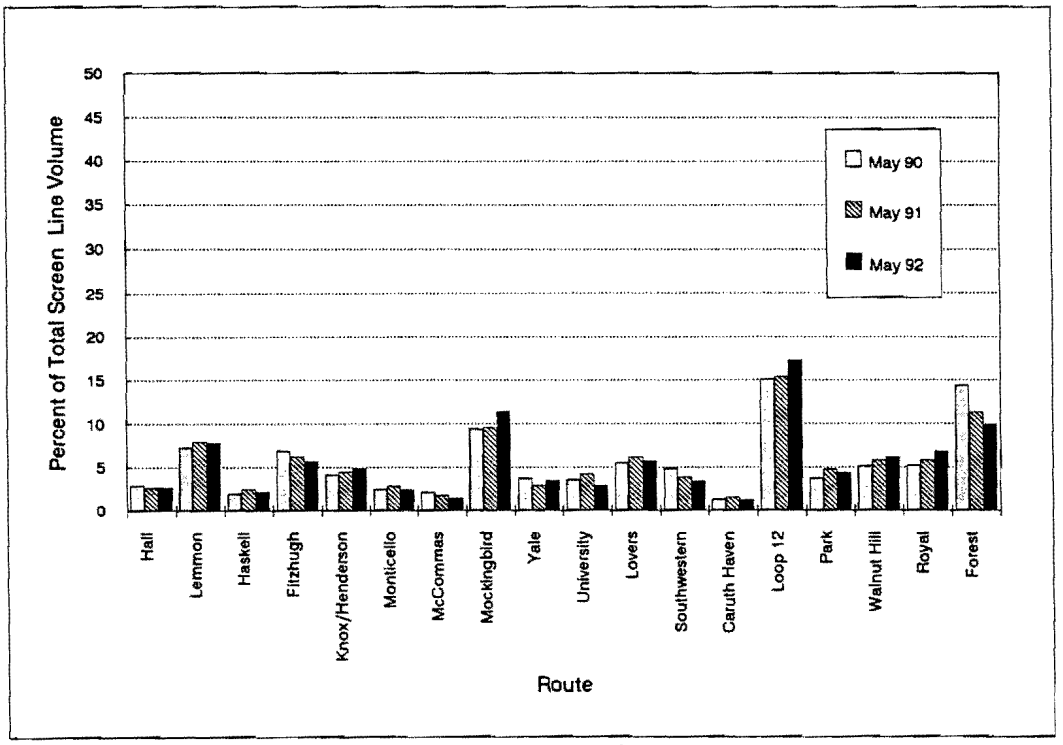


b) Southbound

Figure B-9. Percent of Total Screen Line Volume by Route:
Loop 12 - 24 Hour Period

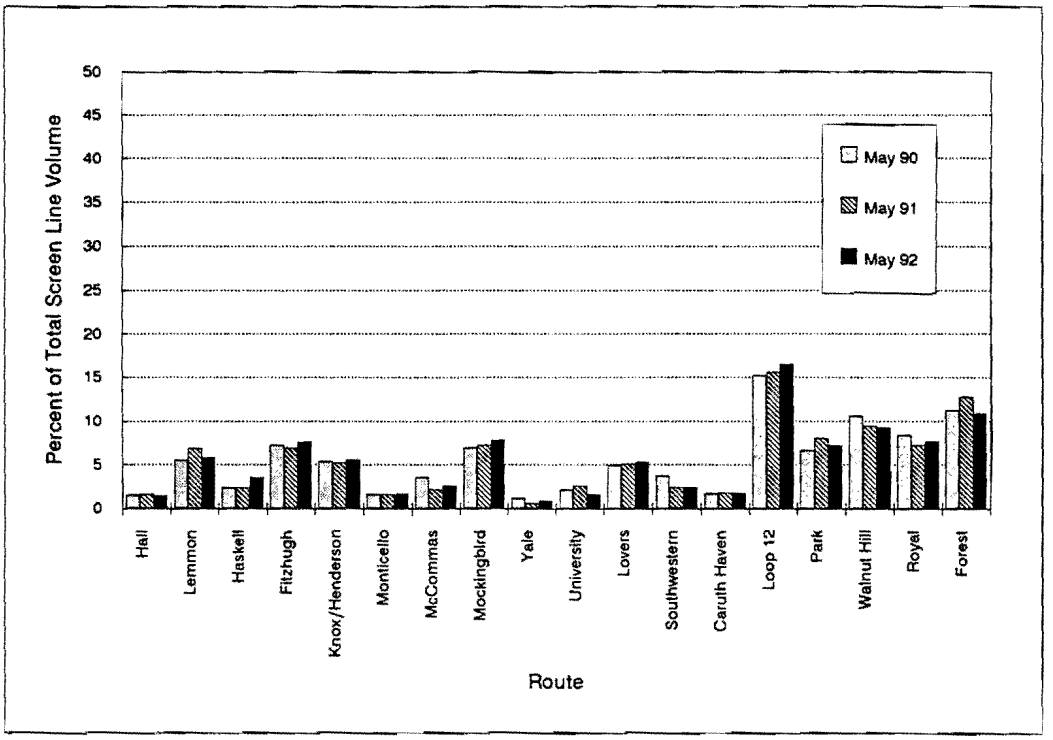


a) Eastbound

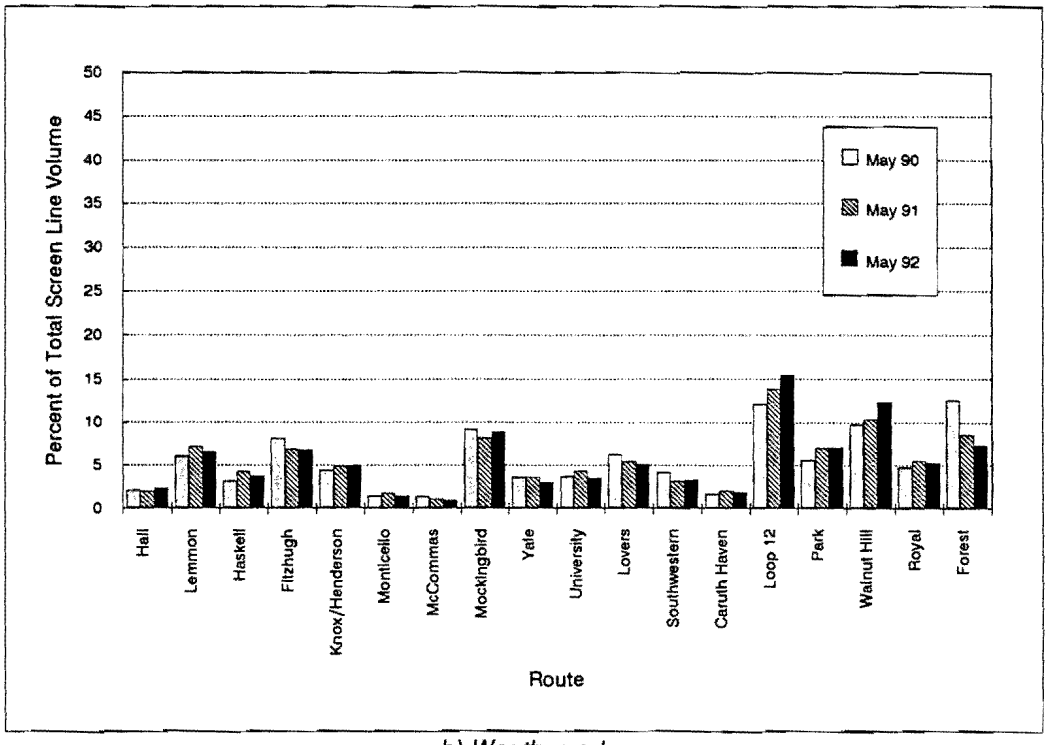


b) Westbound

Figure B-10. Percent of Total Screen Line Volume by Route:
US-75 - A.M. Peak Period

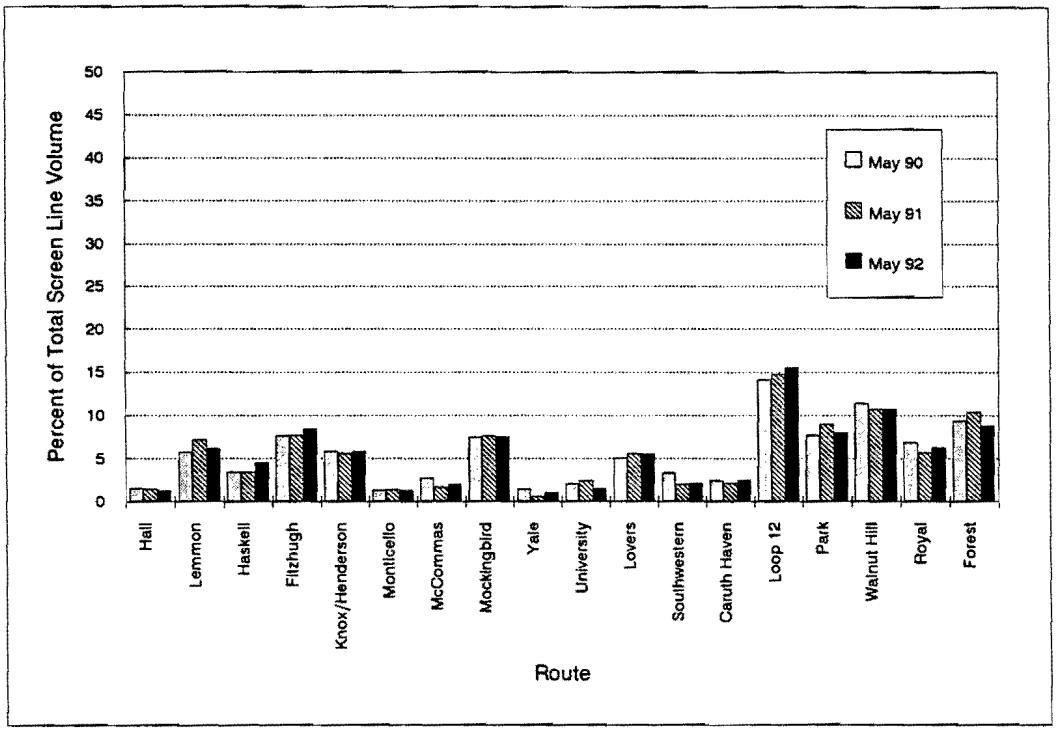


a) Eastbound

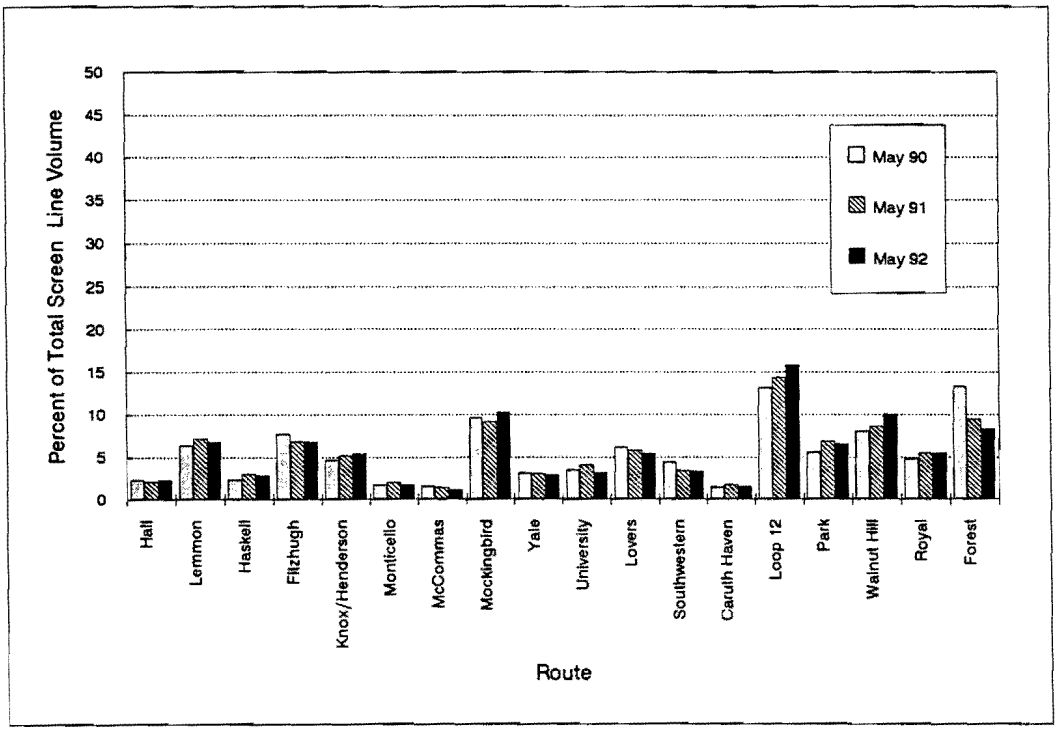


b) Westbound

Figure B-11. Percent of Total Screen Line Volume by Route:
US-75 - P.M. Peak Period



a) Eastbound

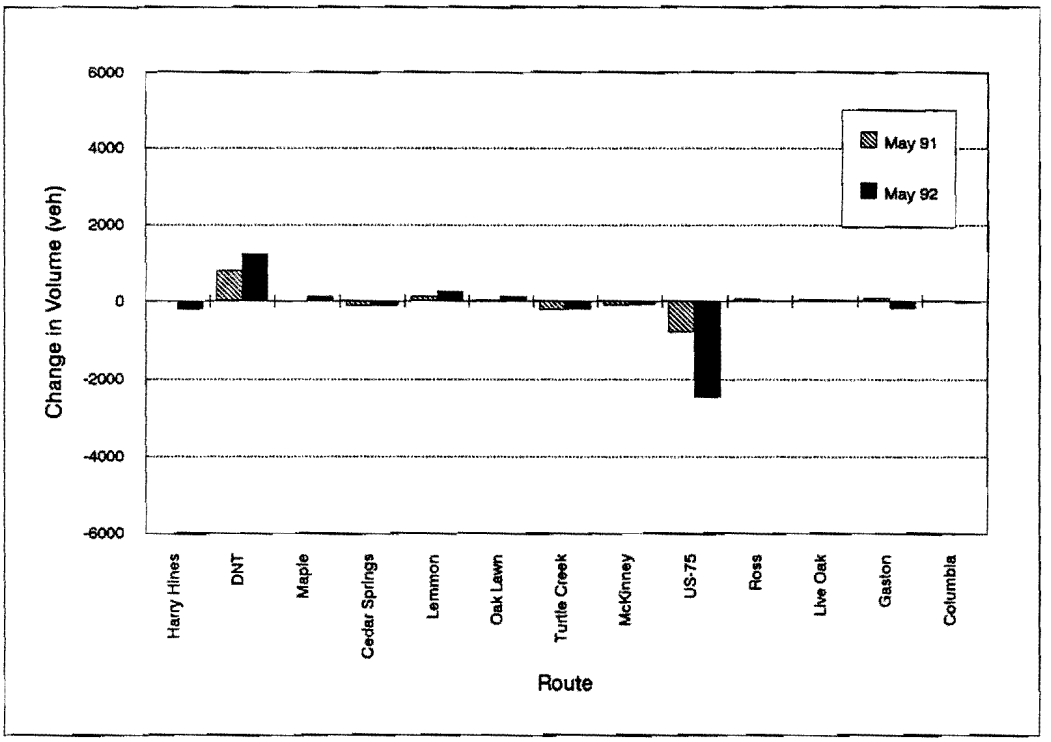


b) Westbound

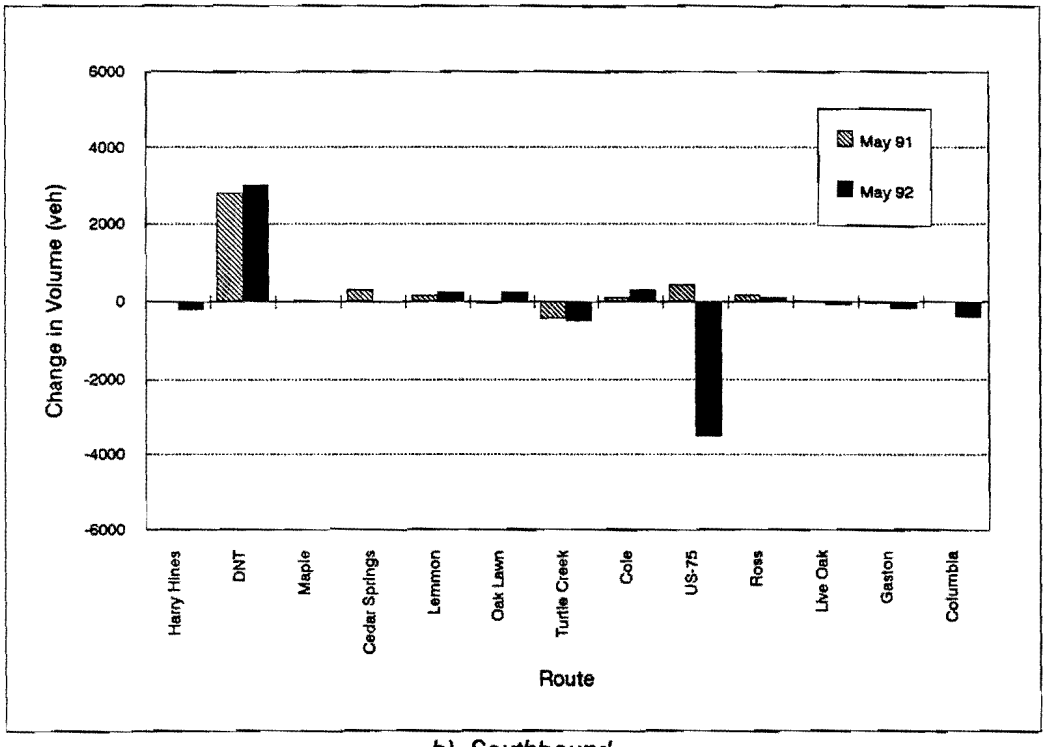
Figure B-12. Percent of Total Screen Line Volume by Route:
US-75 - 24 Hour Period

APPENDIX C

MAY 1992 TRAFFIC VOLUME CHANGES

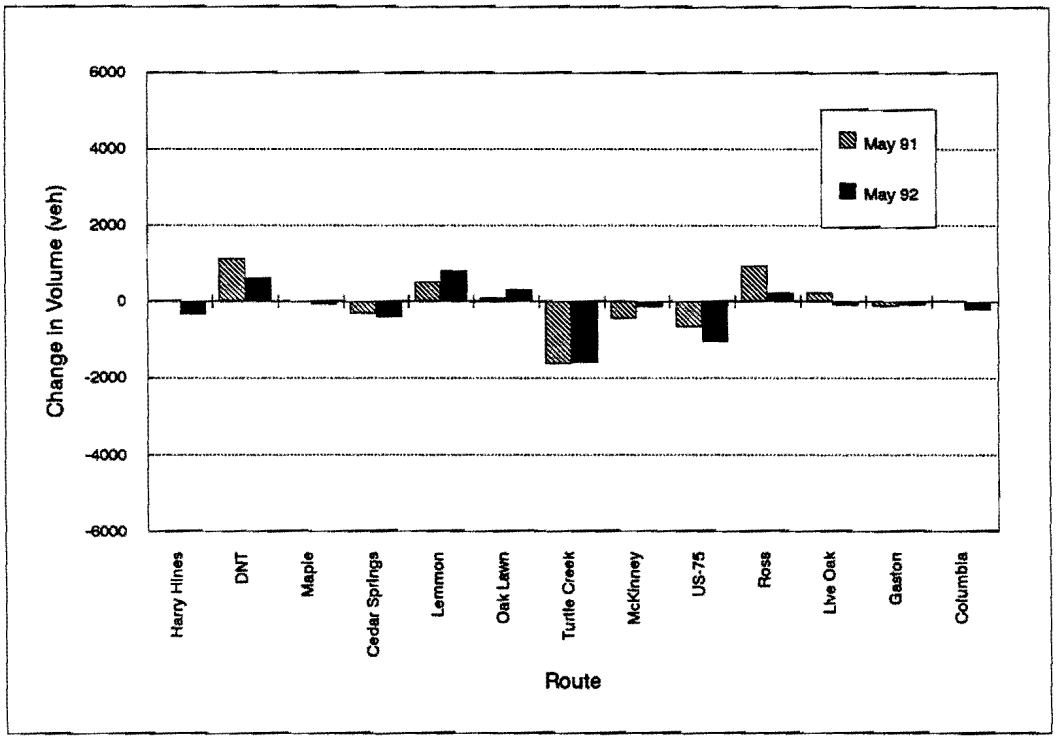


a) Northbound

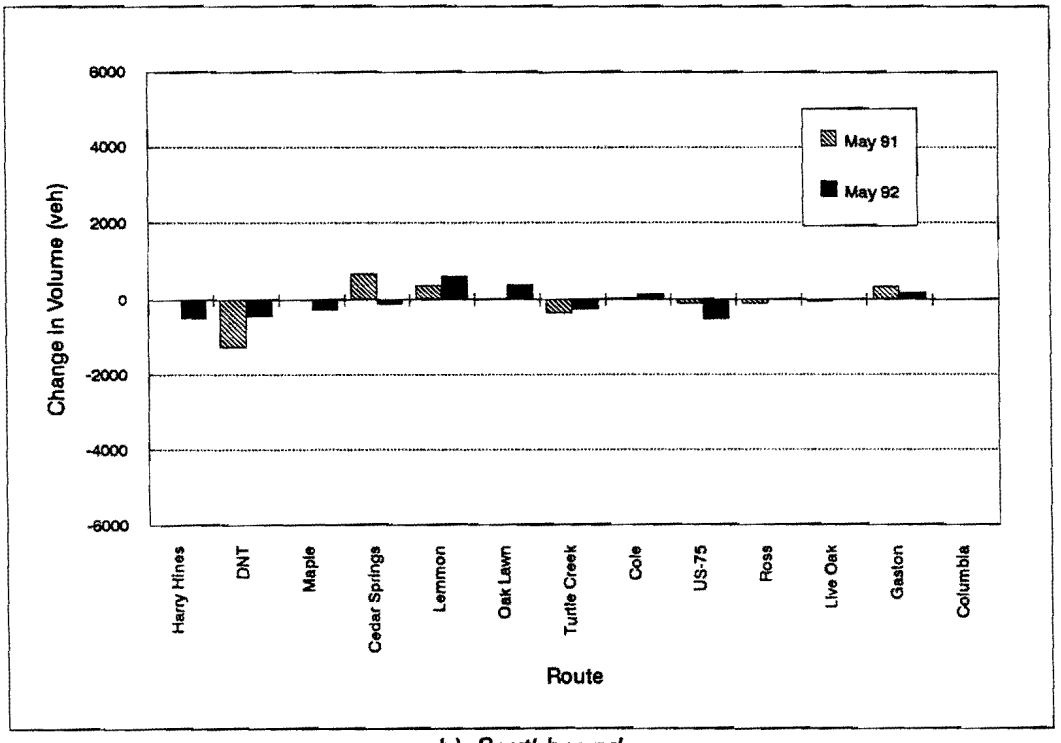


b) Southbound

Figure C-1. Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - A.M. Peak Period

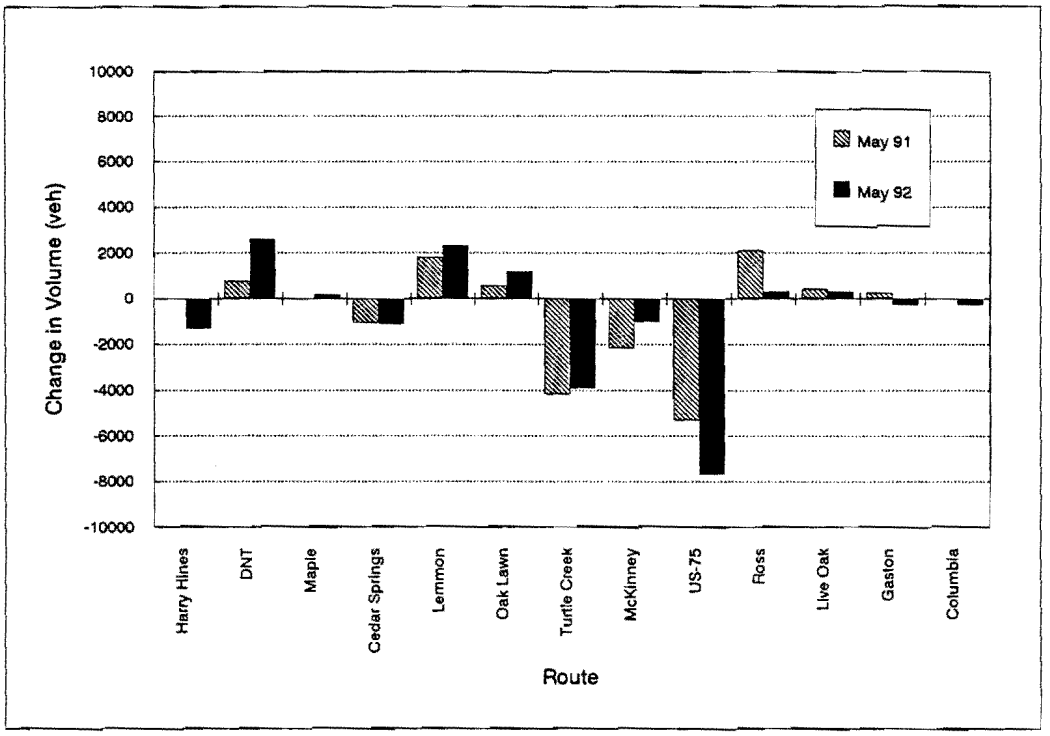


a) Northbound

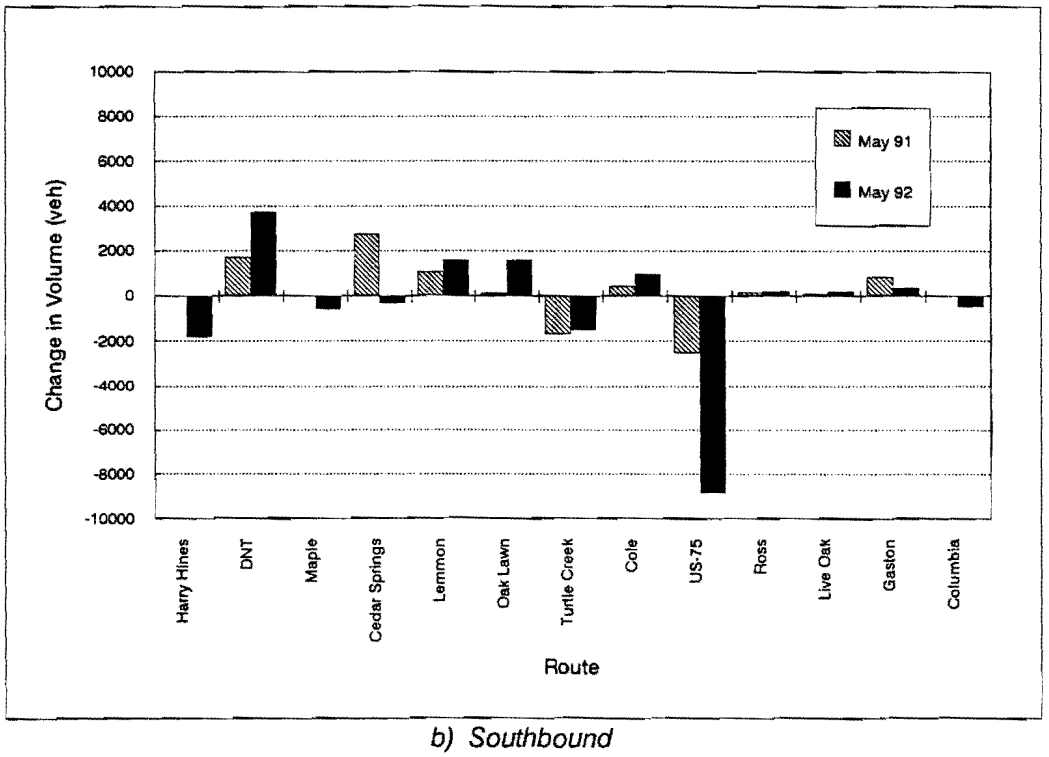


b) Southbound

Figure C-2. Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - P.M. Peak Period

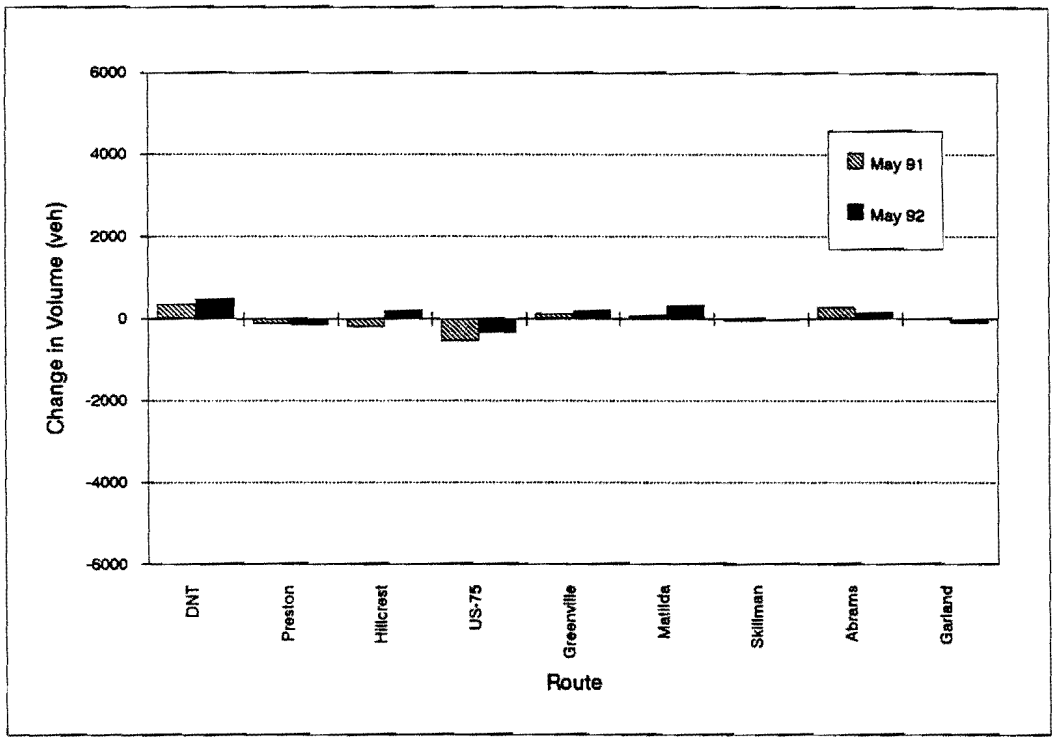


a) Northbound

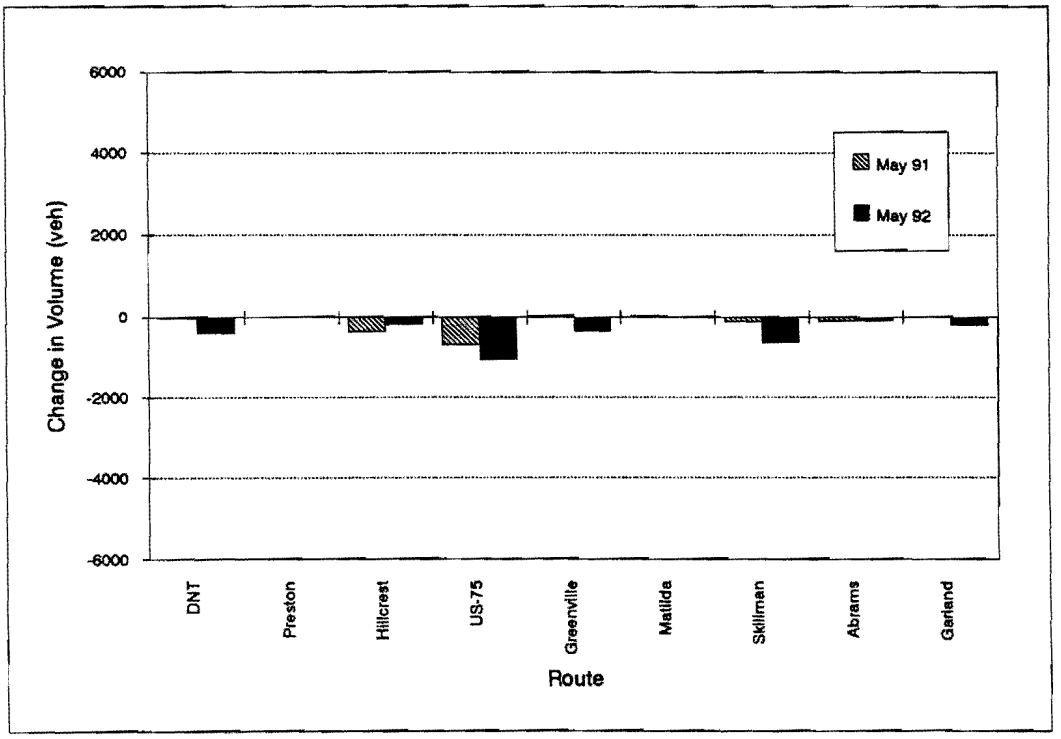


b) Southbound

Figure C-3. Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - 24 Hour Period

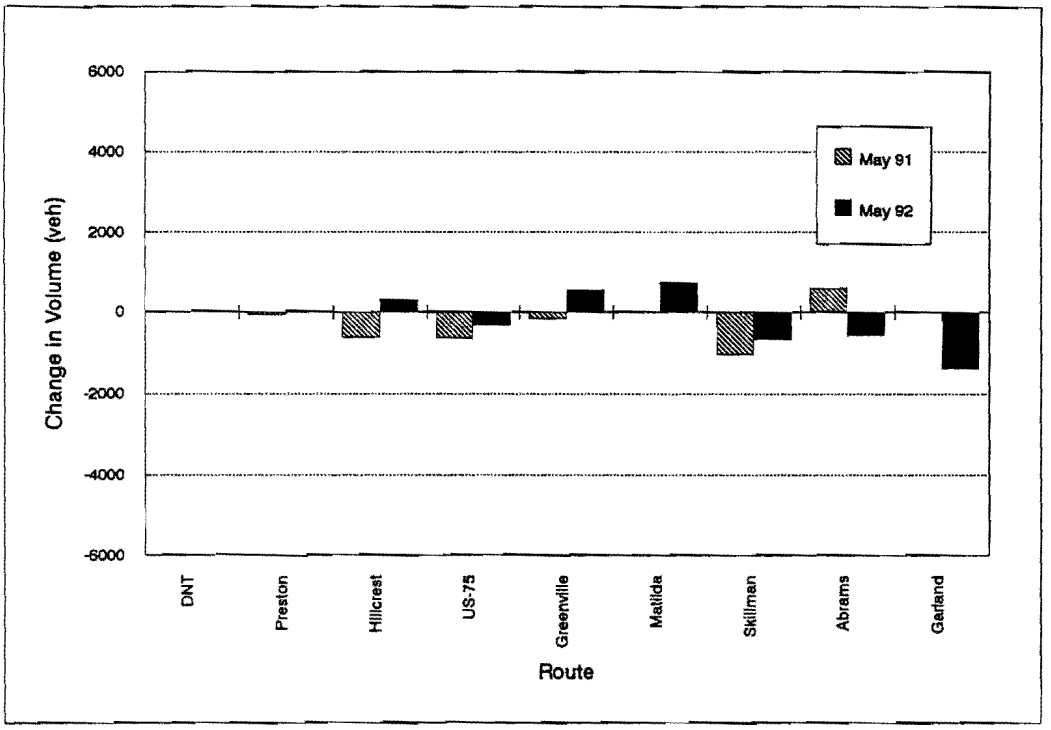


a) Northbound

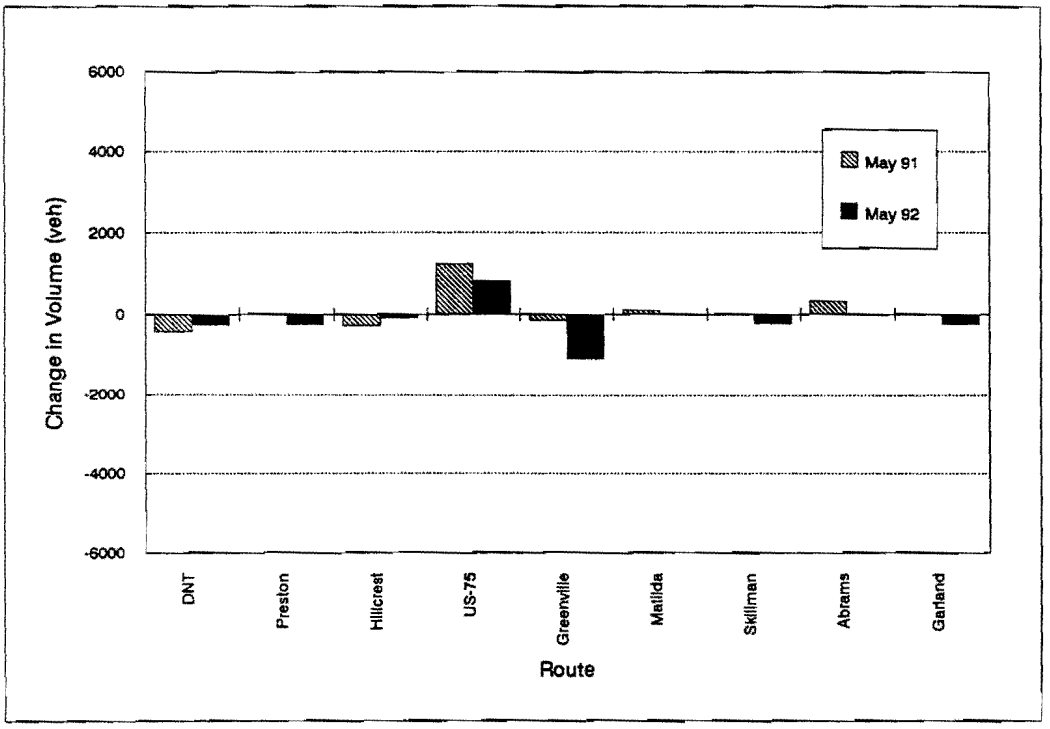


b) Southbound

Figure C-4. Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - A.M. Peak Period

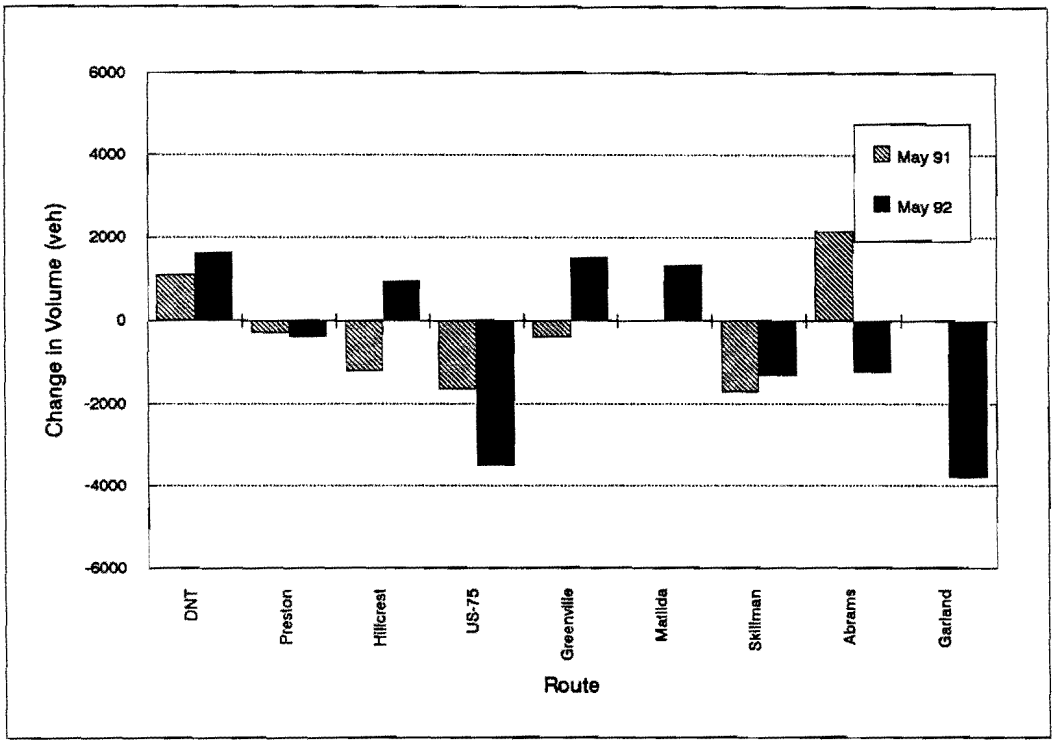


a) Northbound

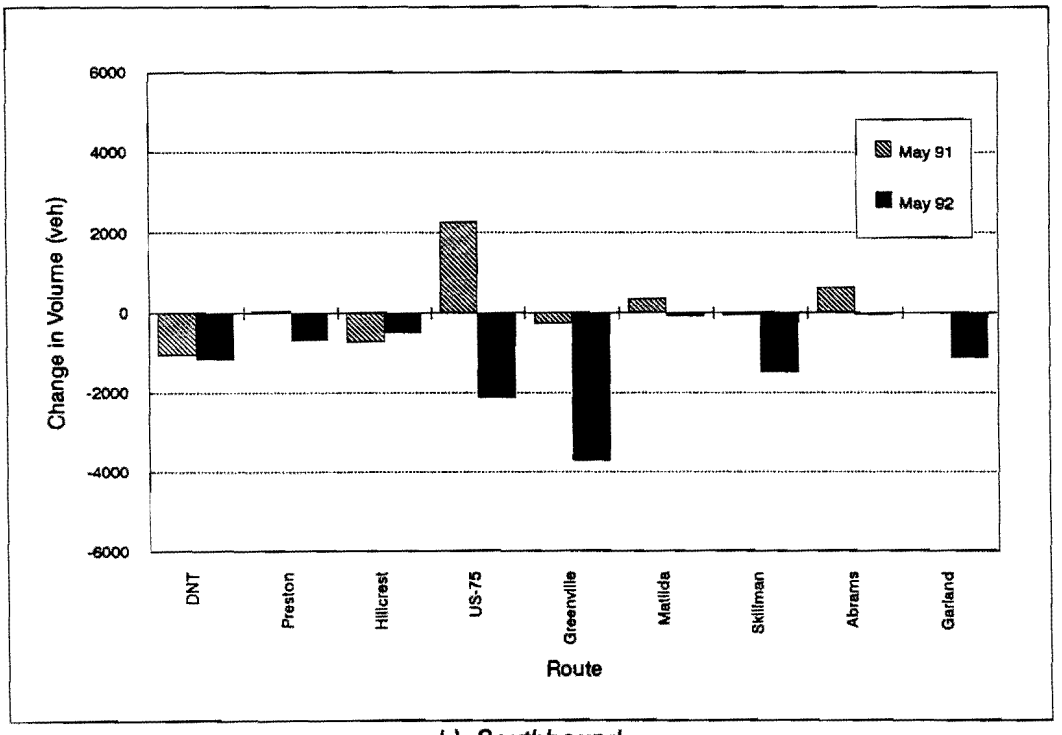


b) Southbound

Figure C-5. Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - P.M. Peak Period

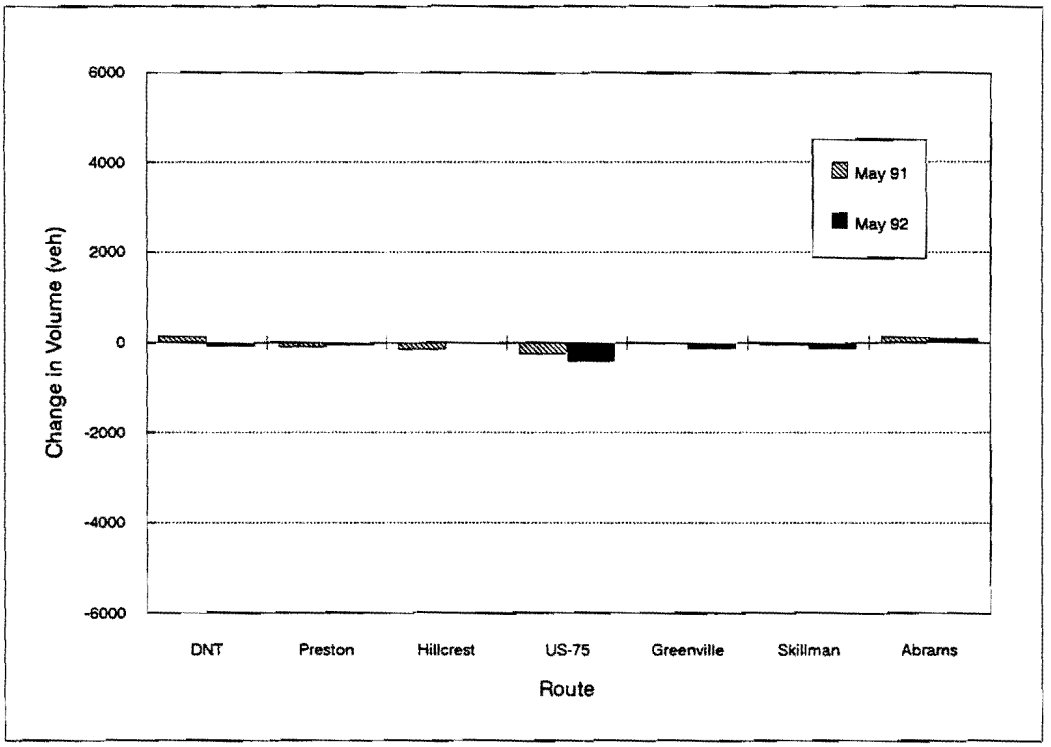


a) Northbound

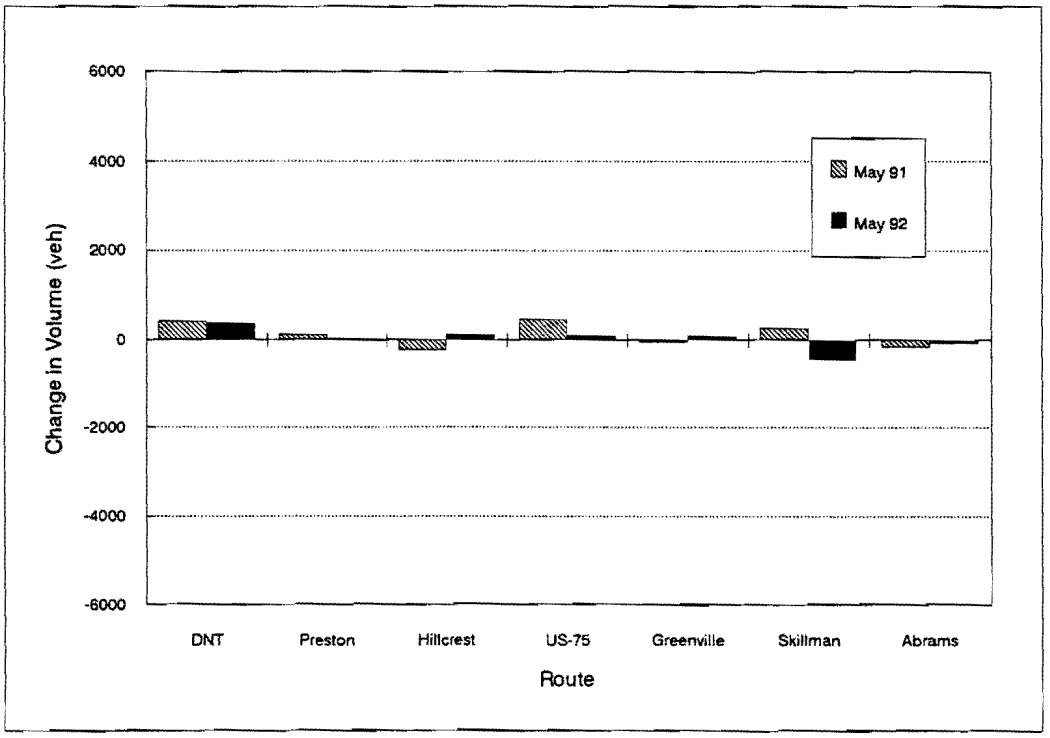


b) Southbound

Figure C-6. Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - 24 Hour Period

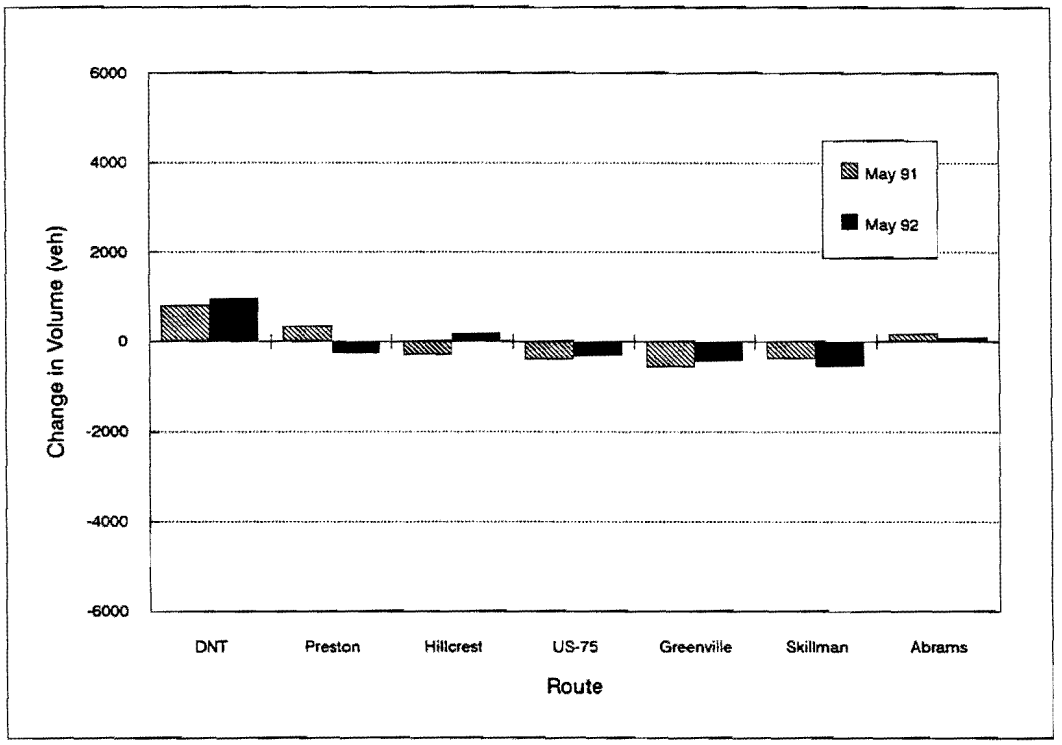


a) Northbound

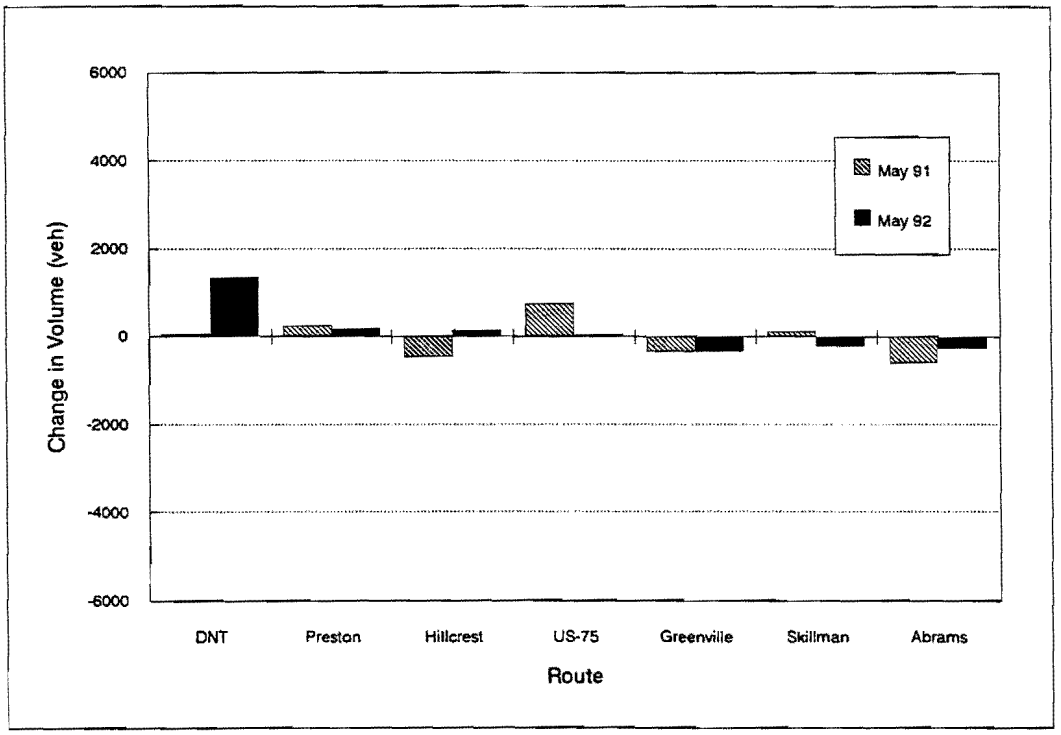


b) Southbound

Figure C-7. Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - A.M. Peak Period

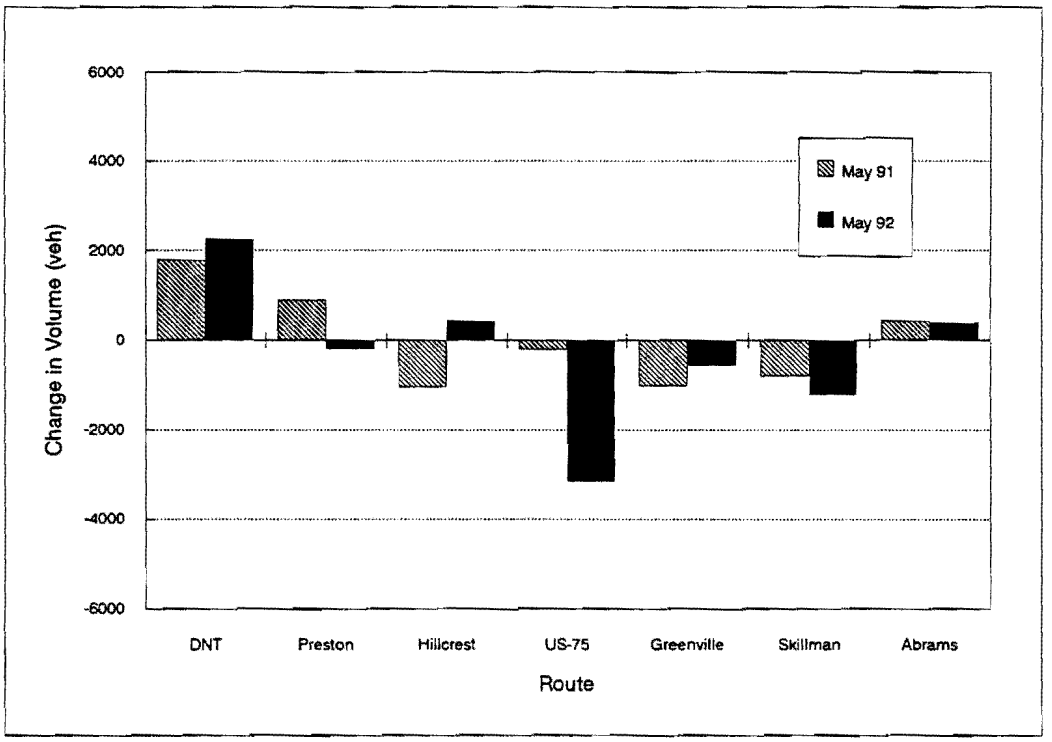


a) Northbound

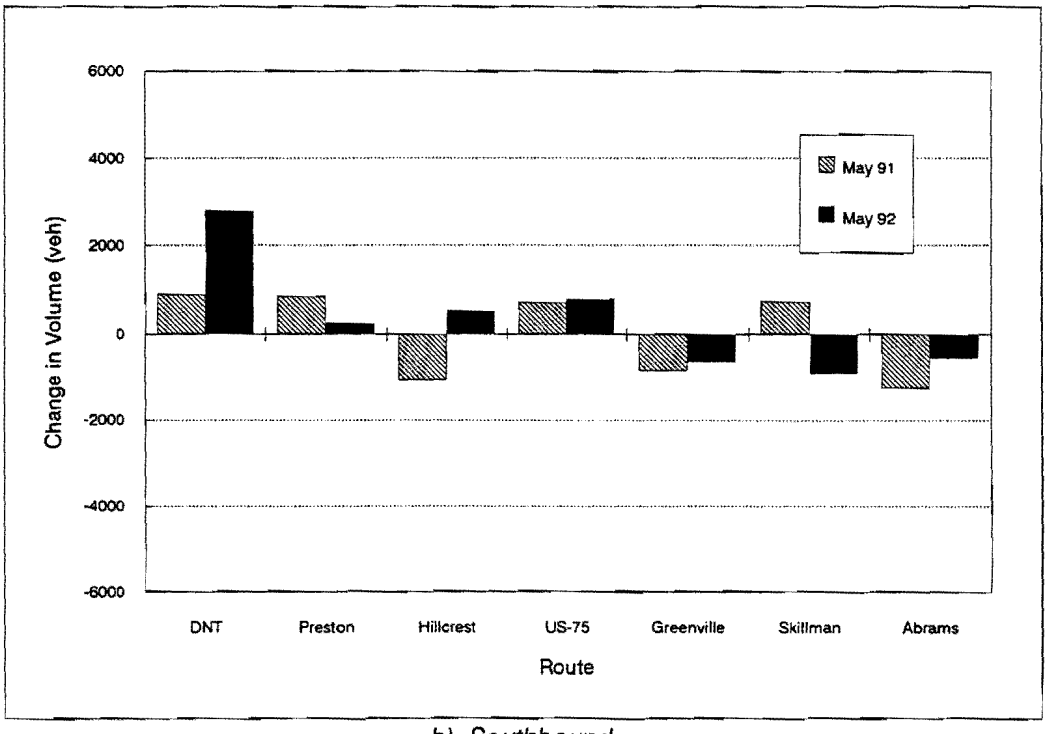


b) Southbound

Figure C-8. Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - P.M. Peak Period

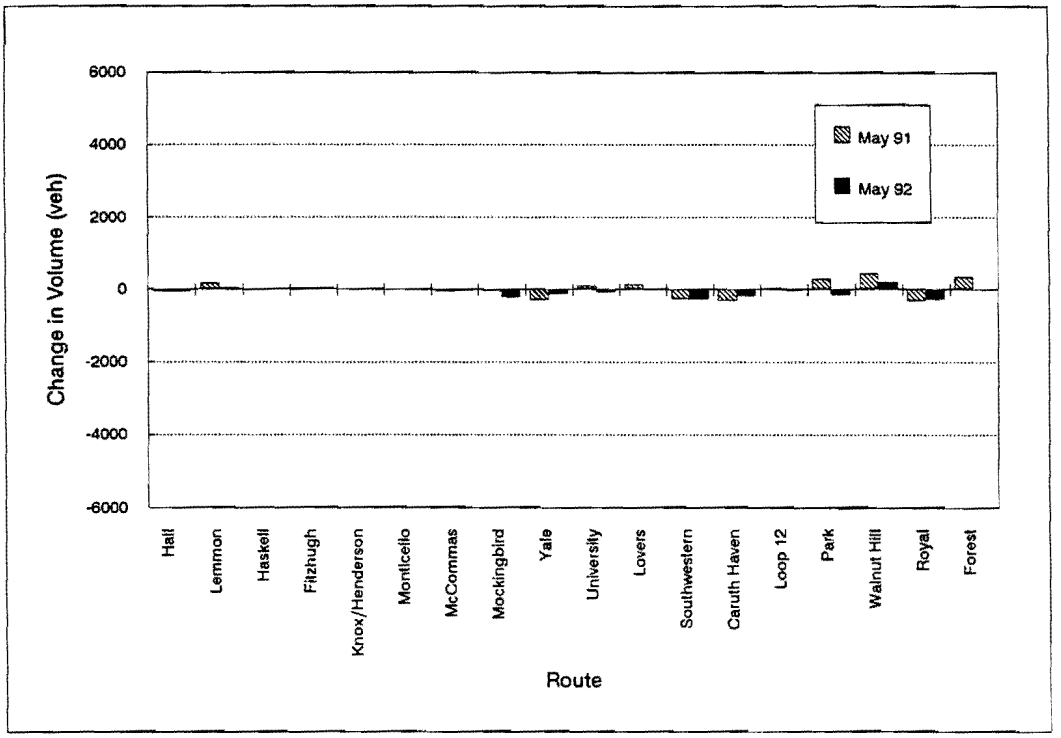


a) Northbound

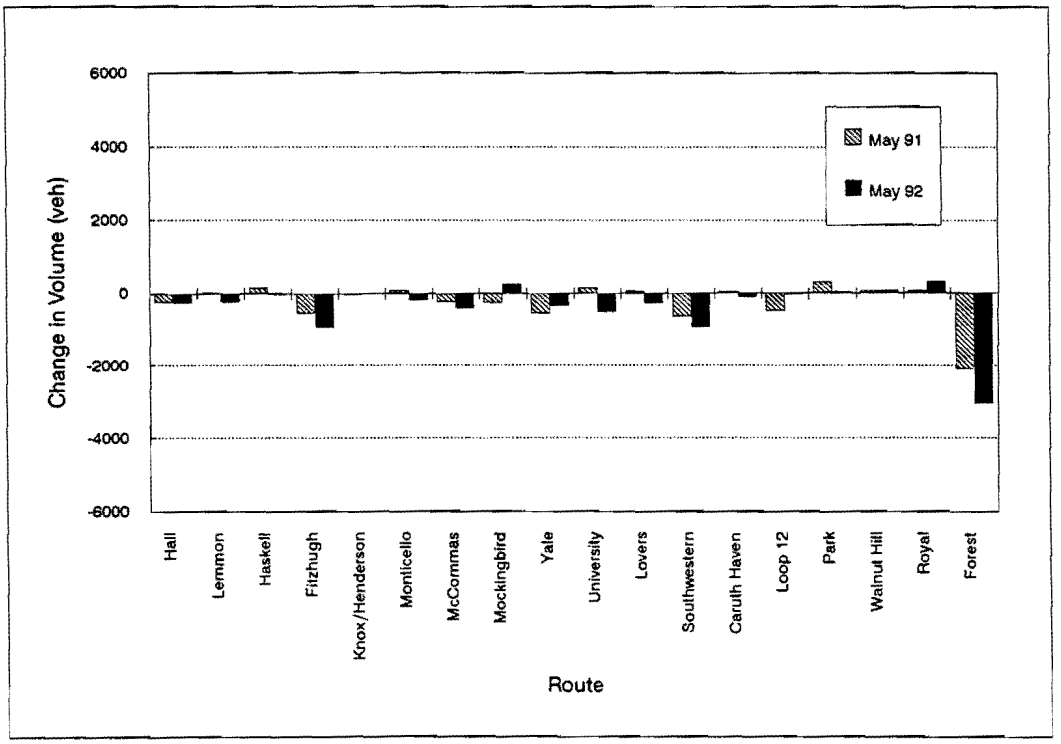


b) Southbound

Figure C-9. Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - 24 Hour Period

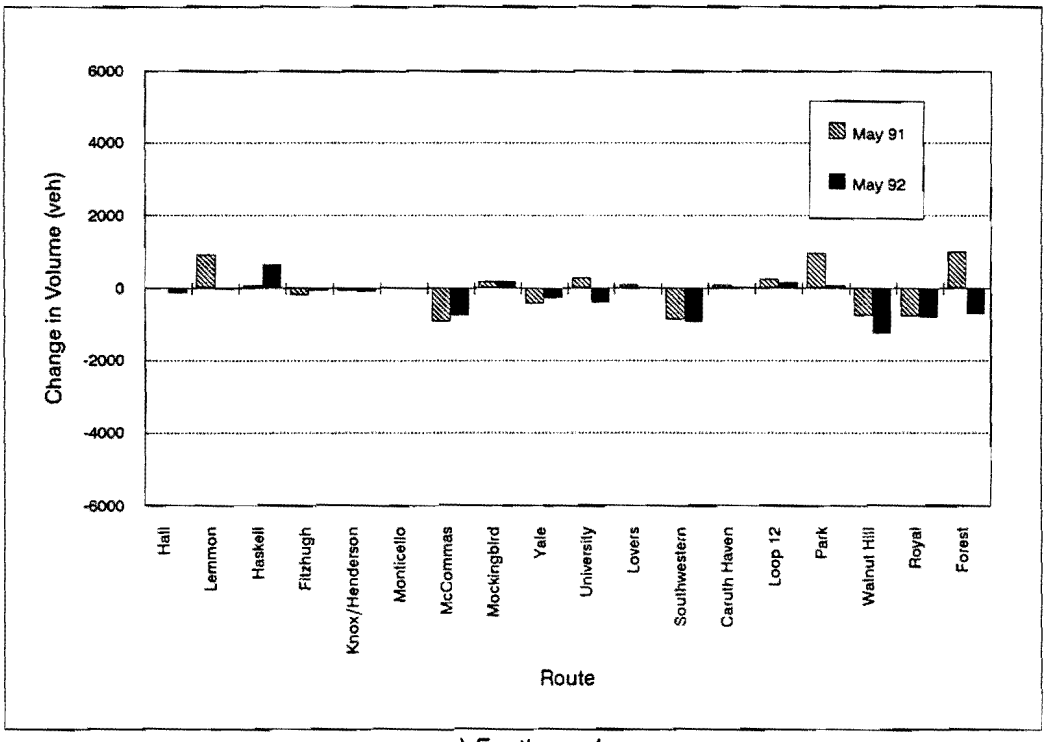


a) Eastbound

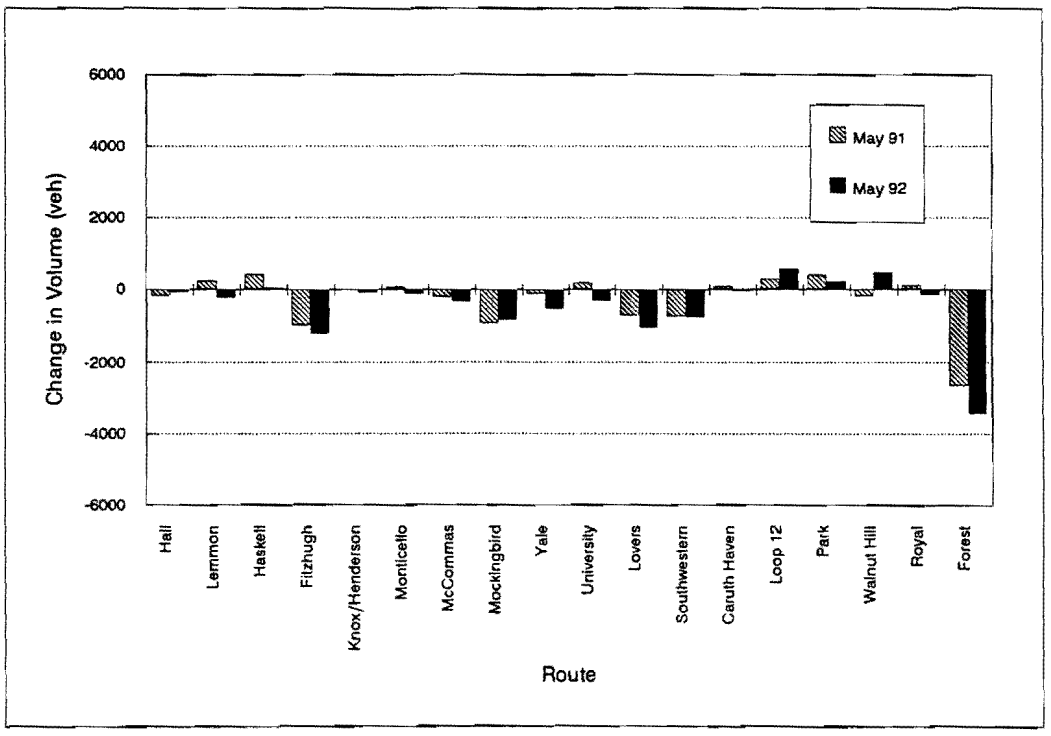


b) Westbound

Figure C-10. Change in Volume by Route as Compared to May 1990: US-75 Screen Line - A.M. Peak Period

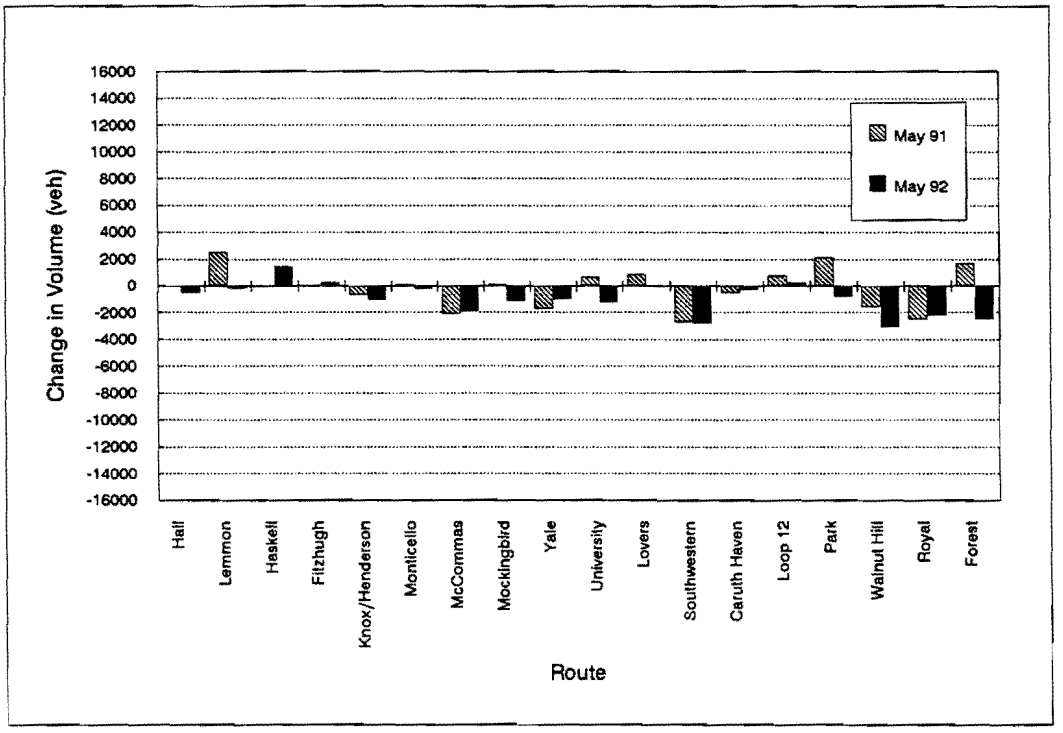


a) Eastbound

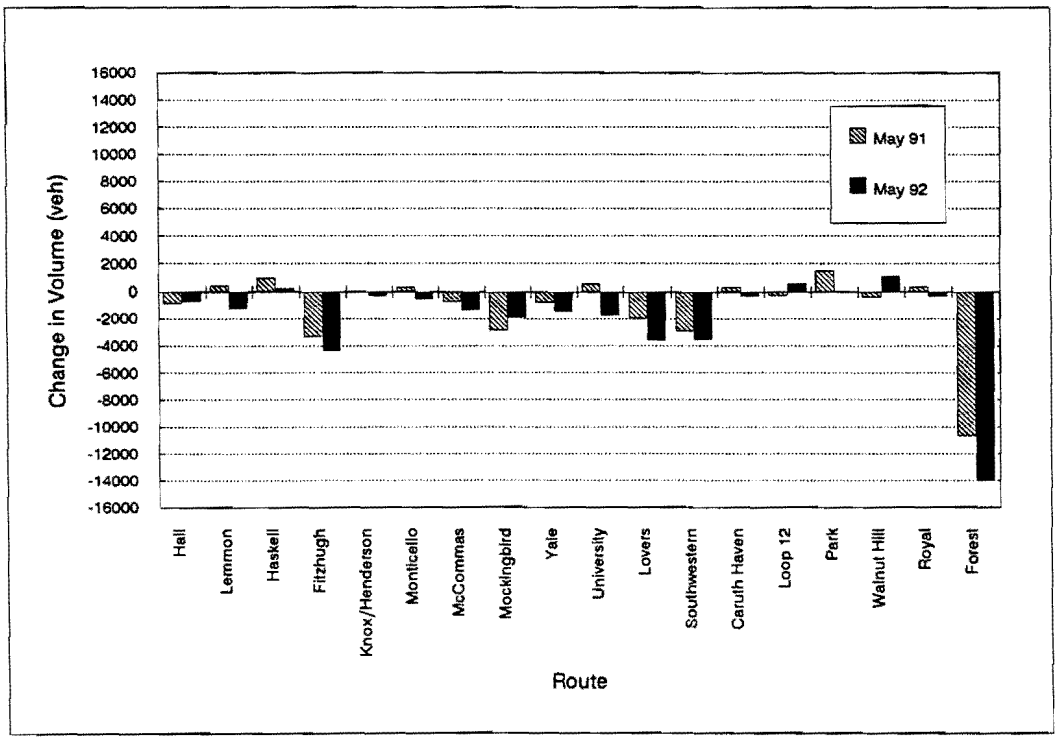


b) Westbound

Figure C-11. Change in Volume by Route as Compared to May 1990: US-75 Screen Line - P.M. Peak Period



a) Eastbound



b) Westbound

Figure C-12. Change in Volume by Route as Compared to May 1990: US-75 Screen Line - 24 Hour Period

APPENDIX D

MAY 1992 AVERAGE TRAVEL TIMES

TABLE D-1. Peak Period, Peak Direction Total Travel Time on North-South Routes (May 1992)

Run Beginning		Travel Time (min)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period South-bound	6:00	12.15	19.07	22.43	9.54	18.17	18.65	17.25	19.97	17.87
	6:30	10.67	22.98	21.50	9.57	19.48	19.42	17.97	19.82	20.97
	7:00	10.77	26.17	25.30	11.32	21.98	17.37	20.45	25.07	21.20
	7:30	12.12	27.02	27.40	22.93	25.23	24.83	21.28	25.73	21.87
	8:00	16.37	30.75	28.40	20.13	26.05	24.97	21.82	25.07	23.50
	8:30	14.77	28.18	28.67	15.15	21.92	24.92	15.73	23.97	19.80
	9:00	10.90	27.35	25.10	11.49	20.55	19.92	17.17	22.30	20.97
P.M. Peak Period North-bound	3:00	12.53	27.68	28.12	12.32	20.12	22.77	21.43	21.32	19.38
	3:30	11.92	28.07	31.72	11.38	23.95	23.37	21.88	23.02	17.48
	4:00	11.48	27.17	26.33	12.64	26.13	24.13	22.63	23.97	19.62
	4:30	11.75	26.07	26.58	13.81	23.28	24.85	20.13	23.33	19.10
	5:00	15.18	33.57	27.30	17.64	35.63	30.42	21.05	26.38	22.60
	5:30	20.73	29.92	29.98	19.98	32.92	28.82	24.52	22.88	25.25
	6:00	17.58	27.78	28.07	19.07	26.18	20.72	19.83	23.97	22.82
	6:30	12.65	25.58	28.63	15.13	21.40	20.00	19.90	23.62	23.38
	7:00	10.77	24.68	24.18	10.33	21.12	19.95	20.43	21.13	20.03

TABLE D-2. Peak Period, Off-Peak Direction Total Travel Time on North-South Routes (May 1992)

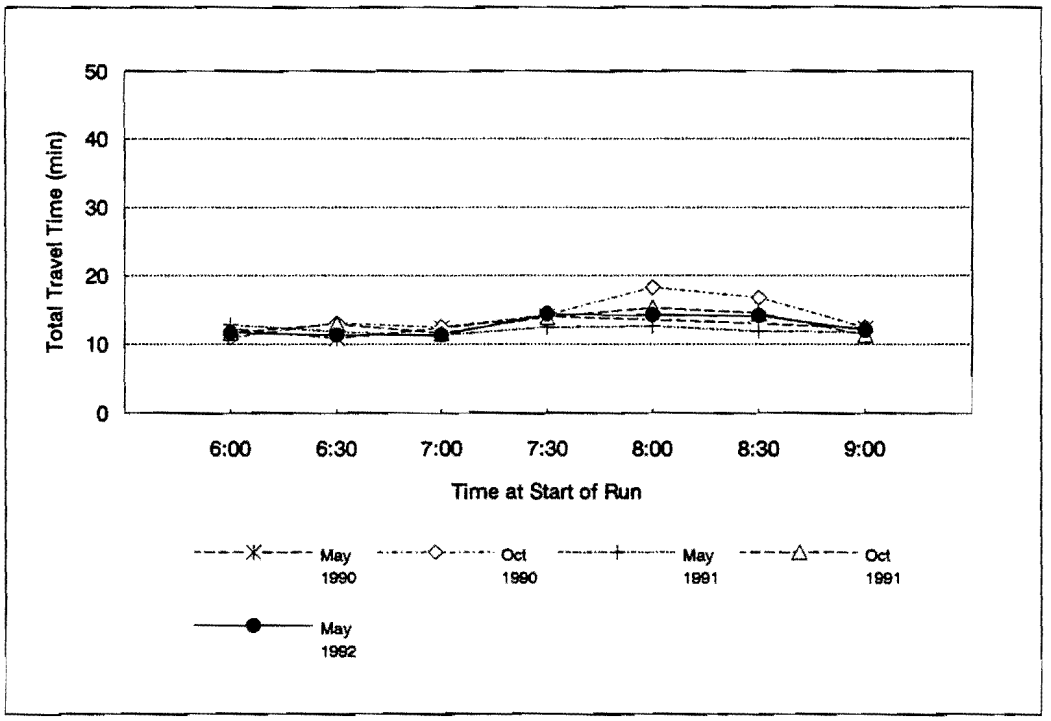
Run Beginning		Travel Time (min)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period Northbound	6:00	11.75	20.58	25.45	9.37	19.38	20.50	17.88	21.40	17.10
	6:30	11.33	19.93	22.90	9.99	27.73	17.47	20.95	19.15	20.12
	7:00	11.33	23.68	28.08	9.88	24.75	20.27	23.42	20.58	19.33
	7:30	14.42	24.38	29.07	13.71	27.67	23.73	22.32	24.95	21.52
	8:00	14.28	27.13	29.33	12.62	27.87	26.73	21.02	25.05	21.10
	8:30	14.18	28.98	27.55	11.46	29.05	27.25	23.43	23.62	21.47
	9:00	12.13	22.00	26.85	10.71	21.63	19.80	18.18	19.57	18.10
P.M. Peak Period Southbound	3:00	12.67	26.93	25.88	13.13	22.73	21.27	18.15	25.42	22.23
	3:30	11.63	23.87	29.48	12.47	28.72	22.62	17.17	21.53	21.53
	4:00	13.25	27.27	25.40	11.73	27.12	24.38	23.33	23.75	20.65
	4:30	11.37	26.92	28.78	13.48	30.98	22.37	20.27	23.45	25.45
	5:00	29.40	25.33	26.95	12.92	31.17	26.10	21.93	22.32	23.43
	5:30	24.30	25.22	26.62	16.82	30.07	24.50	23.02	26.82	22.85
	6:00	25.75	26.87	25.00	18.62	29.70	23.73	20.62	20.30	28.82
	6:30	16.22	22.35	23.08	15.03	25.80	20.77	20.58	21.10	22.52
	7:00	11.27	24.08	23.55	10.92	21.18	18.97	18.77	22.35	21.25

TABLE D-3. Peak Period Total Travel Time on East-West Routes (May 1992)

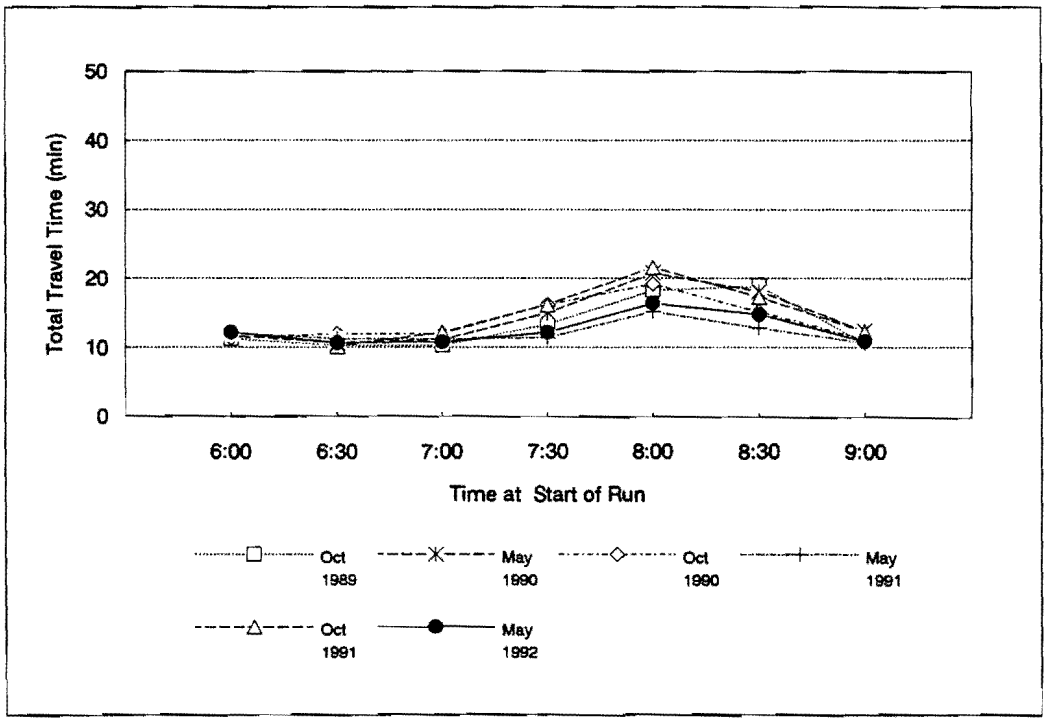
Run Beginning		Travel Time (min)			
		Eastbound		Westbound	
		Loop 12	Royal	Loop 12	Royal
A.M. Peak Period	6:00	8.23	14.47	8.90	13.37
	6:30	7.79	12.45	8.12	14.00
	7:00	11.00	13.48	9.57	13.65
	7:30	9.85	14.93	15.60	16.60
	8:00	11.40	16.05	14.53	16.78
	8:30	11.17	15.17	13.07	13.85
	9:00	11.80	15.13	11.65	12.83
P.M. Peak Period	3:00	12.13	16.18	13.80	15.32
	3:30	13.28	14.65	12.37	16.17
	4:00	13.33	15.33	12.08	14.90
	4:30	14.38	16.33	9.37	15.67
	5:00	22.28	16.77	13.67	15.25
	5:30	24.00	17.93	13.48	15.87
	6:00	16.70	19.27	11.40	13.17
	6:30	13.83	16.00	10.07	12.03
	7:00	8.90	13.73	8.35	13.28

TABLE D-4. Off-Peak Period Total Travel Time on US-75 (May 1992)

Run Beginning	Travel Time (min)	
	Northbound	Southbound
10:00 A.M.	10.48	10.38
10:30	9.47	10.14
11:00	9.53	9.93
11:30	9.53	10.75
12:00 P.M.	9.96	10.91
12:30	10.14	11.01
1:00	9.97	10.85
1:30	11.48	11.89

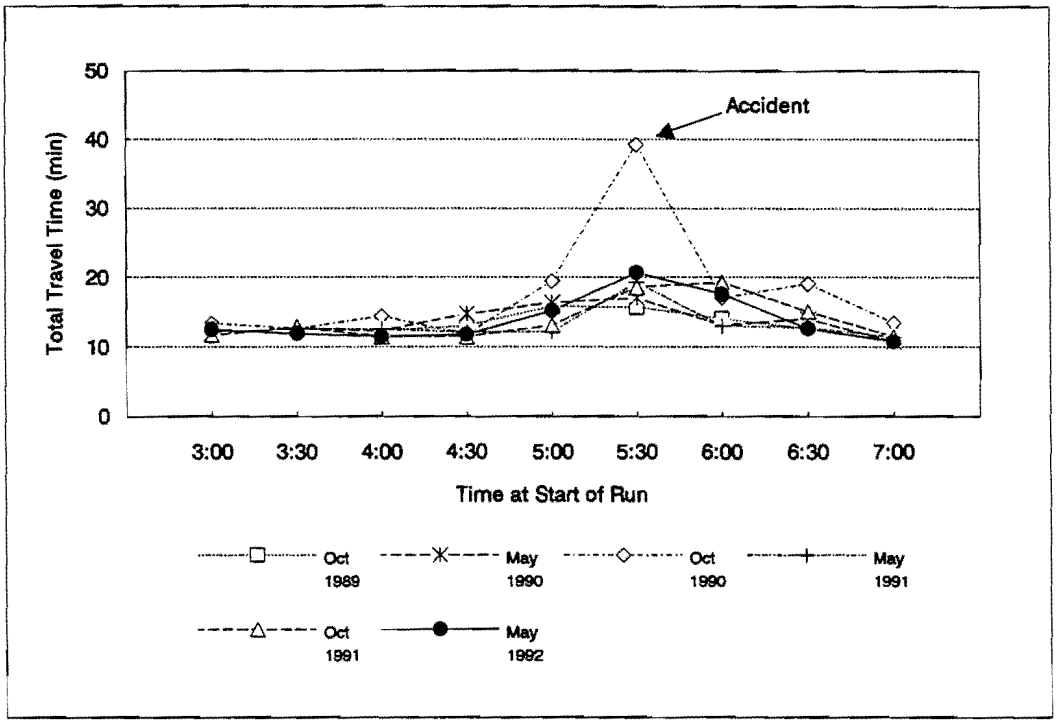


(a) Northbound

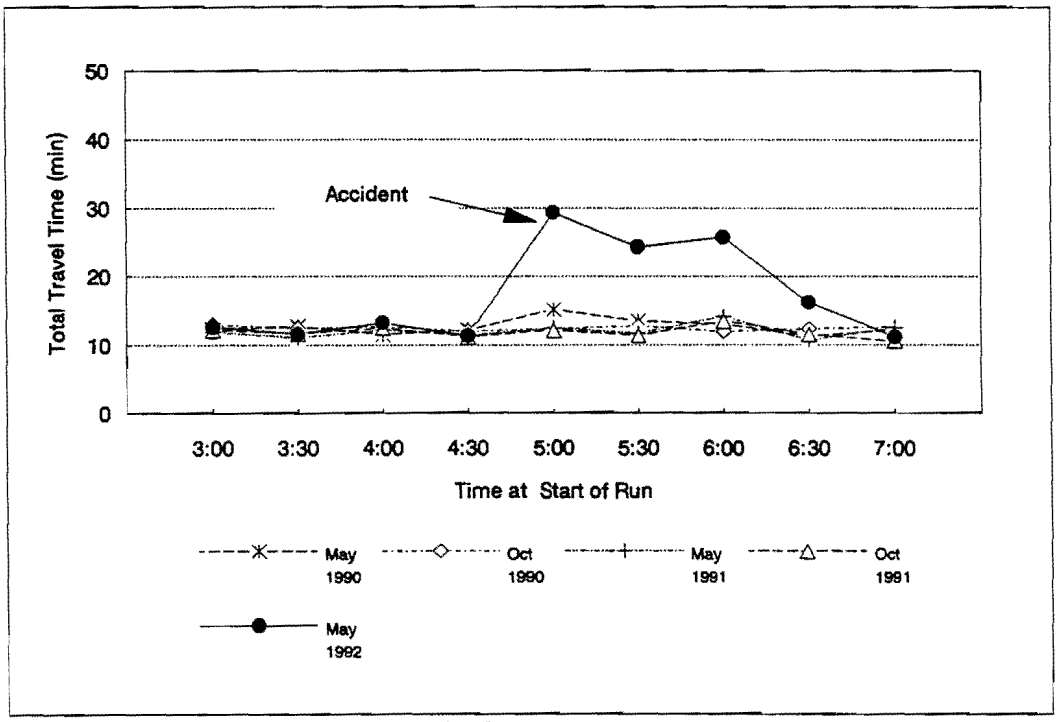


(b) Southbound

Figure D-1. A.M. Peak Period Total Travel Time Between I-635 and CBD: DNT

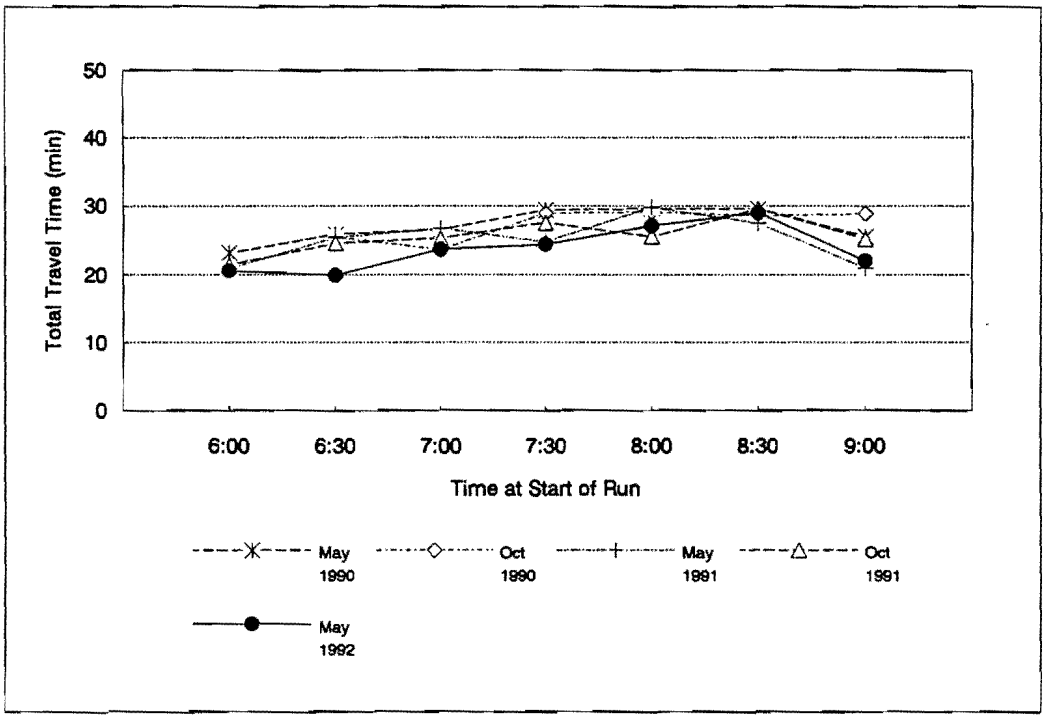


(a) Northbound

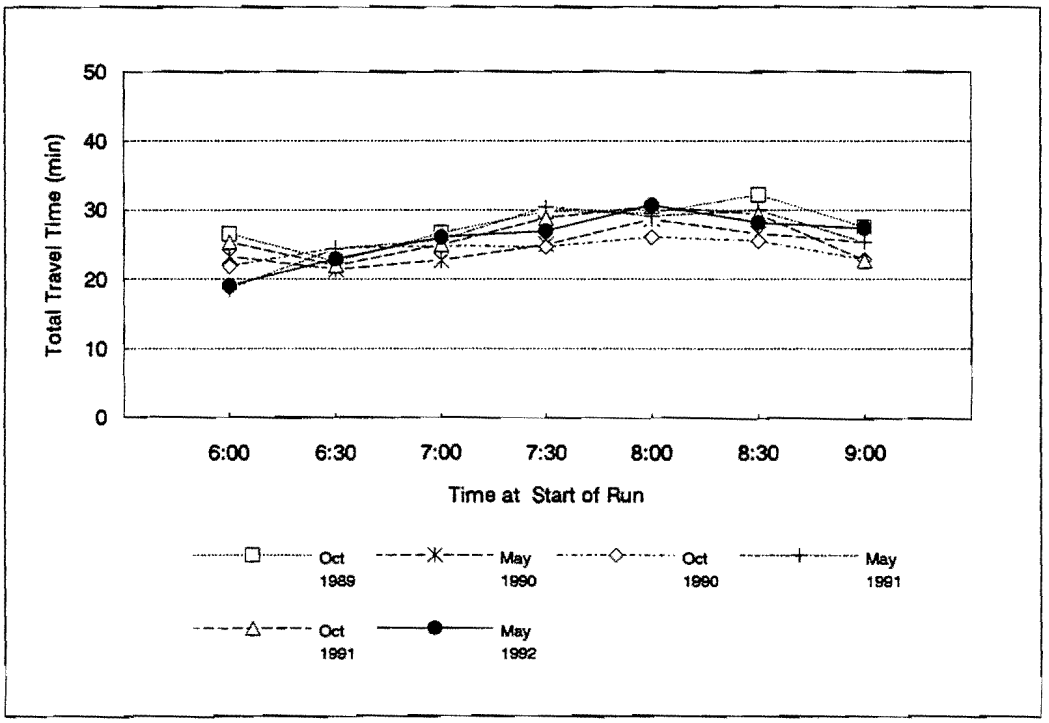


(b) Southbound

Figure D-2. P.M. Peak Period Total Travel Time Between I-635 and CBD: DNT

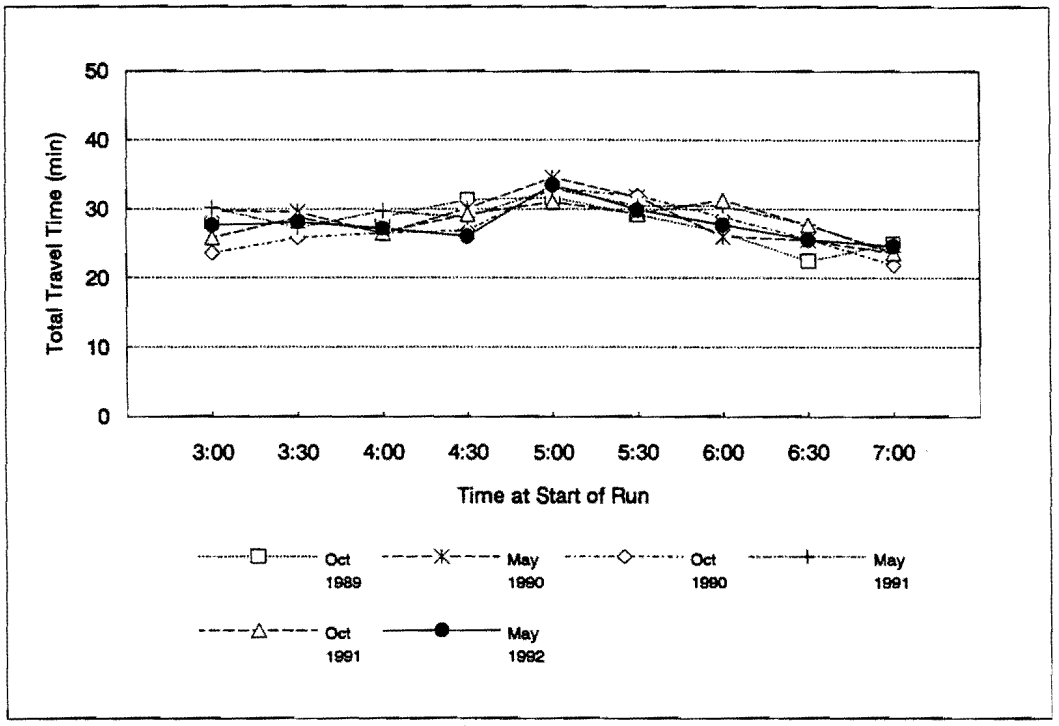


(a) Northbound

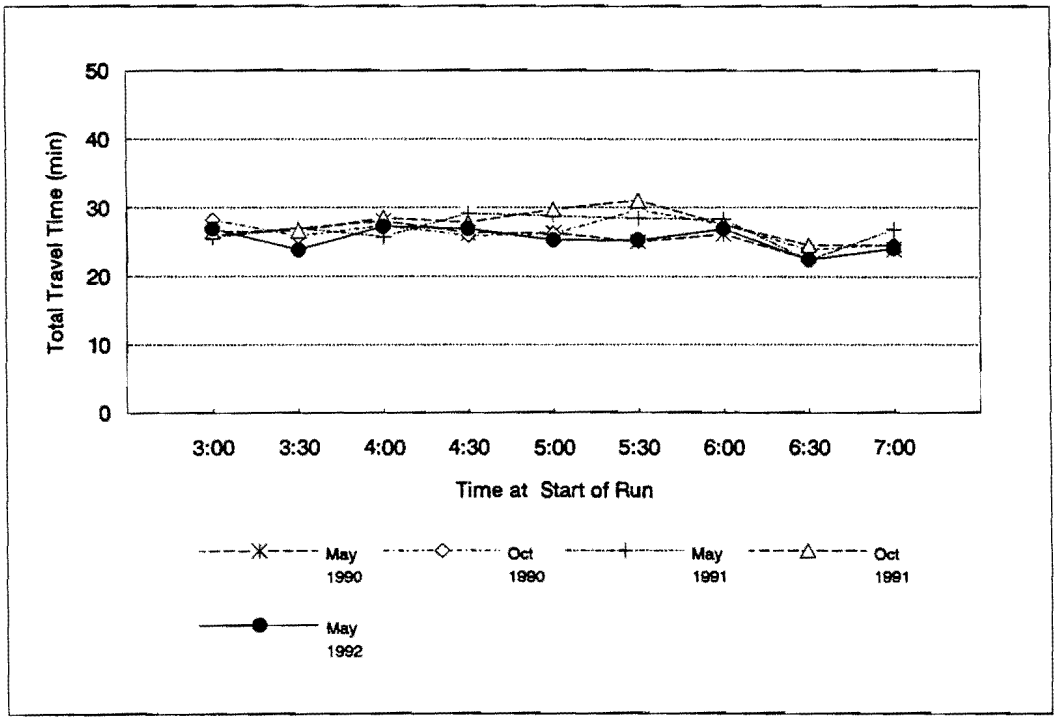


(b) Southbound

Figure D-3. A.M. Peak Period Total Travel Time Between I-635 and CBD: Preston

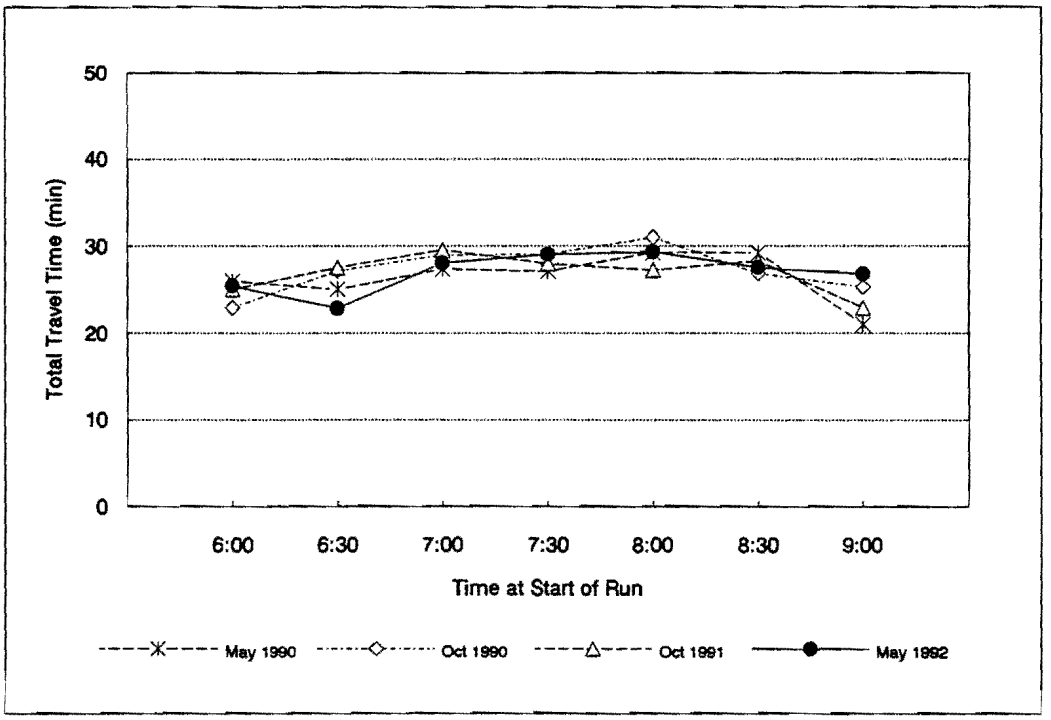


(a) Northbound

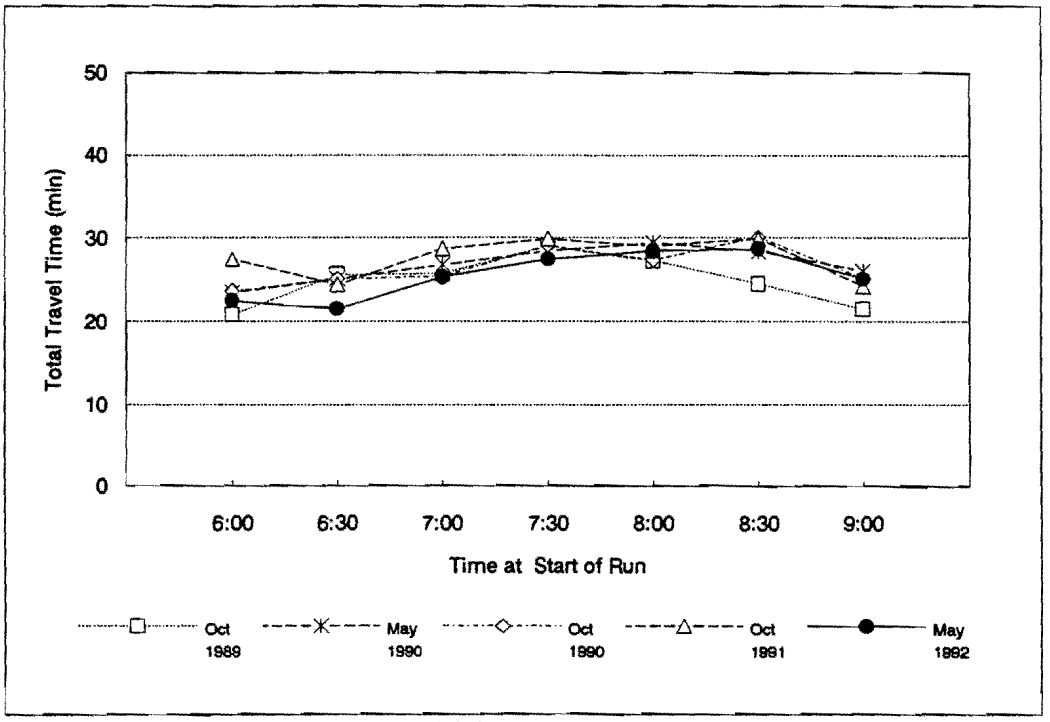


(b) Southbound

Figure D-4. P.M. Peak Period Total Travel Time Between I-635 and CBD: Preston

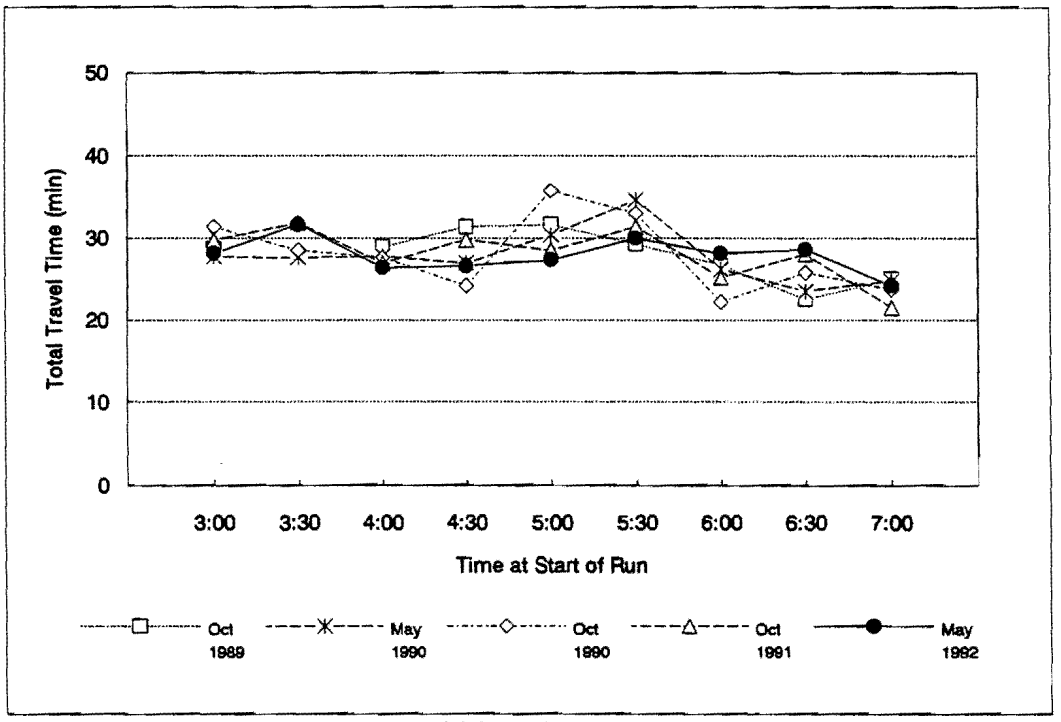


(a) Northbound

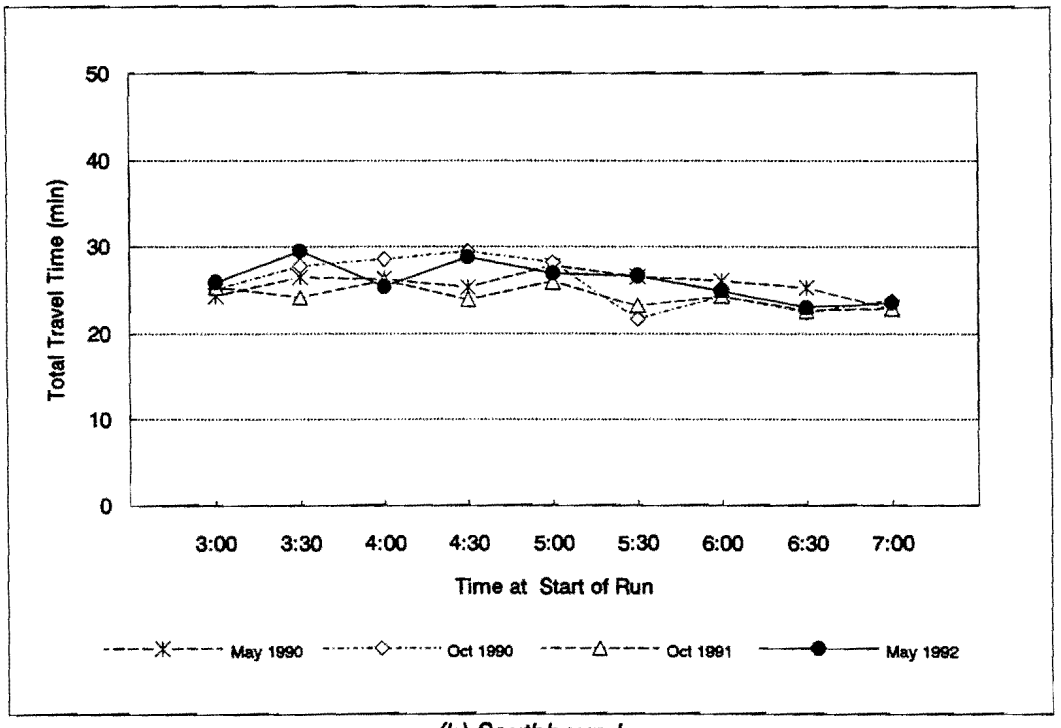


(b) Southbound

Figure D-5. A.M. Peak Period Total Travel Time Between I-635 and CBD: Hillcrest

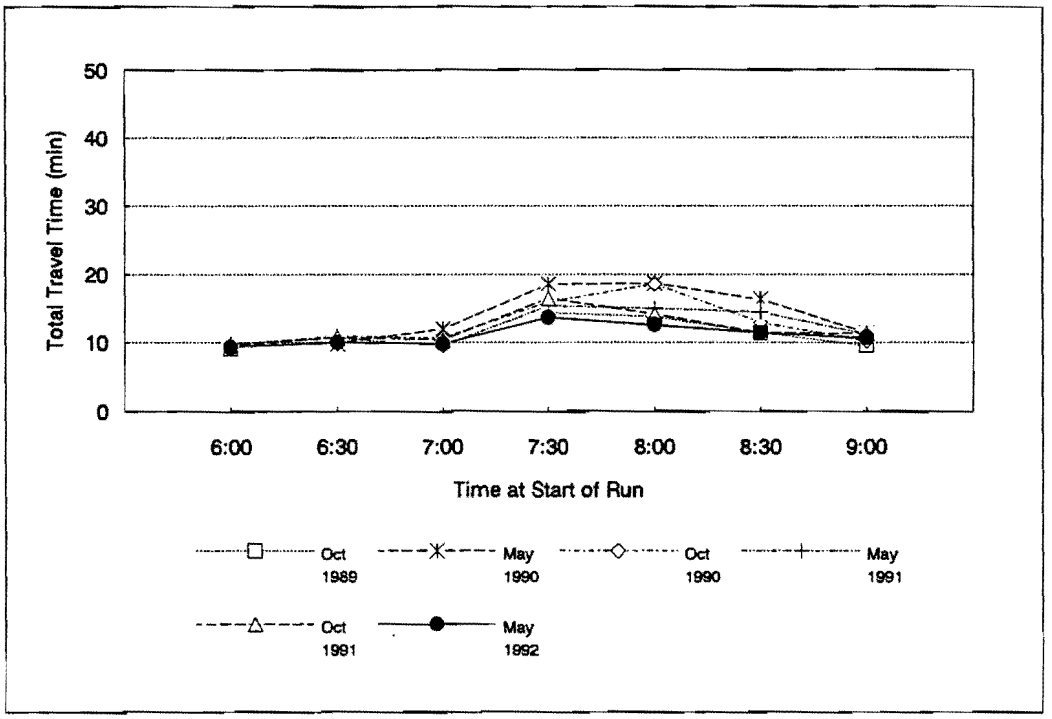


(a) Northbound

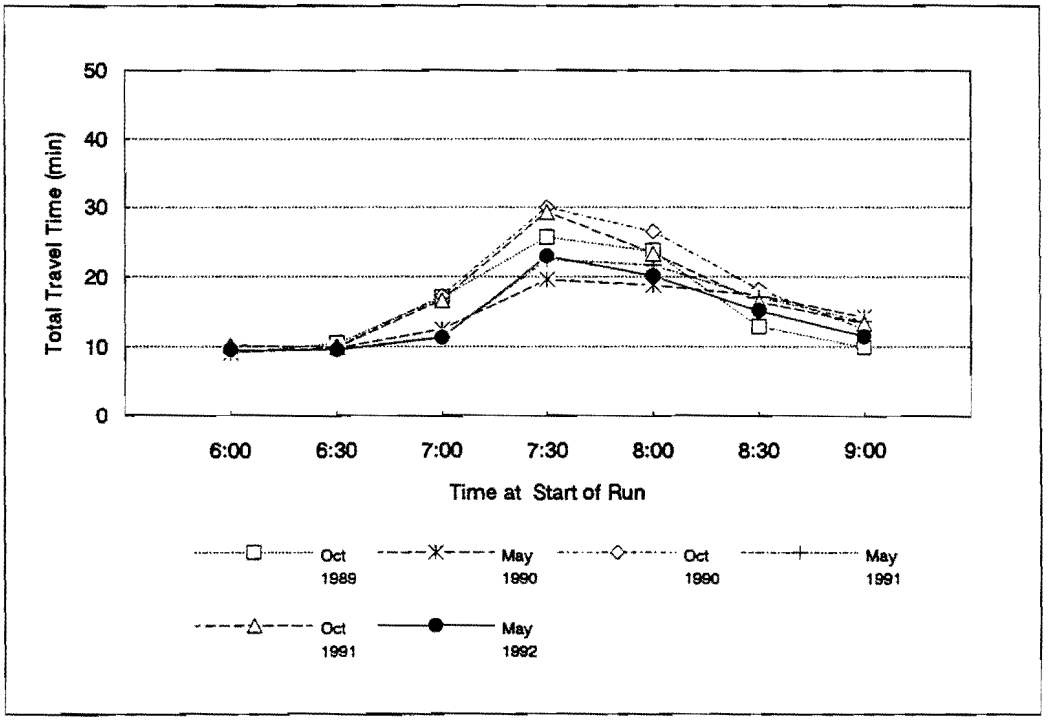


(b) Southbound

Figure D-6. P.M. Peak Period Total Travel Time Between I-635 and CBD: Hillcrest

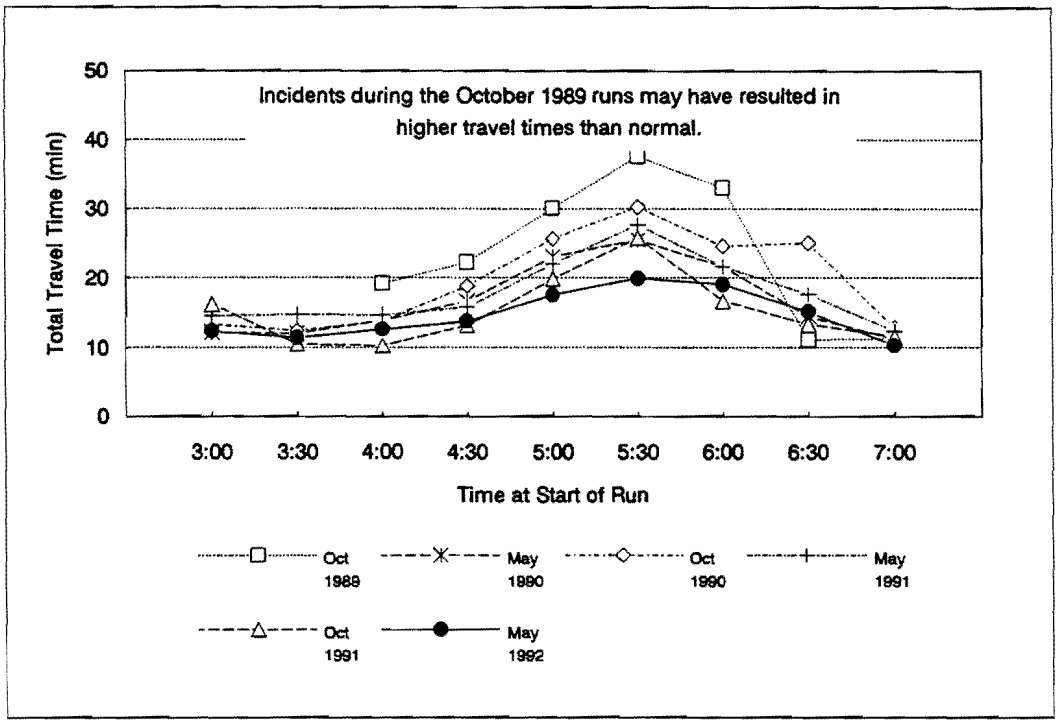


(a) Northbound

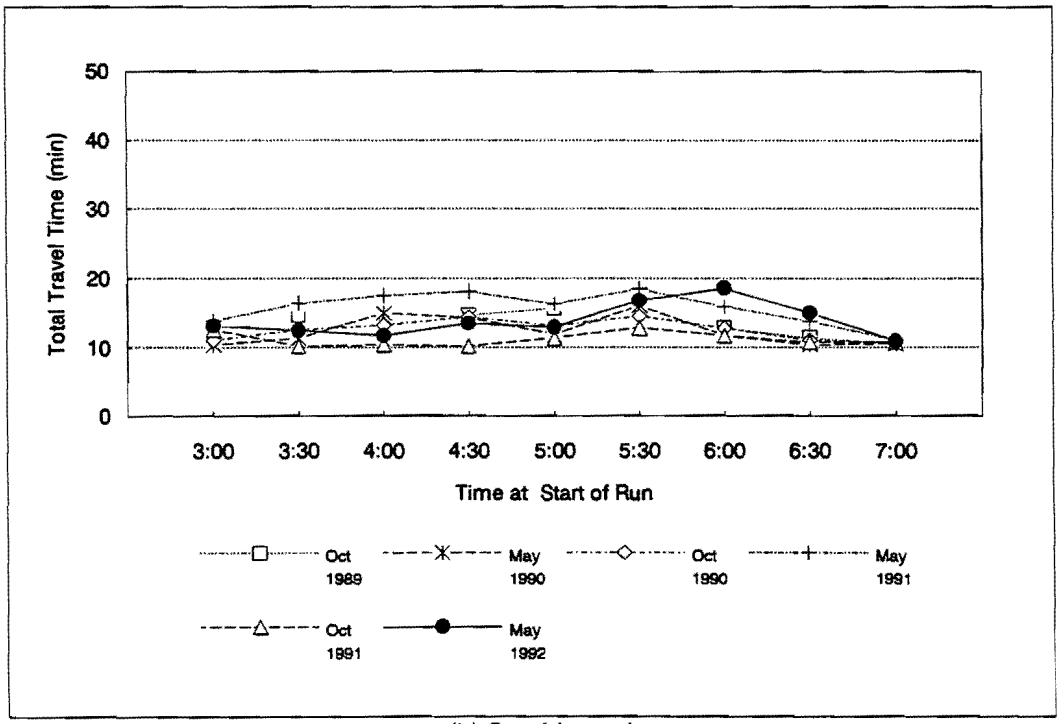


(b) Southbound

Figure D-7. A.M. Peak Period Total Travel Time Between I-635 and CBD: US-75

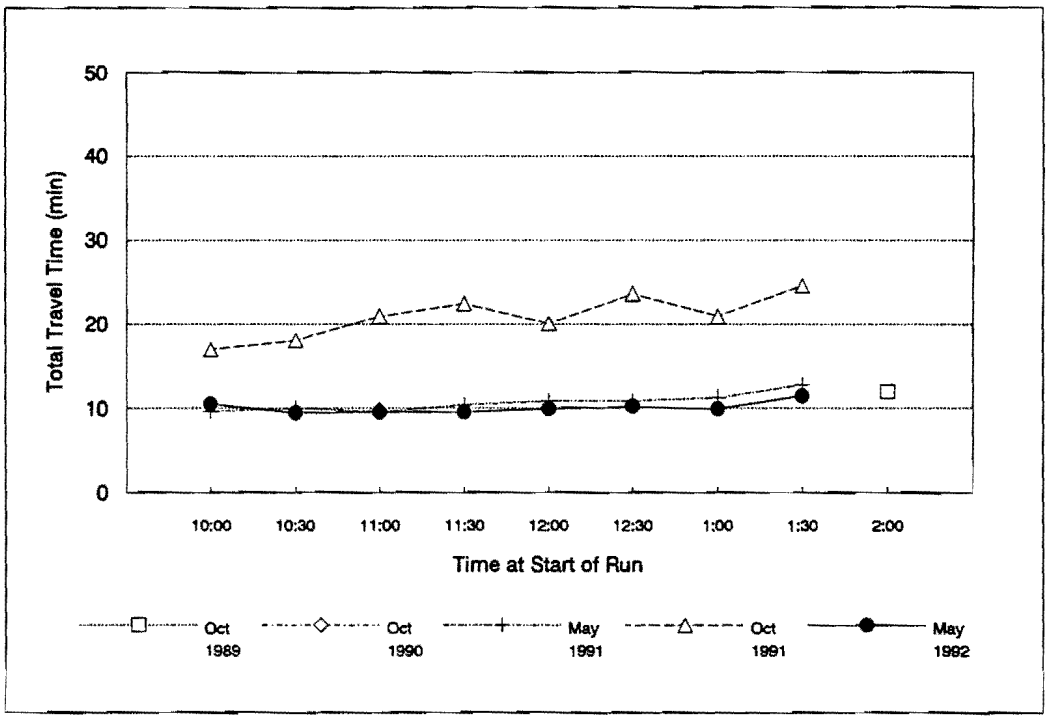


(a) Northbound

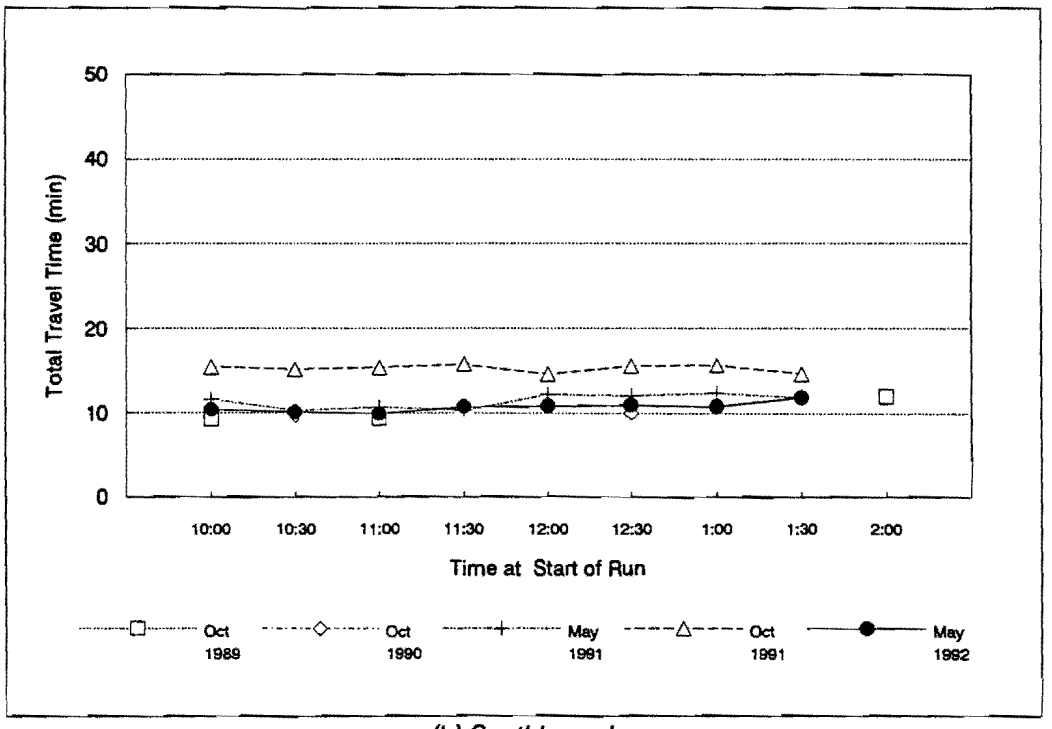


(b) Southbound

Figure D-8. P.M. Peak Period Total Travel Time Between I-635 and CBD: US-75

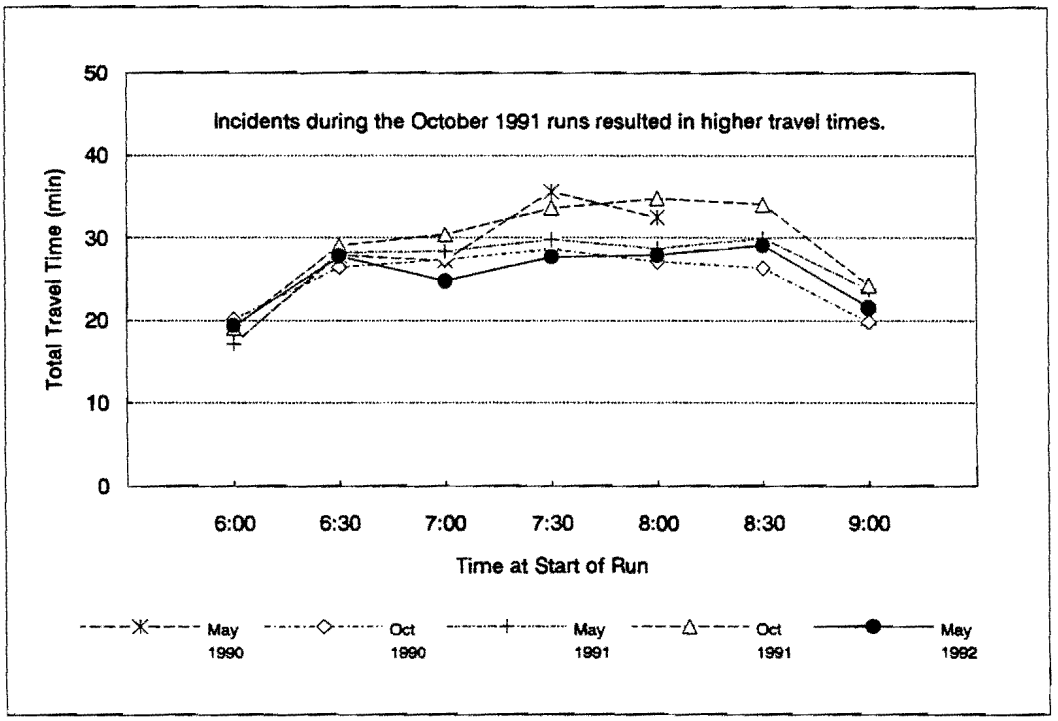


(a) Northbound

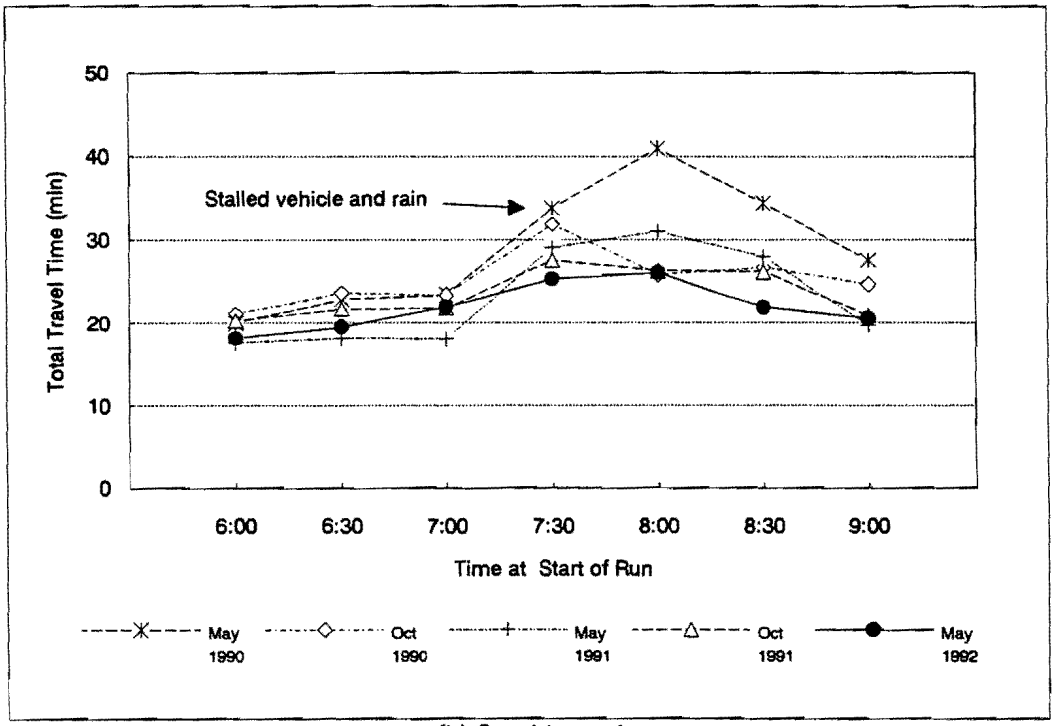


(b) Southbound

Figure D-9. Off-Peak Period Total Travel Time Between I-635 and CBD: US-75

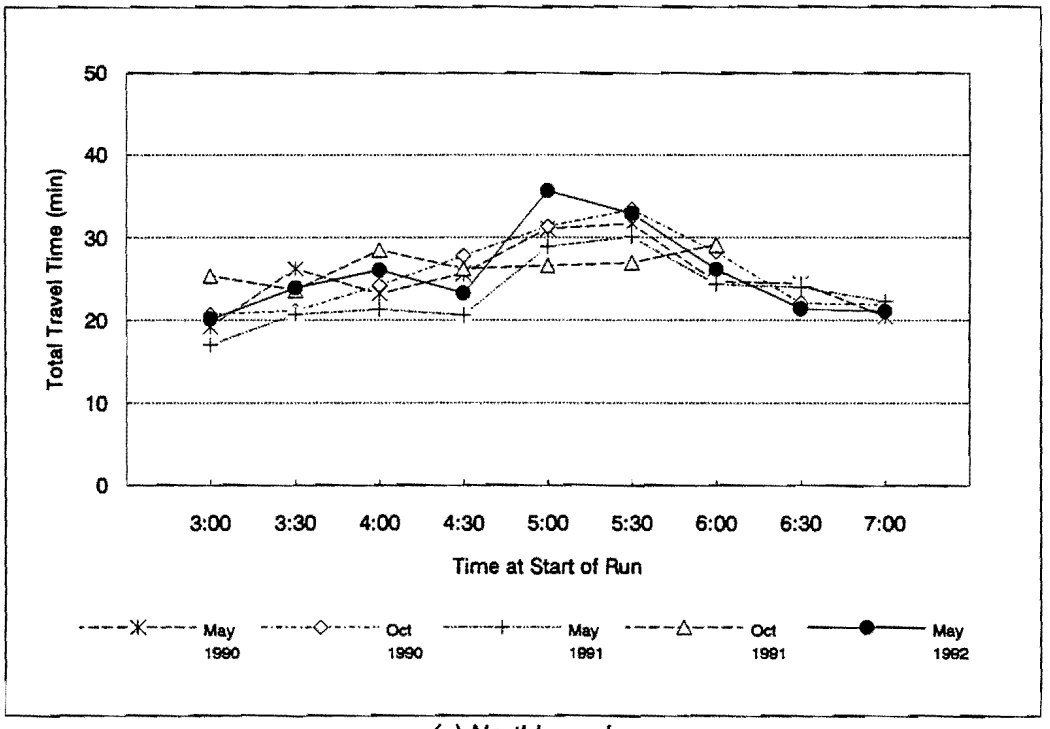


(a) Northbound

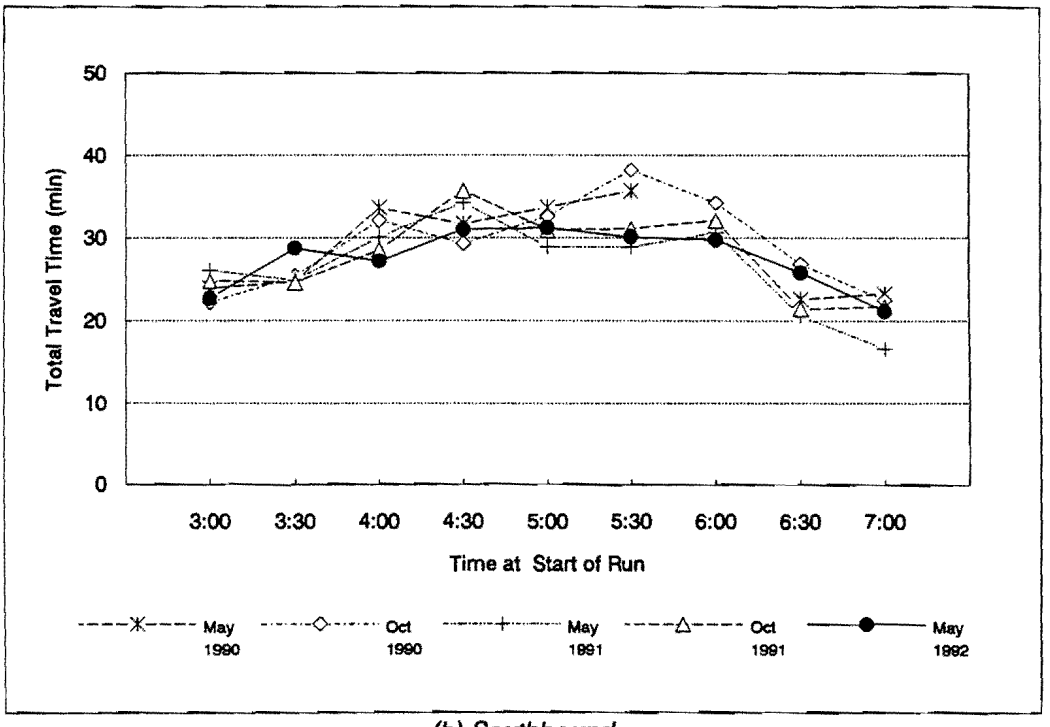


(b) Southbound

Figure D-10. A.M. Peak Period Total Travel Time Between I-635 and CBD: US-75 Frontage Road

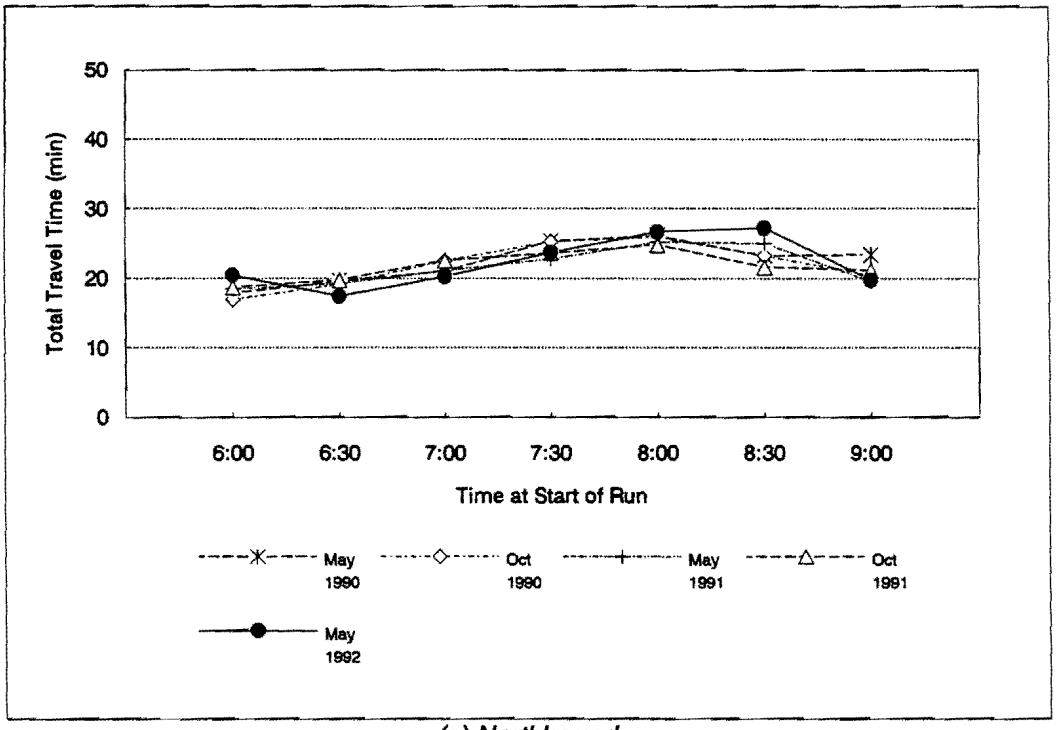


(a) Northbound

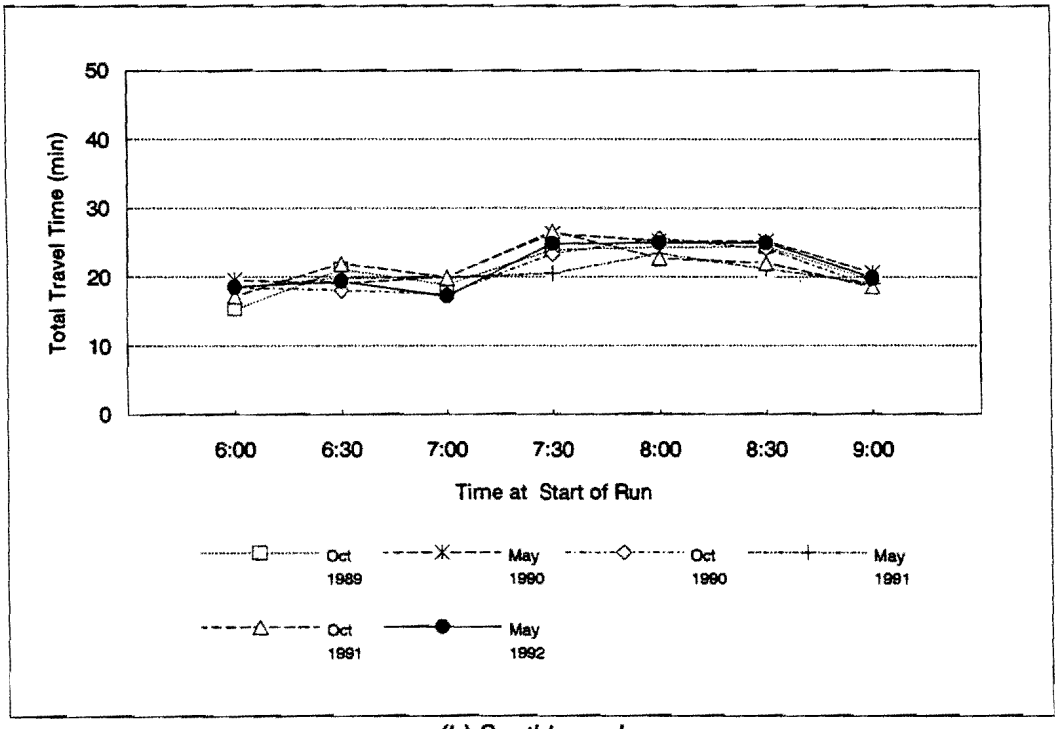


(b) Southbound

Figure D-11. P.M. Peak Period Total Travel Time Between I-635 and CBD: US-75 Frontage Road

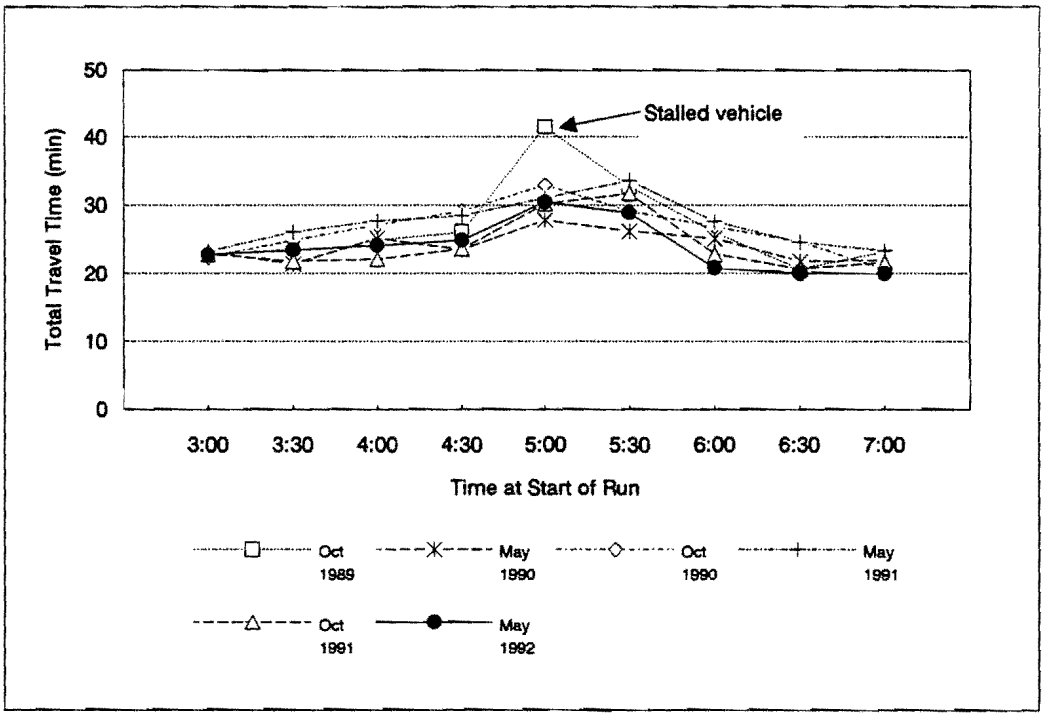


(a) Northbound

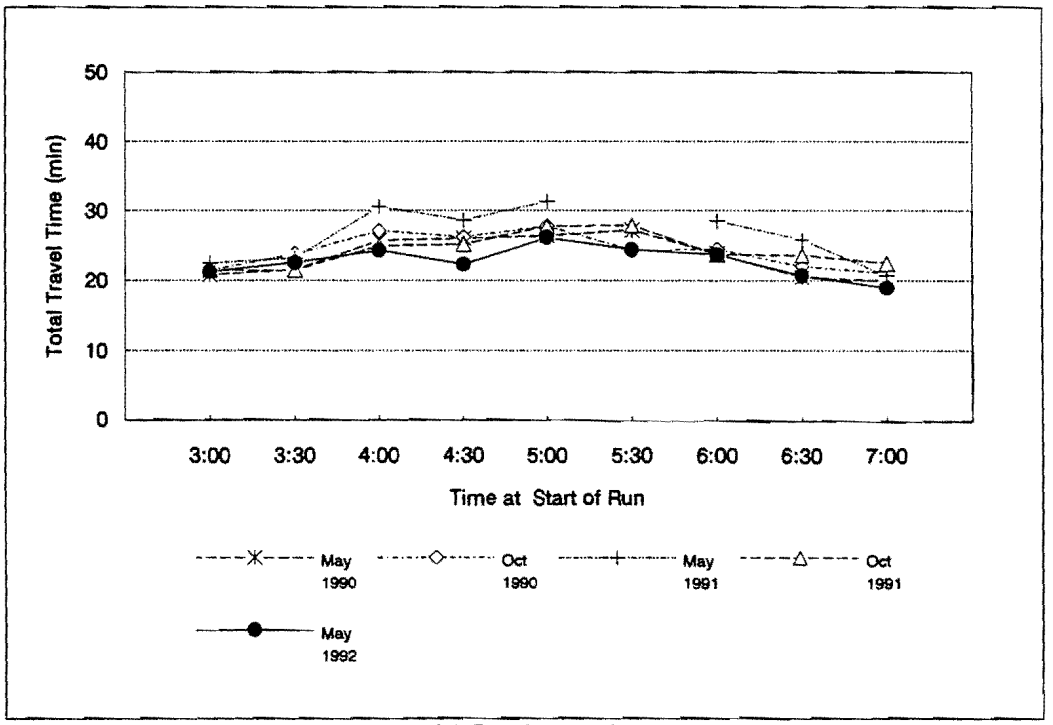


(b) Southbound

Figure D-12. A.M. Peak Period Total Travel Time Between I-635 and CBD: Greenville

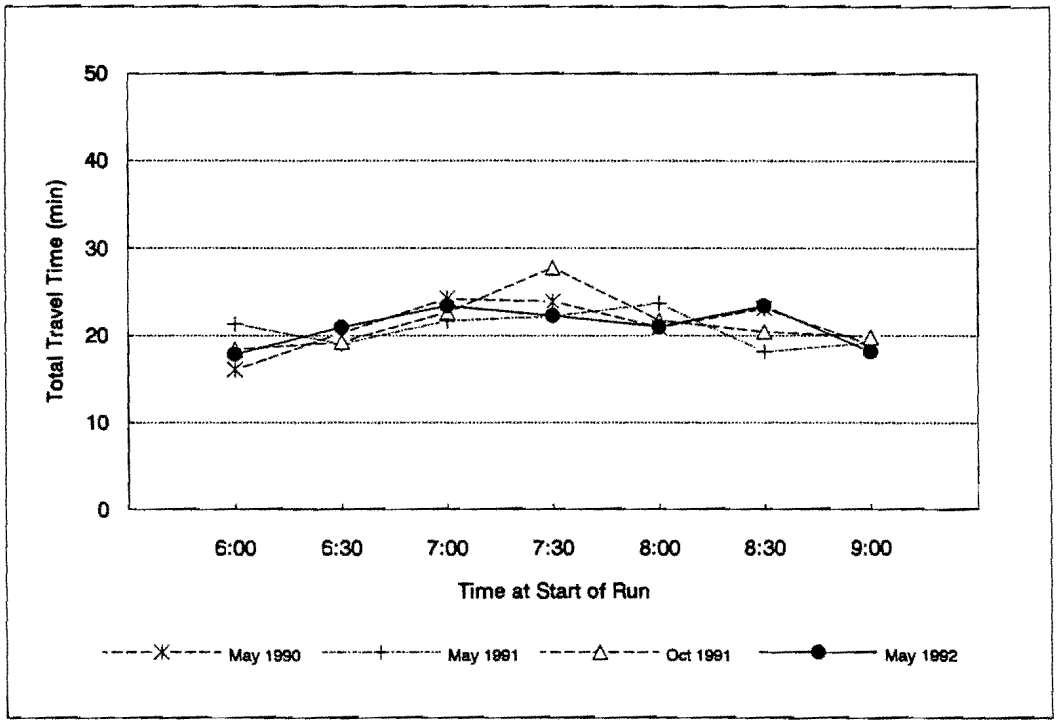


(a) Northbound

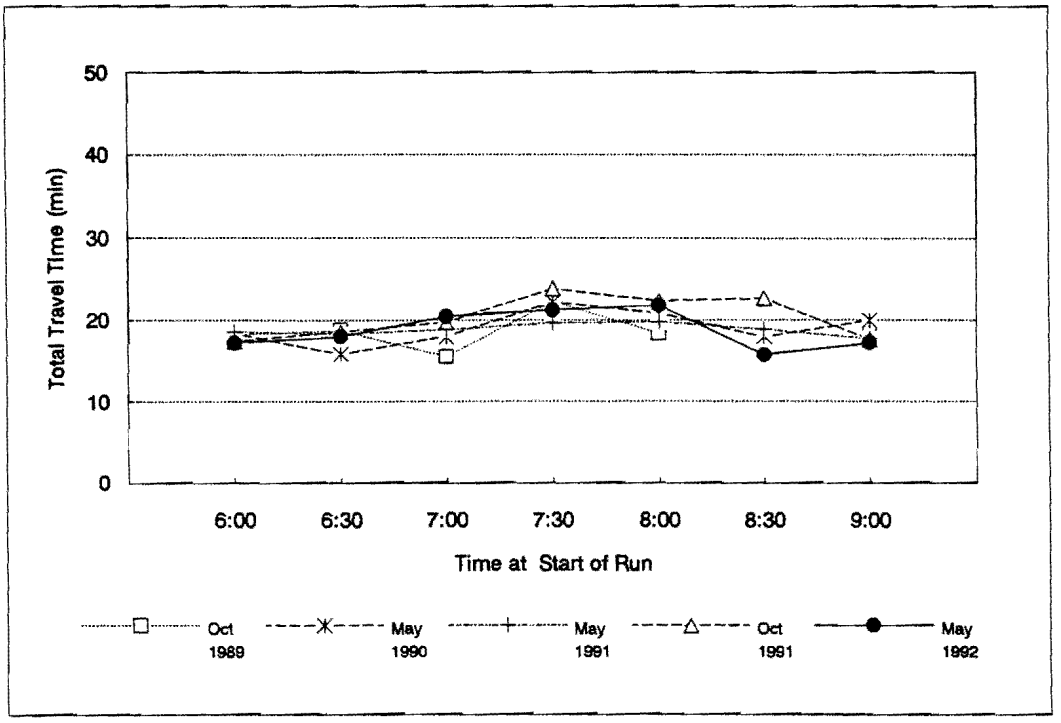


(b) Southbound

Figure D-13. P.M. Peak Period Total Travel Time Between I-635 and CBD: Greenville

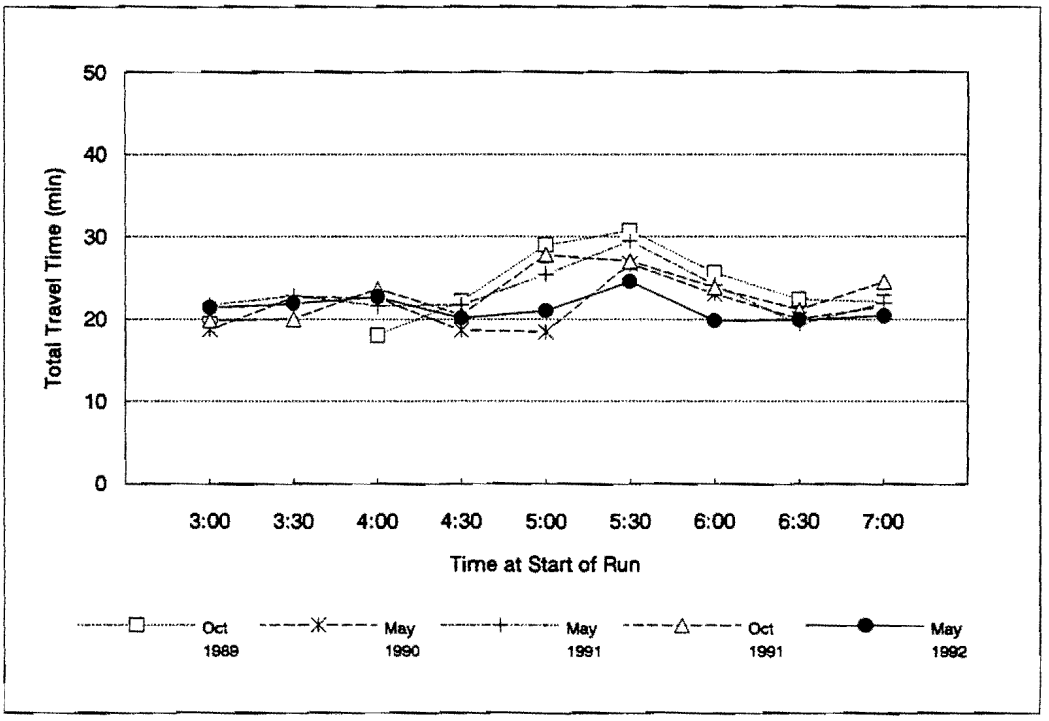


(a) Northbound

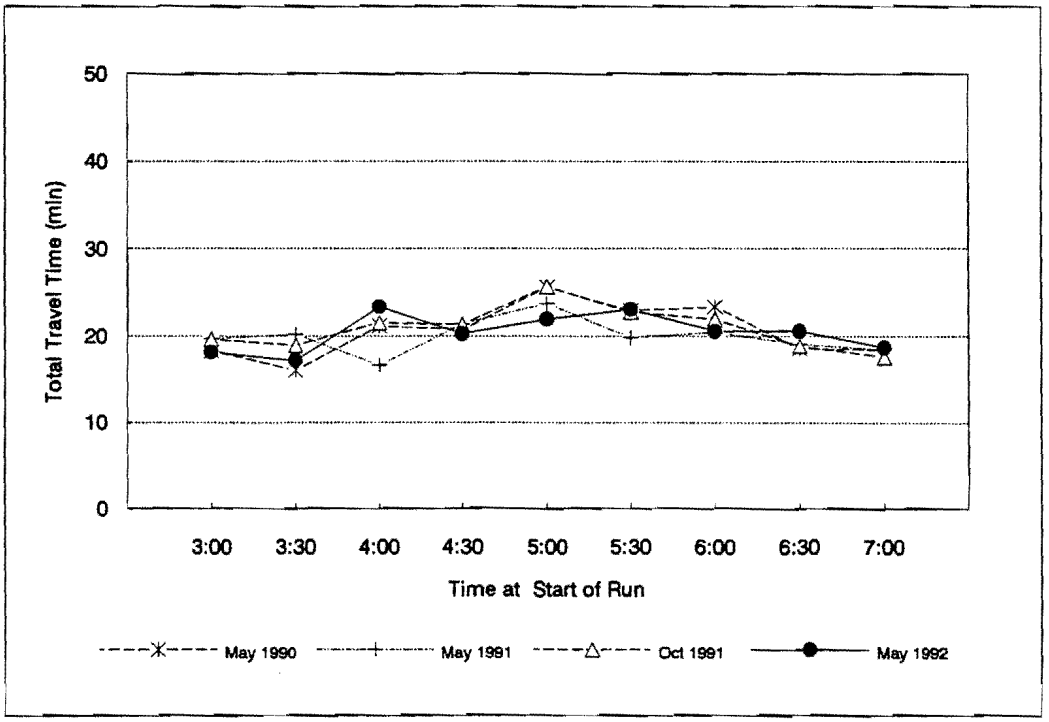


(b) Southbound

Figure D-14. A.M. Peak Period Total Travel Time Between I-635 and CBD: Skillman

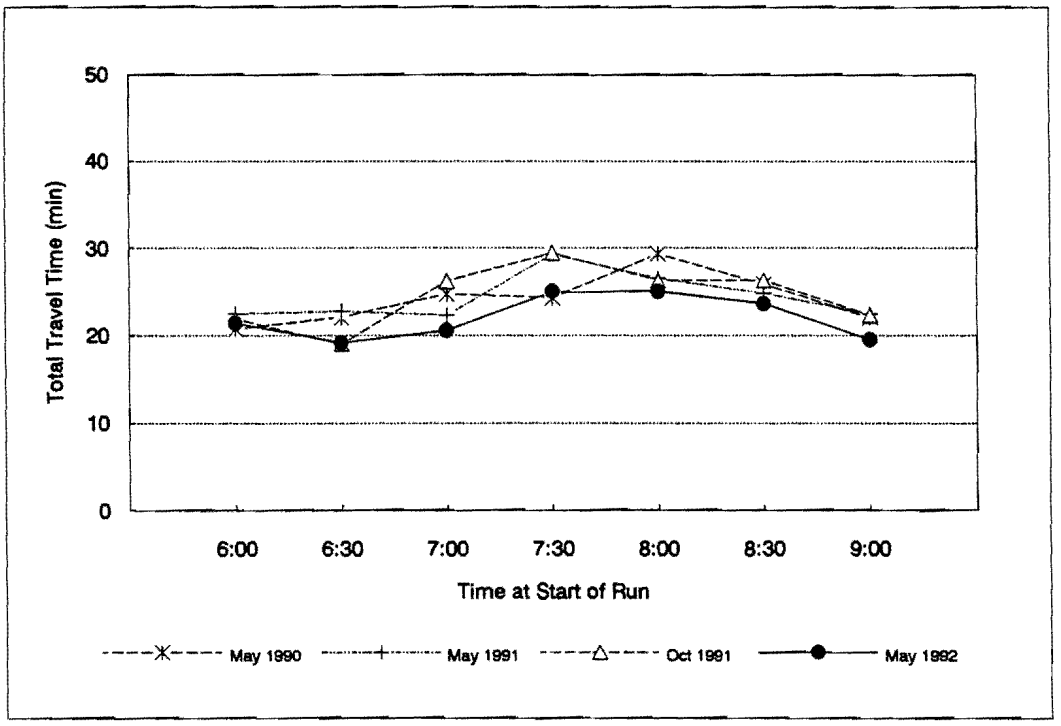


(a) Northbound

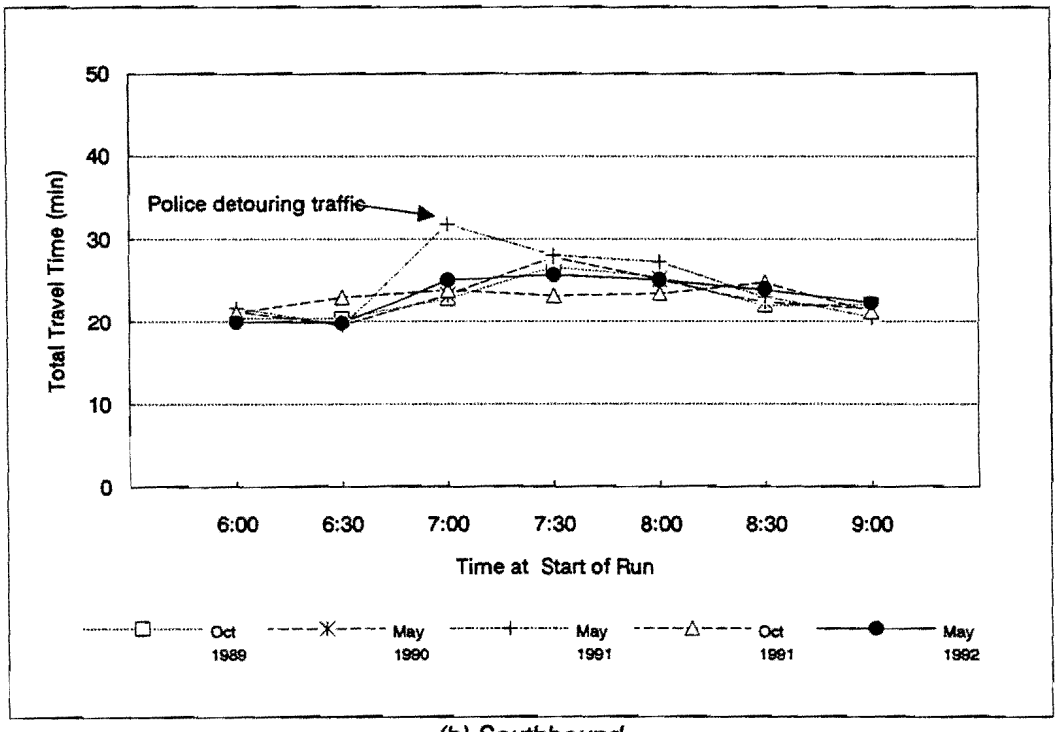


(b) Southbound

Figure D-15. P.M. Peak Period Total Travel Time Between I-635 and CBD: Skillman

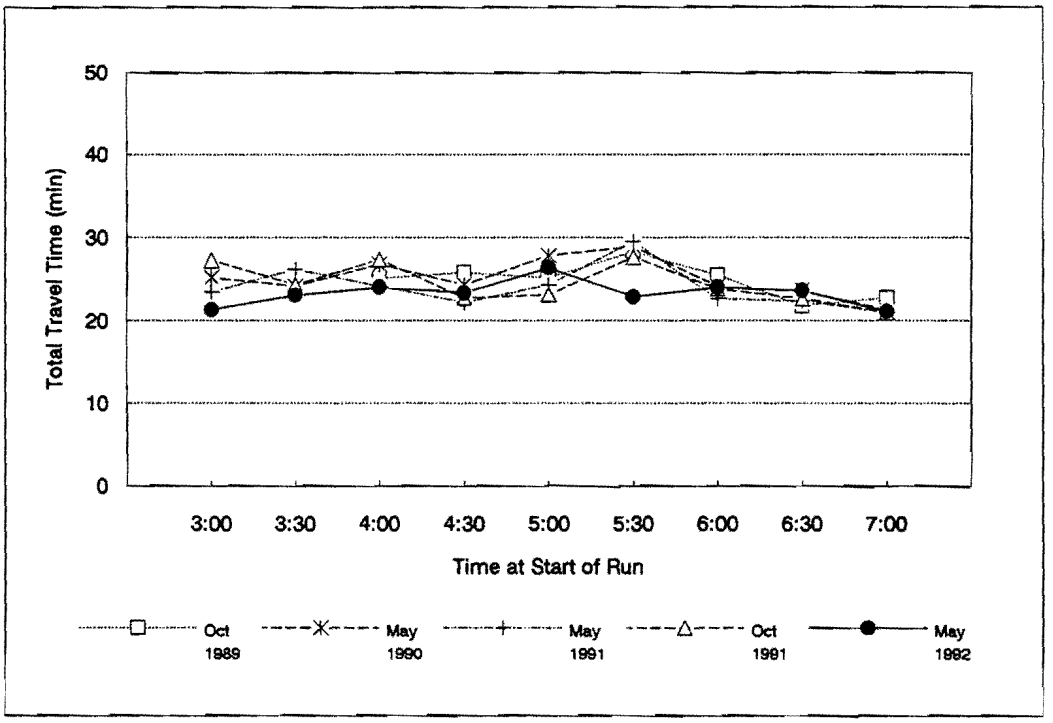


(a) Northbound

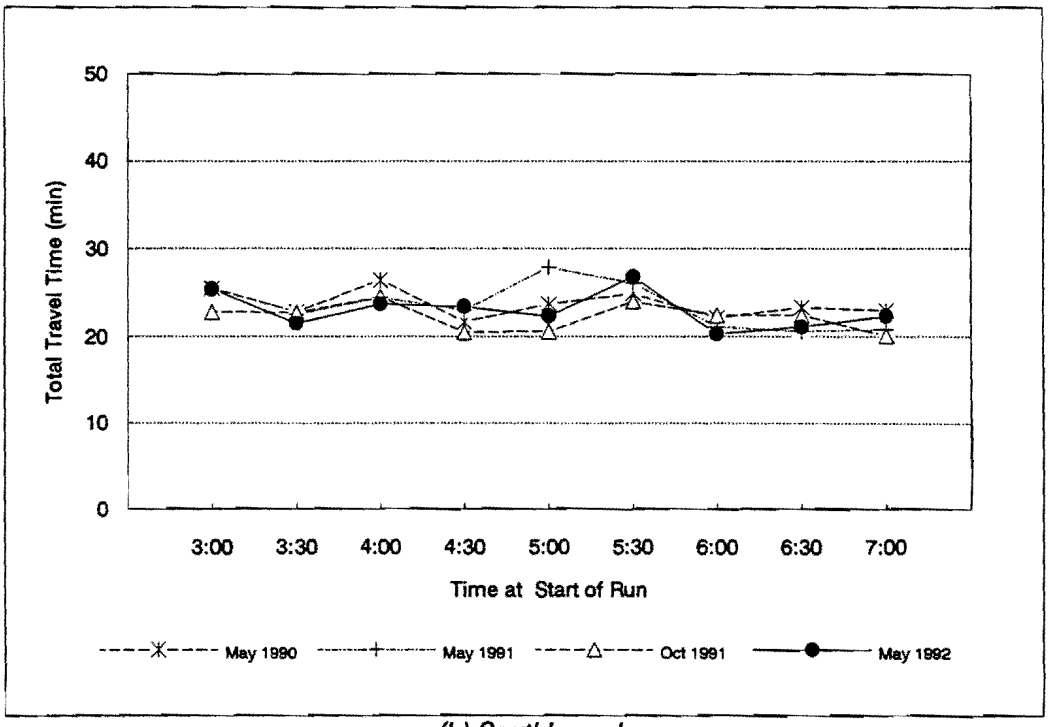


(b) Southbound

Figure D-16. A.M. Peak Period Total Travel Time Between I-635 and CBD: Abrams

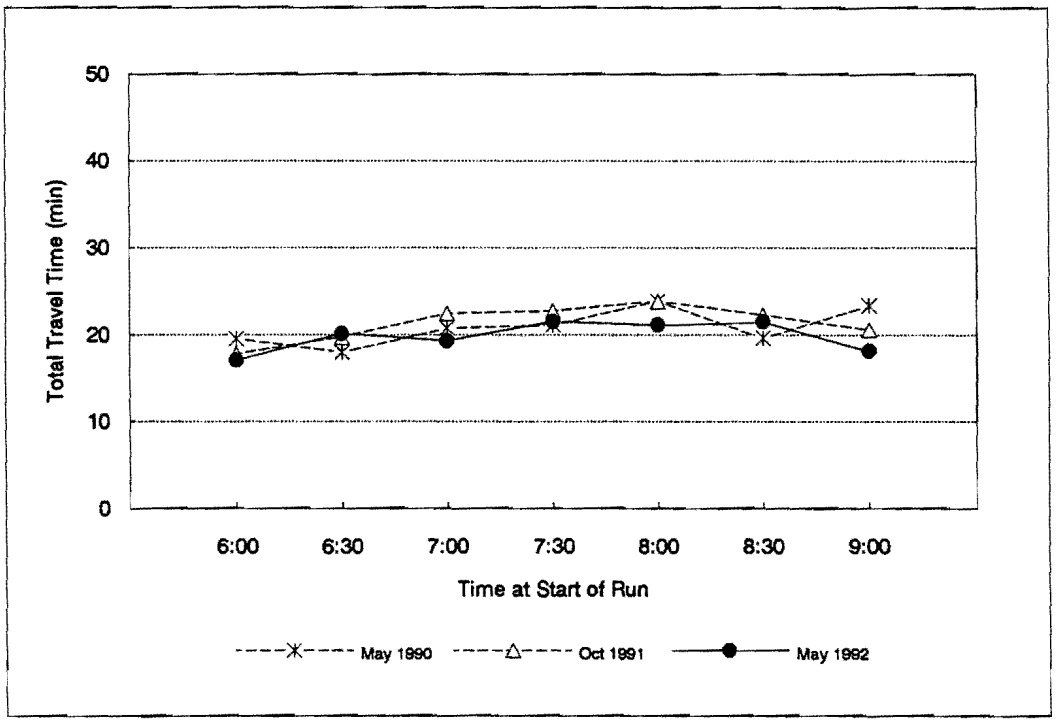


(a) Northbound

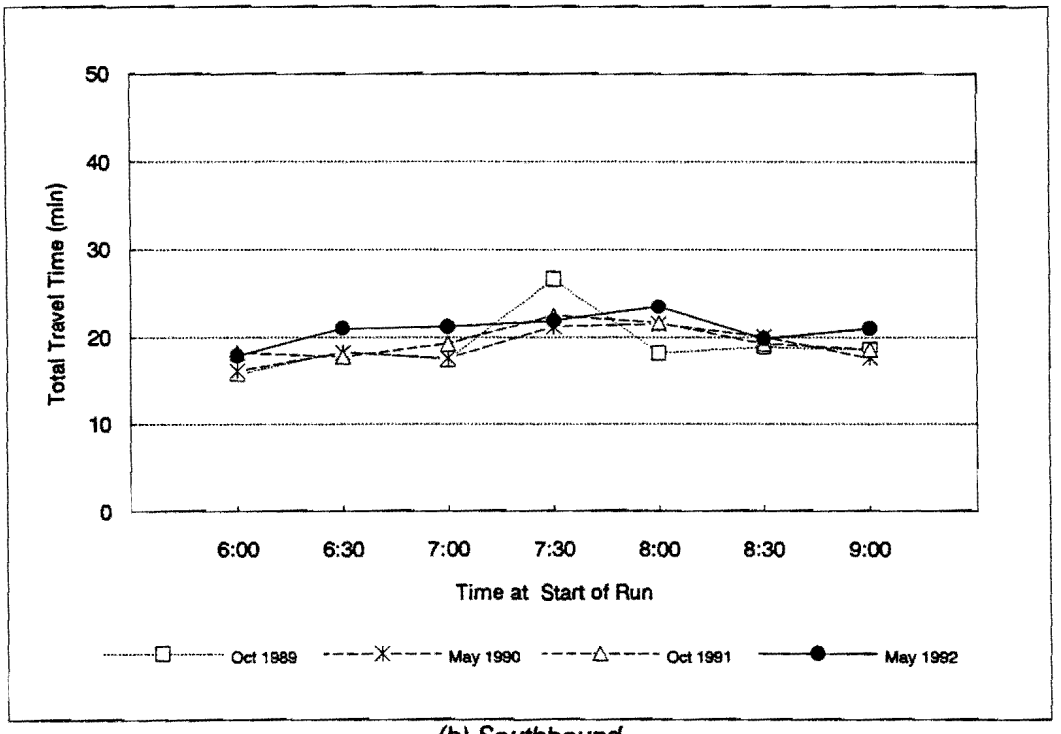


(b) Southbound

Figure D-17. P.M. Peak Period Total Travel Time Between I-635 and CBD: Abrams

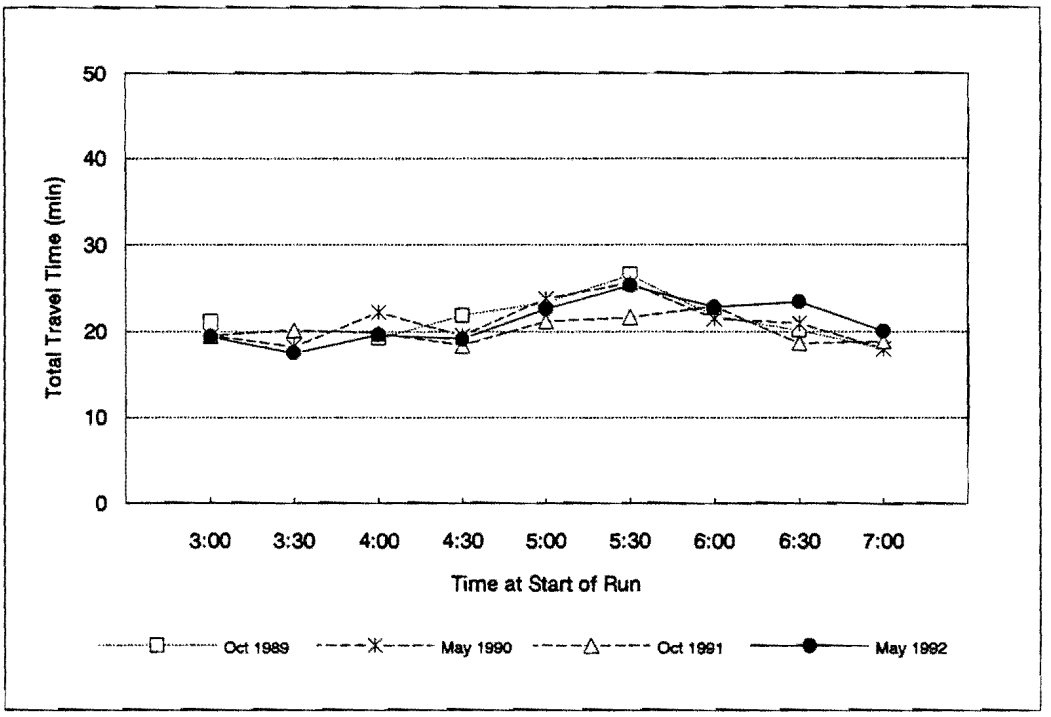


(a) Northbound

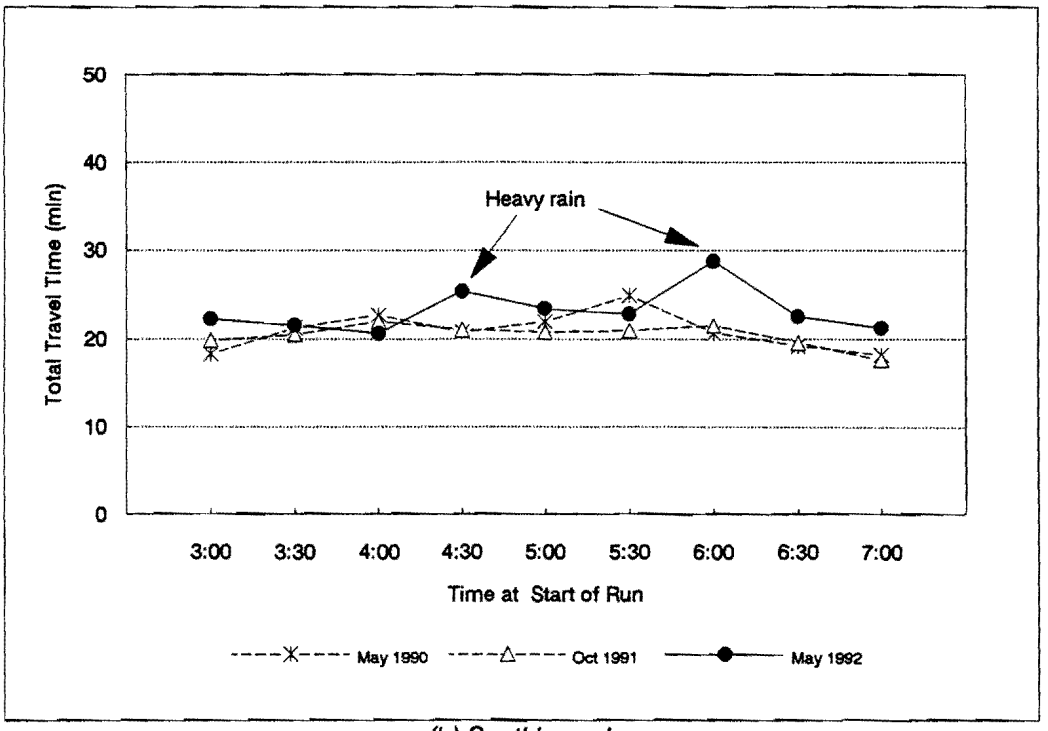


(b) Southbound

Figure D-18. A.M. Peak Period Total Travel Time Between I-635 and CBD: Garland

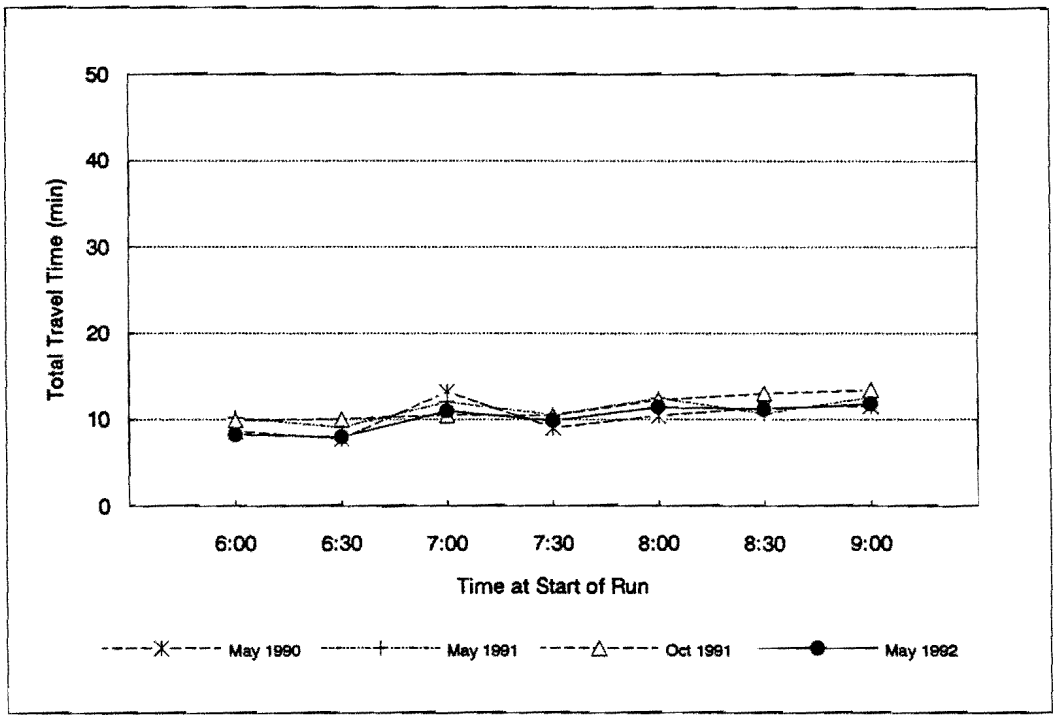


(a) Northbound

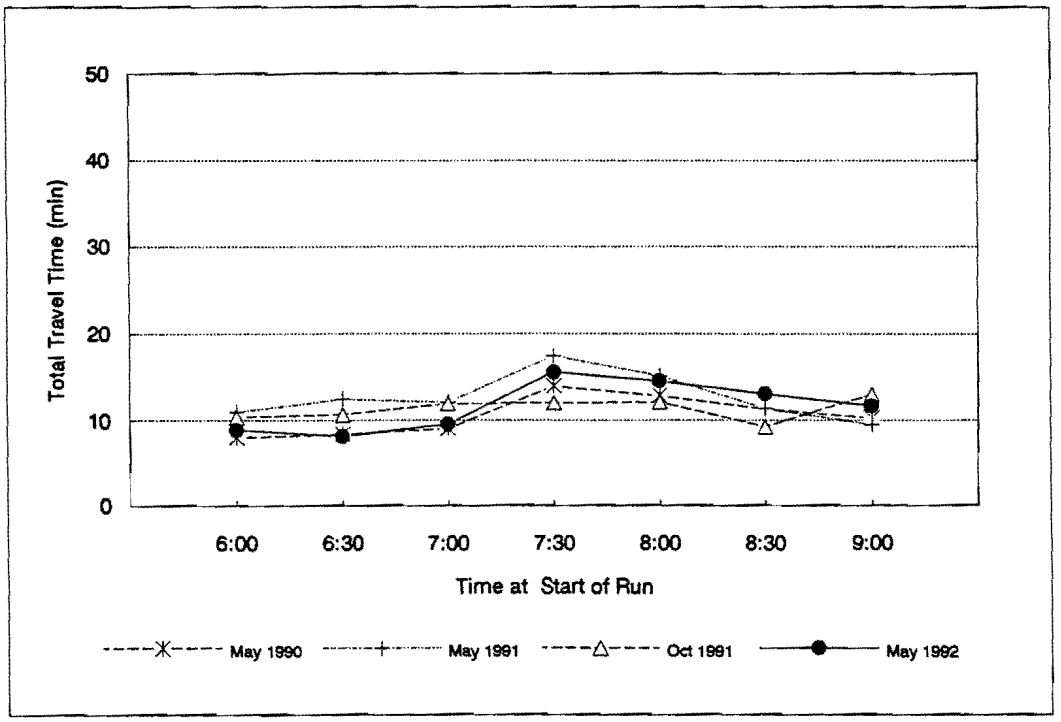


(b) Southbound

Figure D-19. P.M. Peak Period Total Travel Time Between I-635 and CBD: Garland

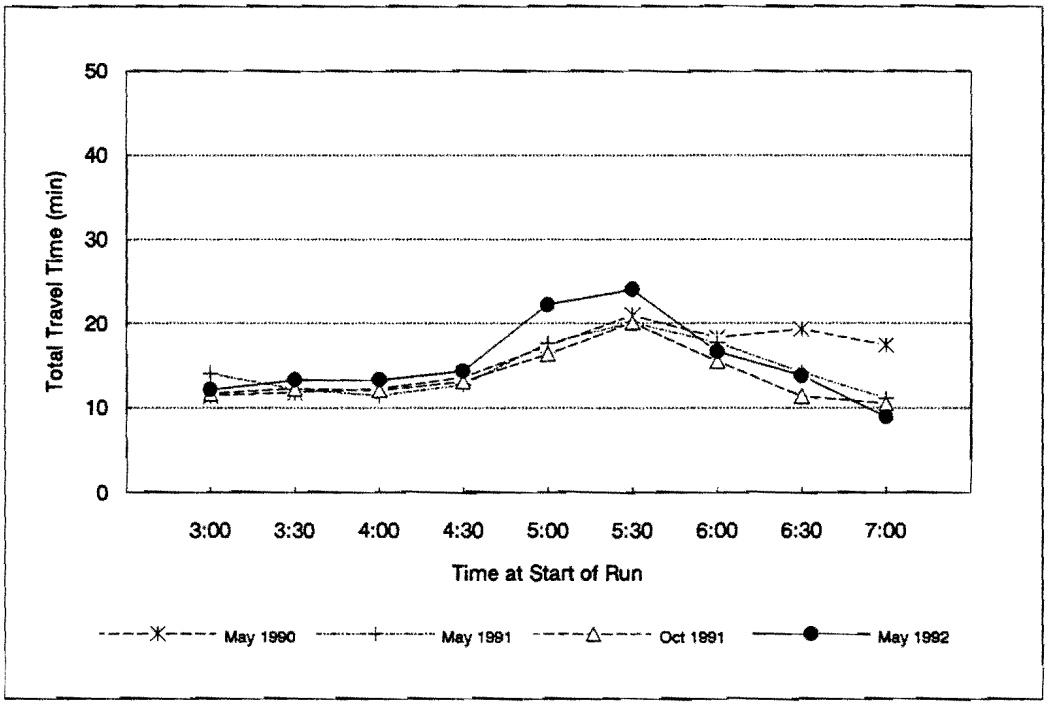


(a) Eastbound

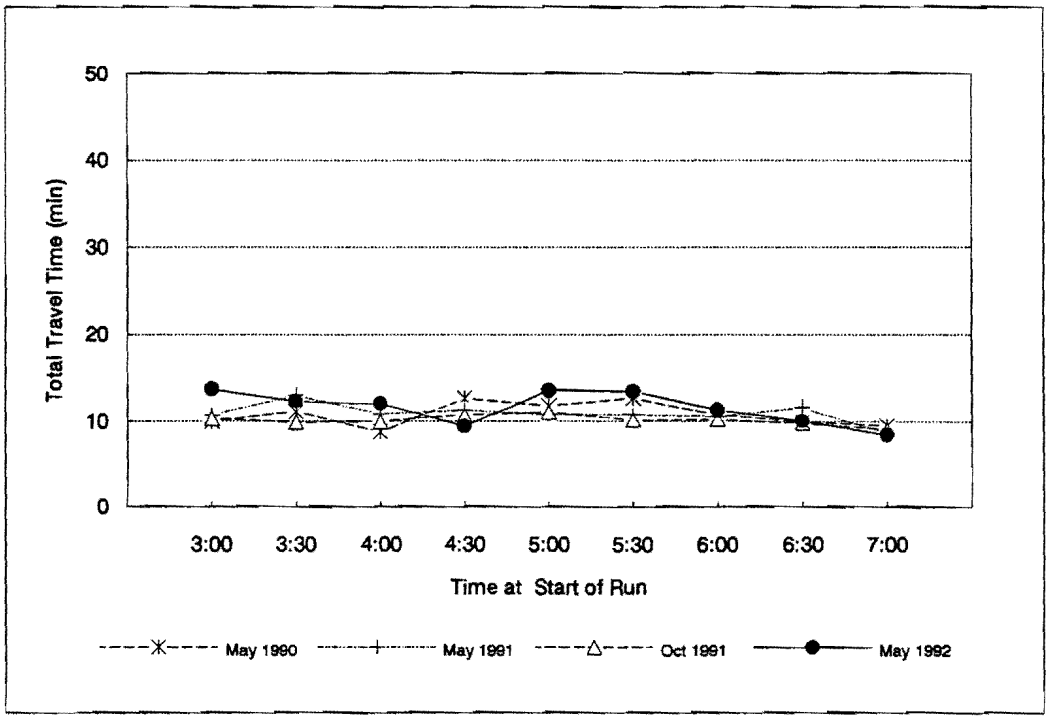


(b) Westbound

Figure D-20. A.M. Peak Period Total Travel Time Between Midway and Abrams: Loop 12

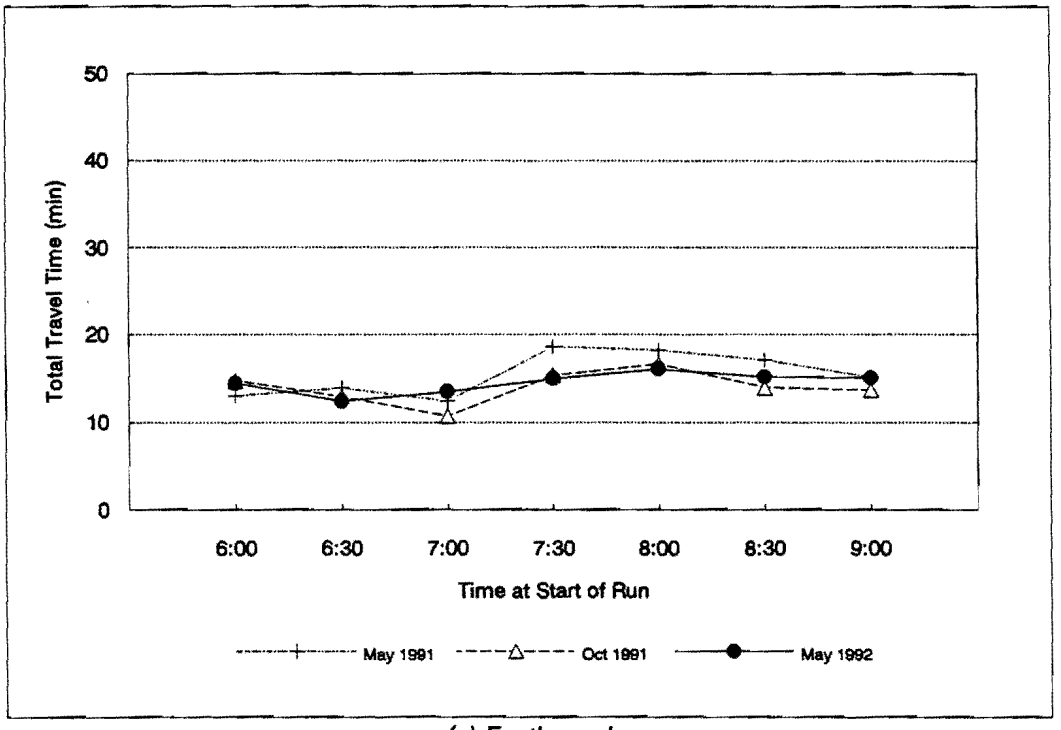


(a) Eastbound

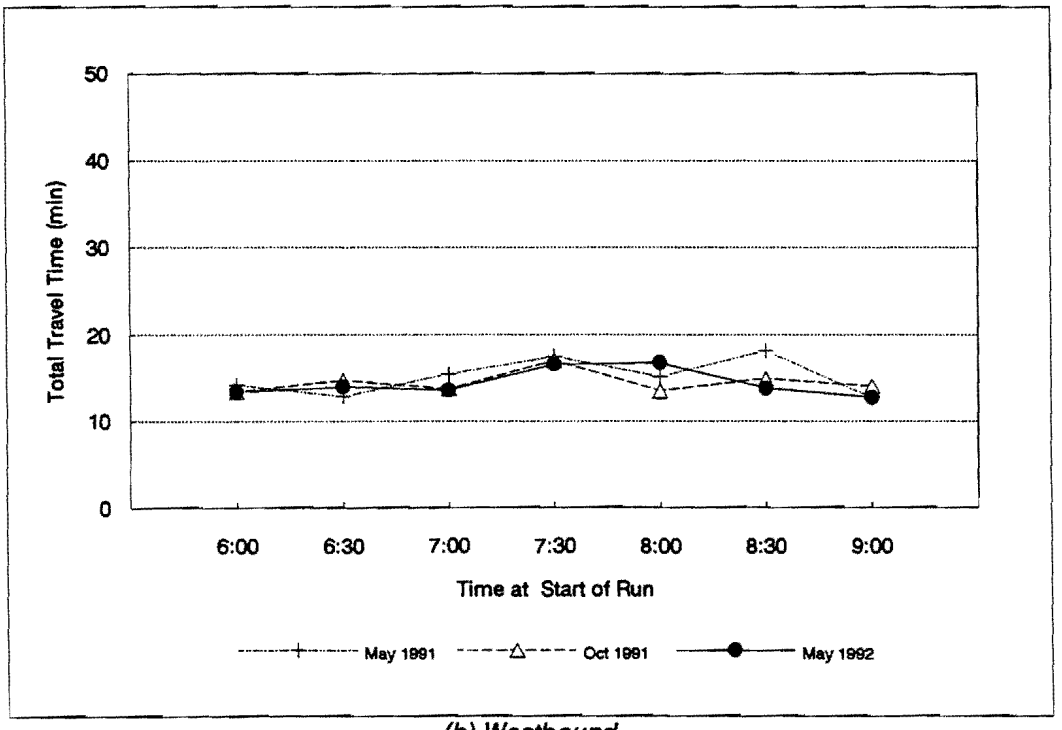


(b) Westbound

Figure D-21. P.M. Peak Period Total Travel Time Between Midway and Abrams: Loop 12

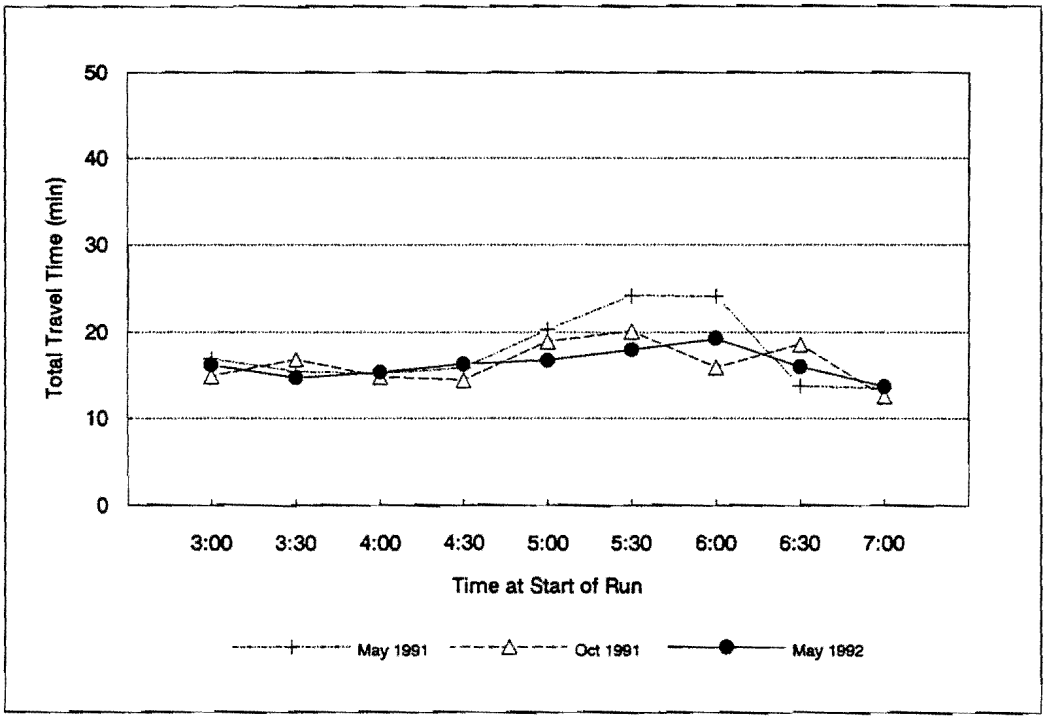


(a) Eastbound

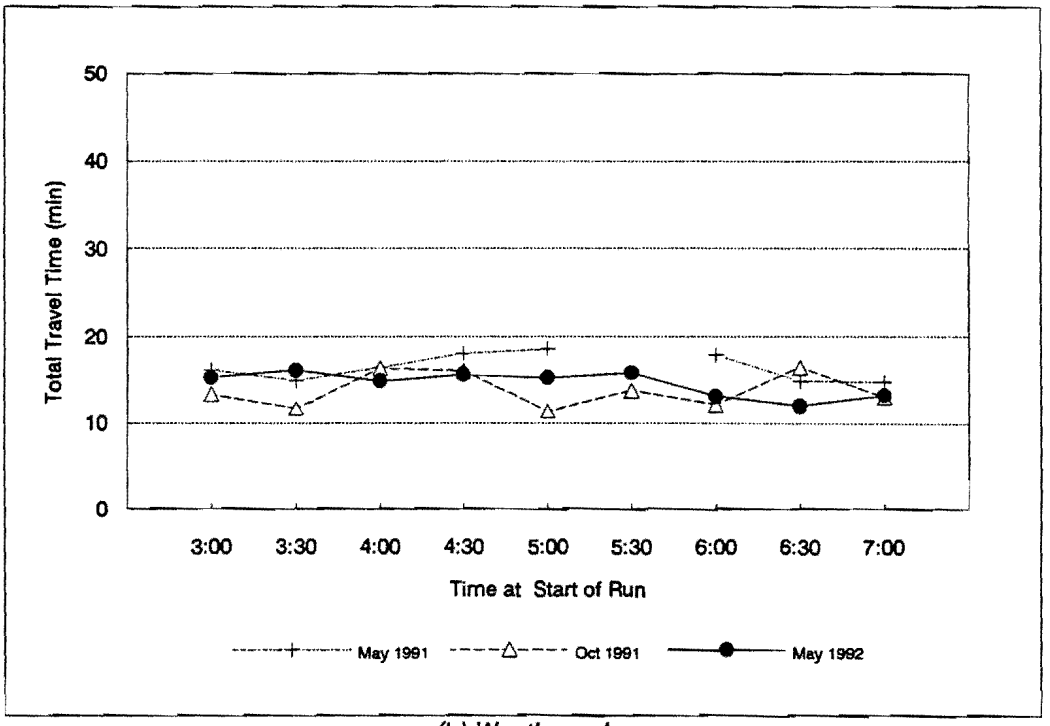


(b) Westbound

Figure D-22. A.M. Peak Period Total Travel Time Between Midway and Skillman: Royal



(a) Eastbound



(b) Westbound

Figure D-23. P.M. Peak Period Total Travel Time Between Midway and Skillman: Royal

APPENDIX E

MAY 1992 AVERAGE TRAVEL SPEEDS

TABLE E-1. Peak Period, Peak Direction Average Travel Speed on North-South Routes (May 1992)

Run Beginning		Travel Speed (mph)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period South-bound	6:00	49	30	26	58	30	30	34	31	34
	6:30	56	25	27	58	28	29	32	31	29
	7:00	55	22	23	49	25	32	28	25	29
	7:30	49	21	22	25	22	23	27	24	28
	8:00	36	19	21	28	21	22	27	25	26
	8:30	40	21	21	37	25	22	37	26	31
	9:00	55	21	23	49	27	28	34	28	29
P.M. Peak Period North-Bound	3:00	48	21	21	45	24	25	27	28	31
	3:30	50	21	18	49	20	24	26	26	34
	4:00	52	21	22	44	19	24	26	25	30
	4:30	51	22	22	40	21	23	29	26	31
	5:00	39	17	21	32	14	19	28	23	26
	5:30	29	19	19	28	15	20	24	26	24
	6:00	34	21	21	31	19	28	29	25	26
	6:30	47	23	20	39	23	29	29	25	25
	7:00	55	23	24	54	23	29	28	28	30

TABLE E-2. Peak Period, Off-Peak Direction Average Travel Speed on North-South Routes (May 1992)

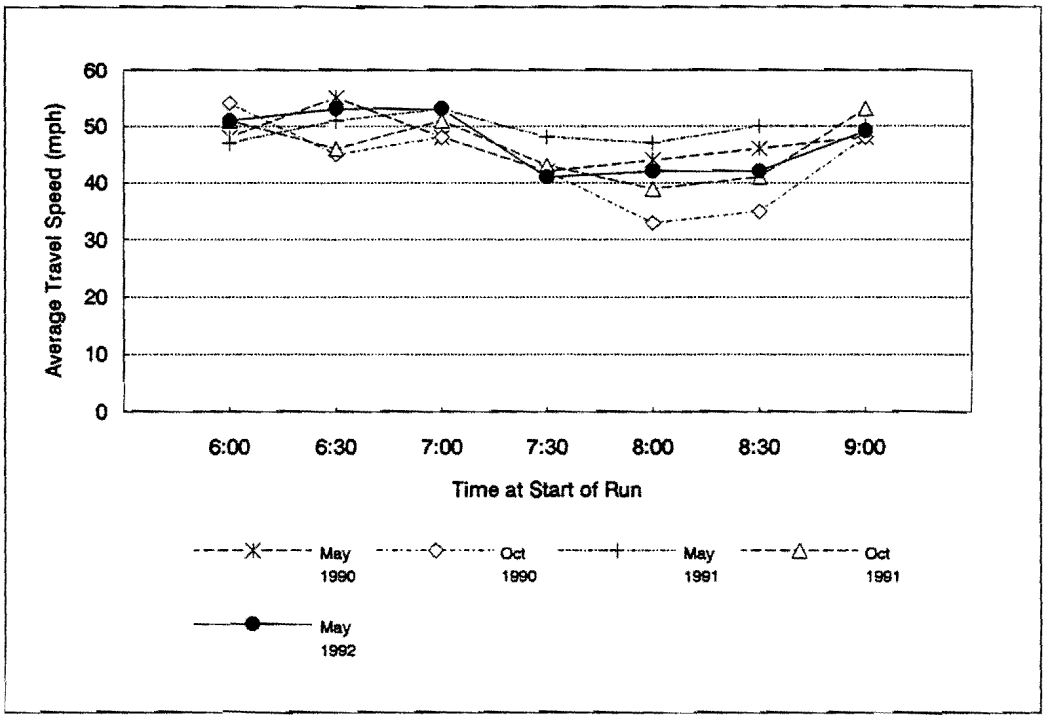
Run Beginning		Travel Speed (mph)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period Northbound	6:00	51	28	23	59	25	28	32	28	35
	6:30	53	29	25	56	18	33	28	31	30
	7:00	53	24	21	56	20	28	25	29	31
	7:30	41	24	20	41	18	24	26	24	28
	8:00	42	21	20	45	18	21	28	24	28
	8:30	42	20	21	49	17	21	25	25	28
	9:00	49	26	22	53	23	29	32	31	33
P.M. Peak Period Southbound	3:00	47	22	23	44	24	26	32	24	28
	3:30	51	24	20	45	19	25	34	29	28
	4:00	45	21	23	48	20	23	25	26	30
	4:30	52	22	20	43	18	25	29	26	24
	5:00	20	23	22	44	18	21	26	28	26
	5:30	24	23	22	36	18	23	25	23	27
	6:00	23	22	24	36	19	24	28	31	21
	6:30	37	26	26	40	21	27	28	29	27
	7:00	53	24	25	52	26	30	31	28	29

TABLE E-3. Peak Period Average Travel Speed on East-West Routes (May 1992)

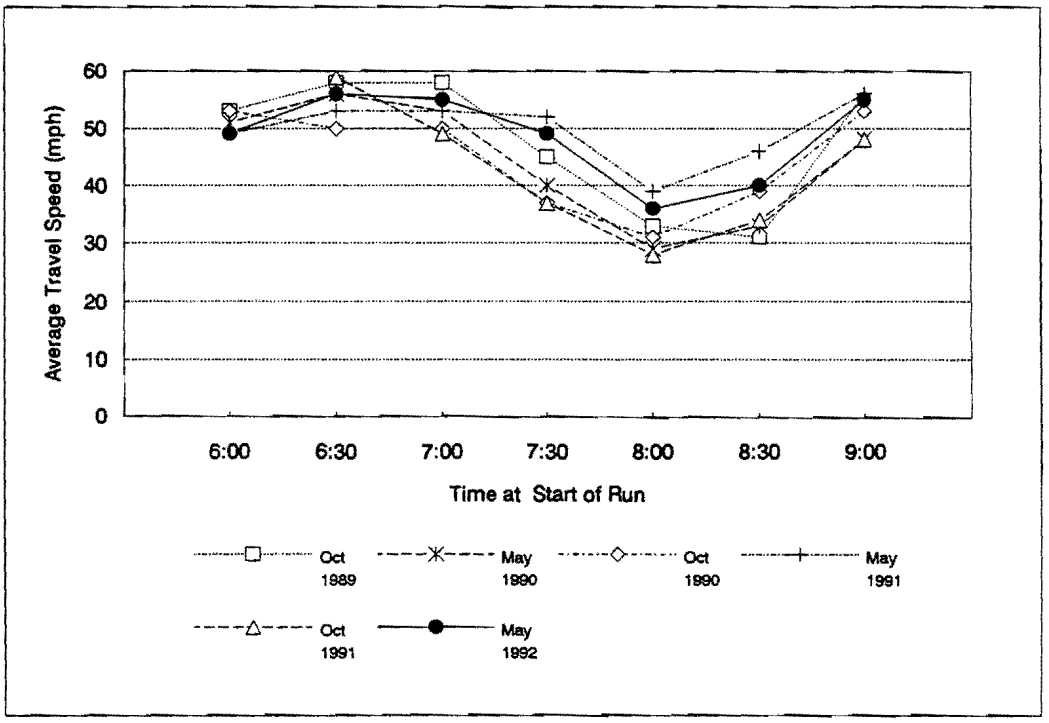
Run Beginning		Travel Speed (mph)			
		Eastbound		Westbound	
		Loop 12	Royal	Loop 12	Royal
A.M. Peak Period	6:00	39	28	36	31
	6:30	40	33	40	29
	7:00	29	30	34	30
	7:30	33	27	21	25
	8:00	28	26	22	24
	8:30	29	27	25	30
	9:00	27	27	28	32
P.M. Peak Period	3:00	26	25	23	27
	3:30	24	28	26	25
	4:00	24	27	27	28
	4:30	22	25	34	26
	5:00	14	24	24	27
	5:30	13	23	24	26
	6:00	19	21	28	31
	6:30	23	26	32	34
	7:00	36	30	39	31

TABLE E-4. Off-Peak Period Average Travel Speed on US-75 (May 1992)

Run Beginning	Travel Speed (mph)	
	Northbound	Southbound
10:00 A.M.	53	54
10:30	59	55
11:00	59	56
11:30	58	52
12:00 P.M.	56	51
12:30	55	51
1:00	56	52
1:30	49	47

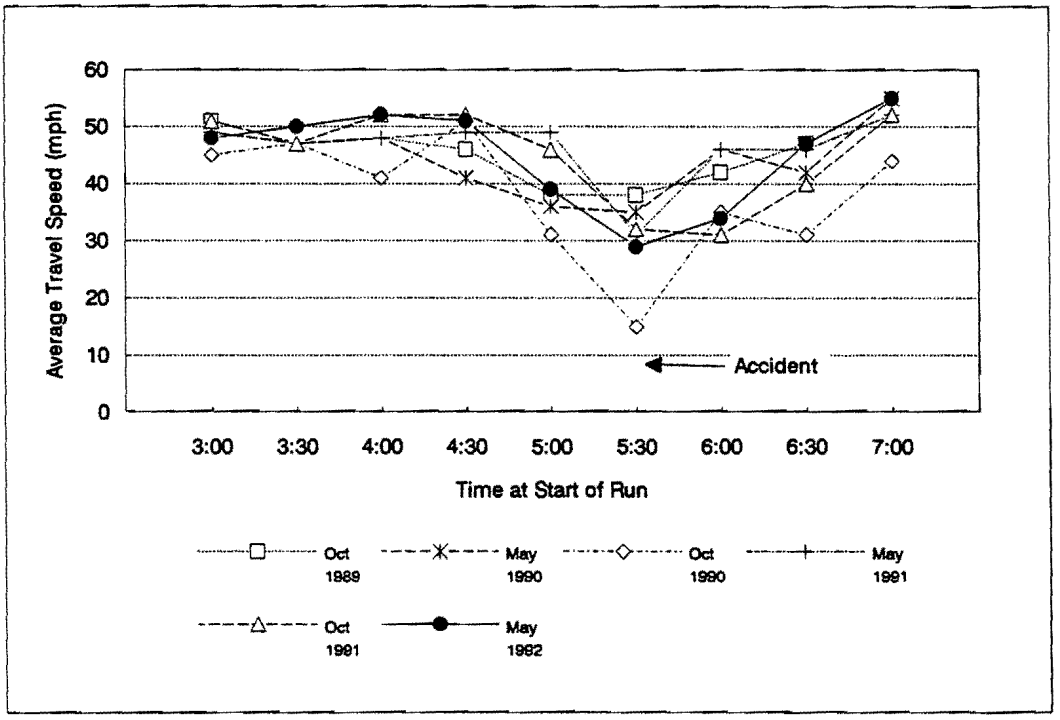


(a) Northbound

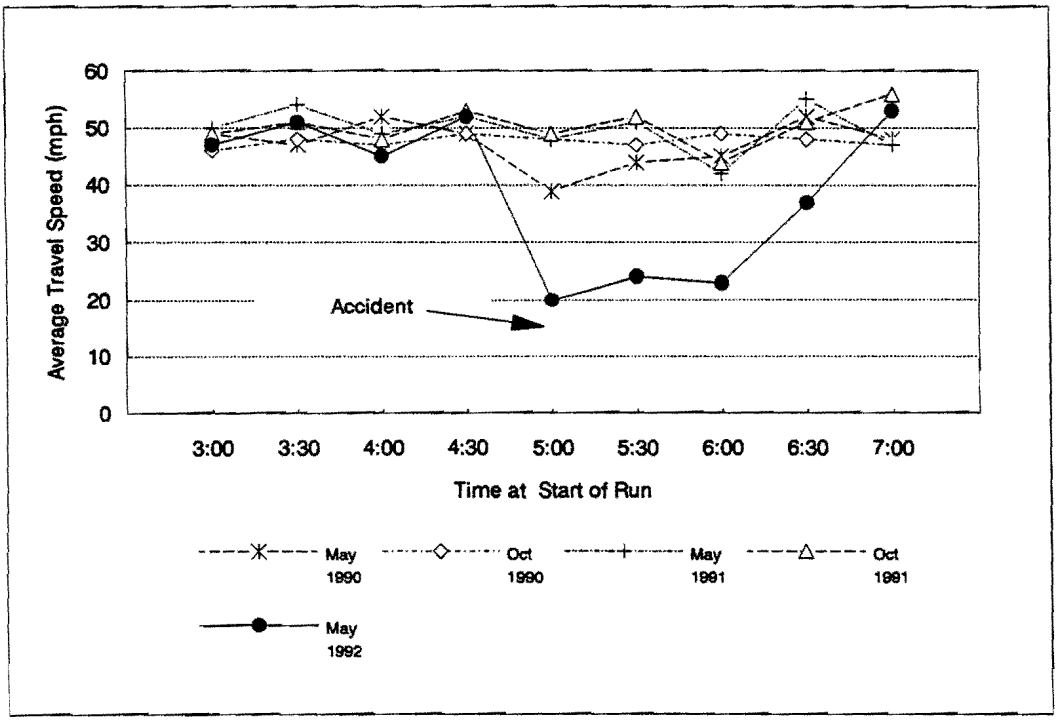


(b) Southbound

Figure E-1. A.M. Peak Period Average Travel Speed Between I-635 and CBD: DNT

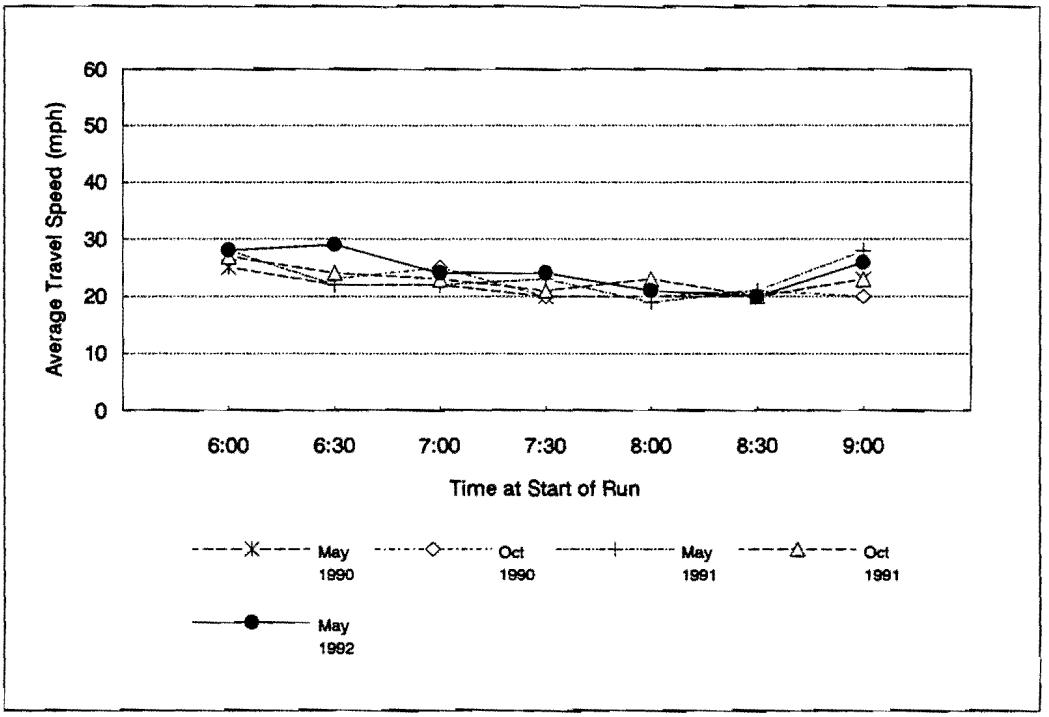


(a) Northbound

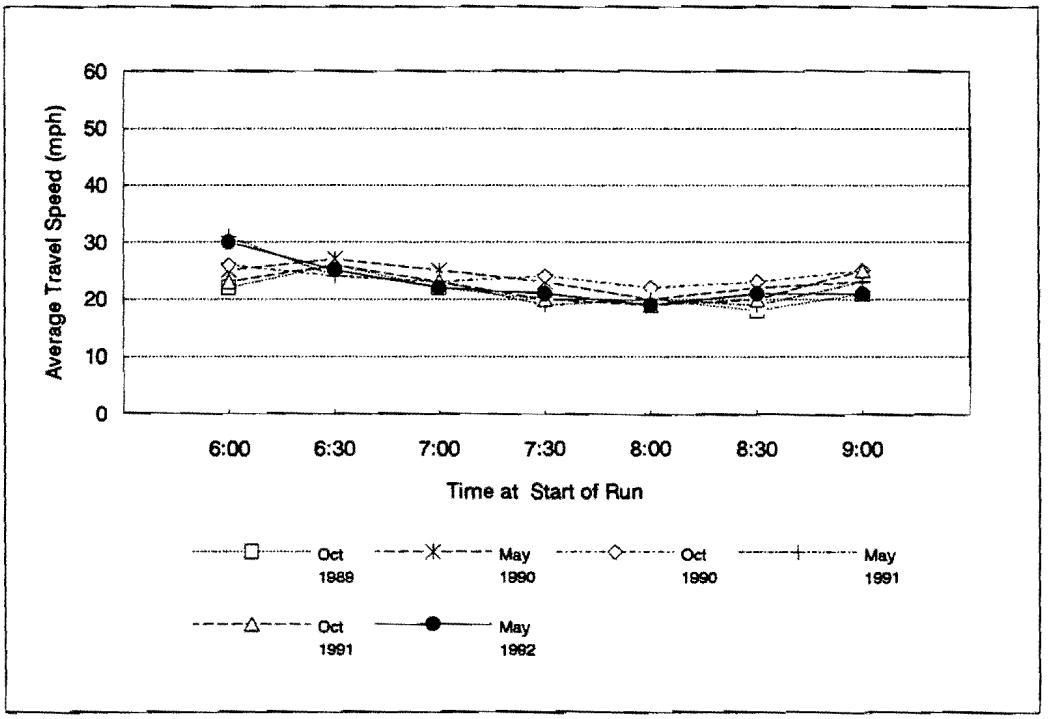


(b) Southbound

Figure E-2. P.M. Peak Period Average Travel Speed Between I-635 and CBD: DNT

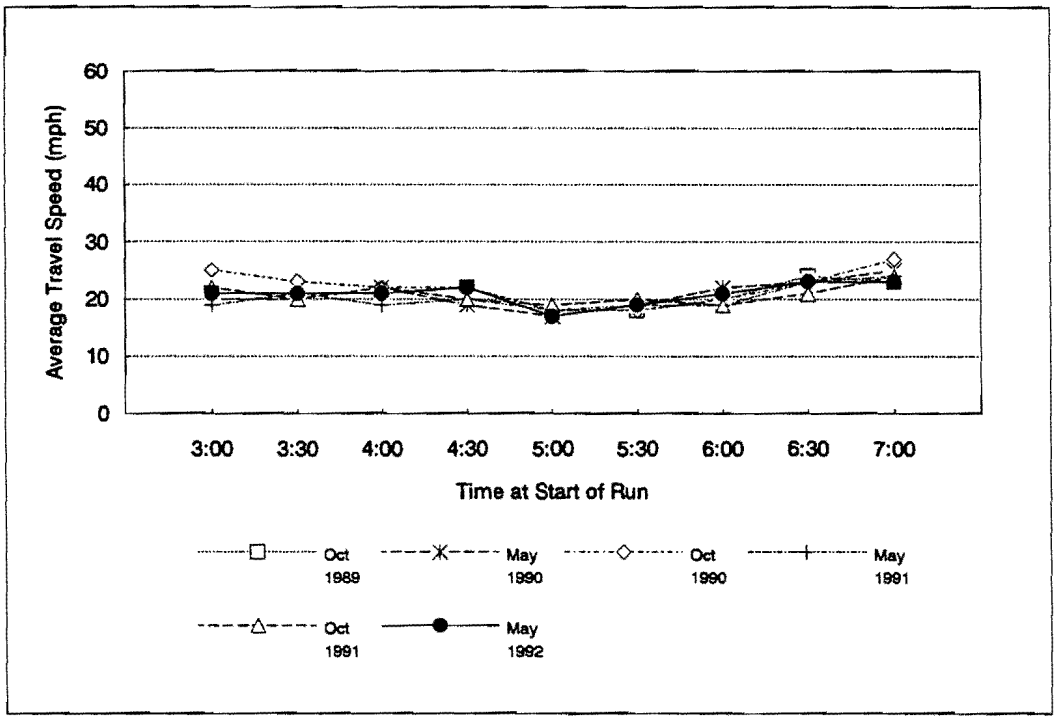


(a) Northbound

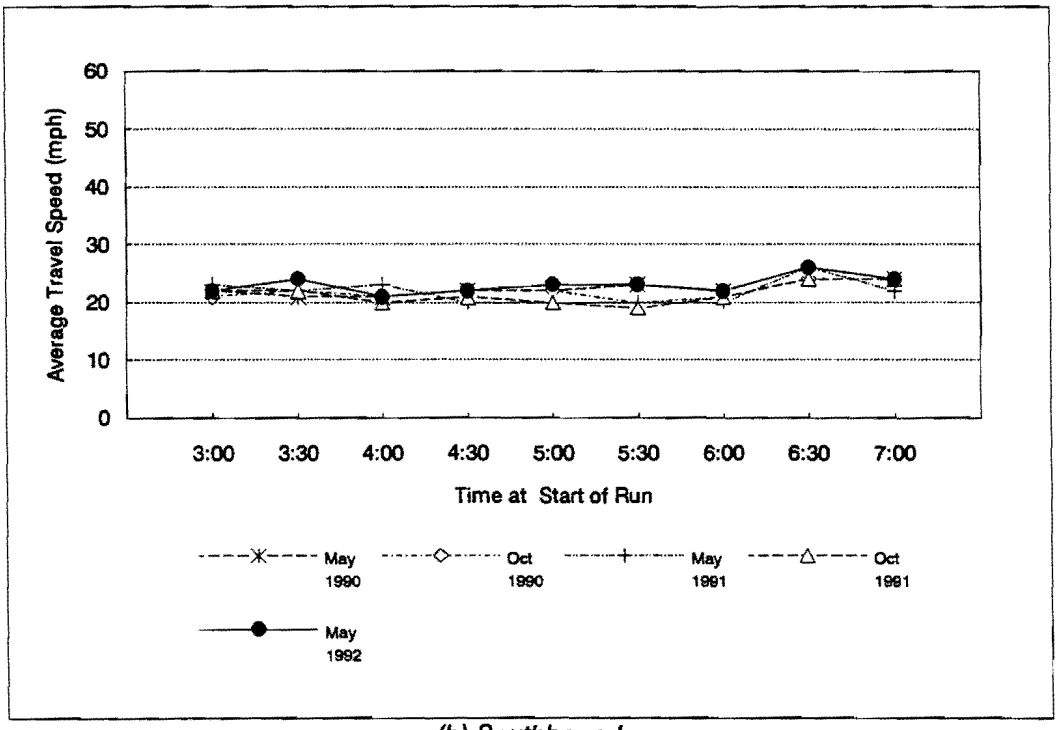


(b) Southbound

Figure E-3. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Preston

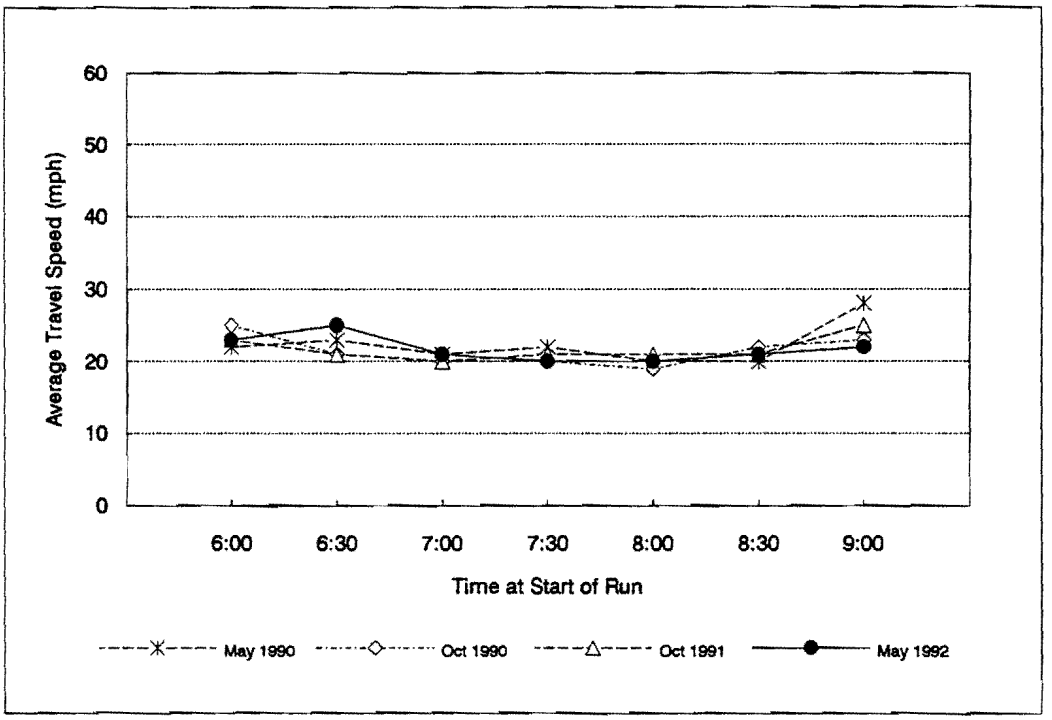


(a) Northbound

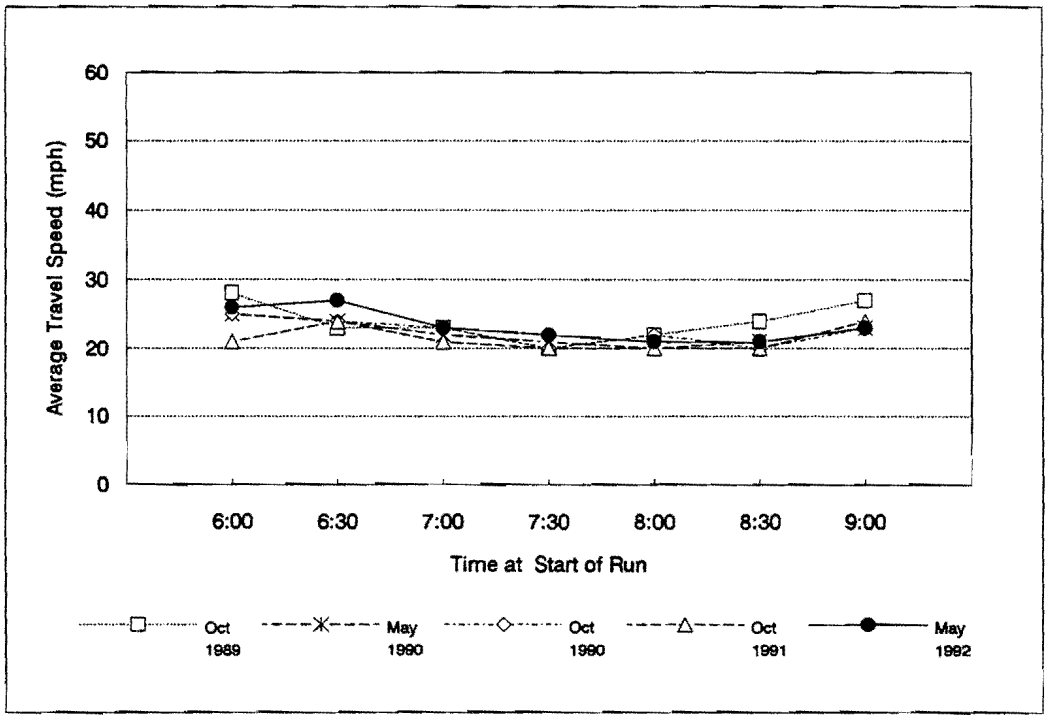


(b) Southbound

Figure E-4. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Preston

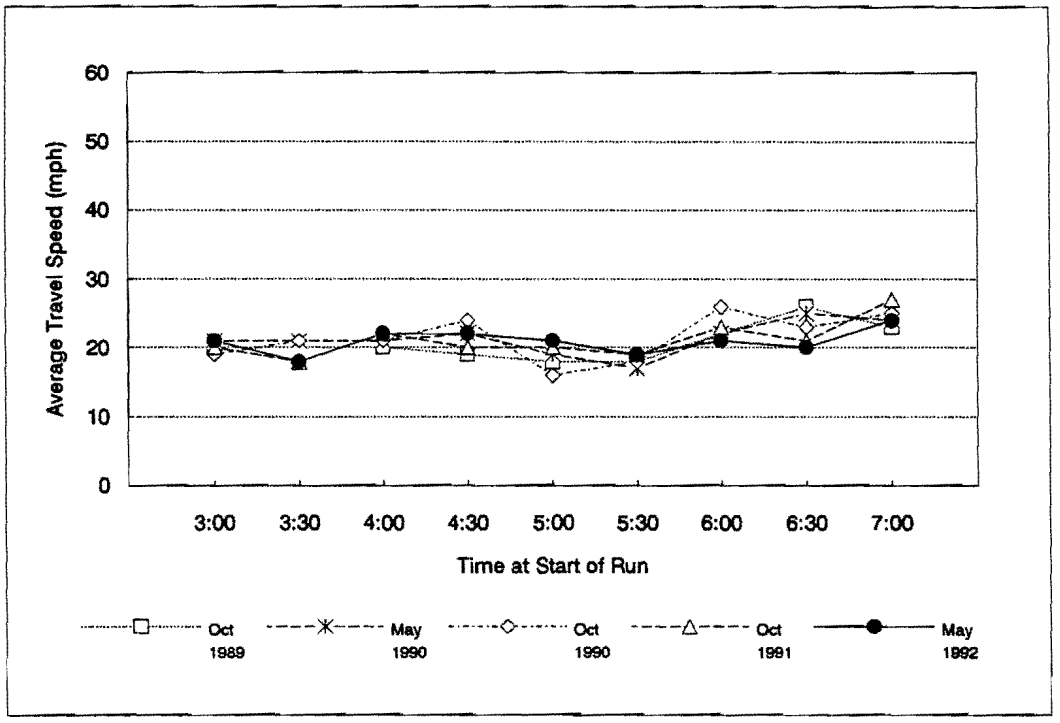


(a) Northbound

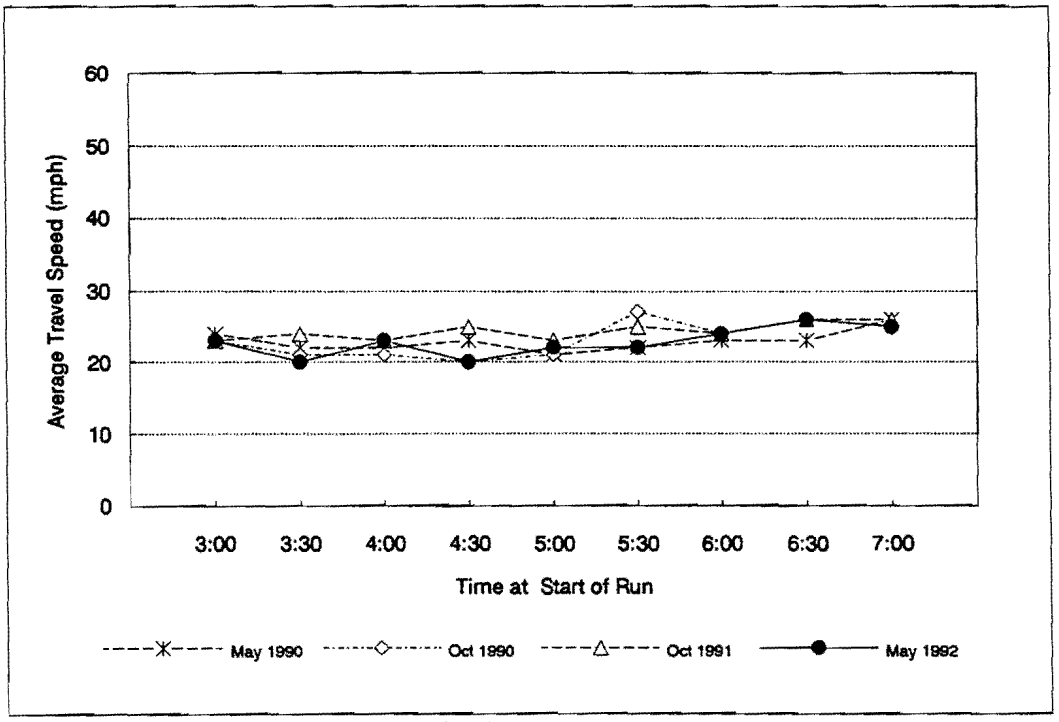


(b) Southbound

Figure E-5. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Hillcrest

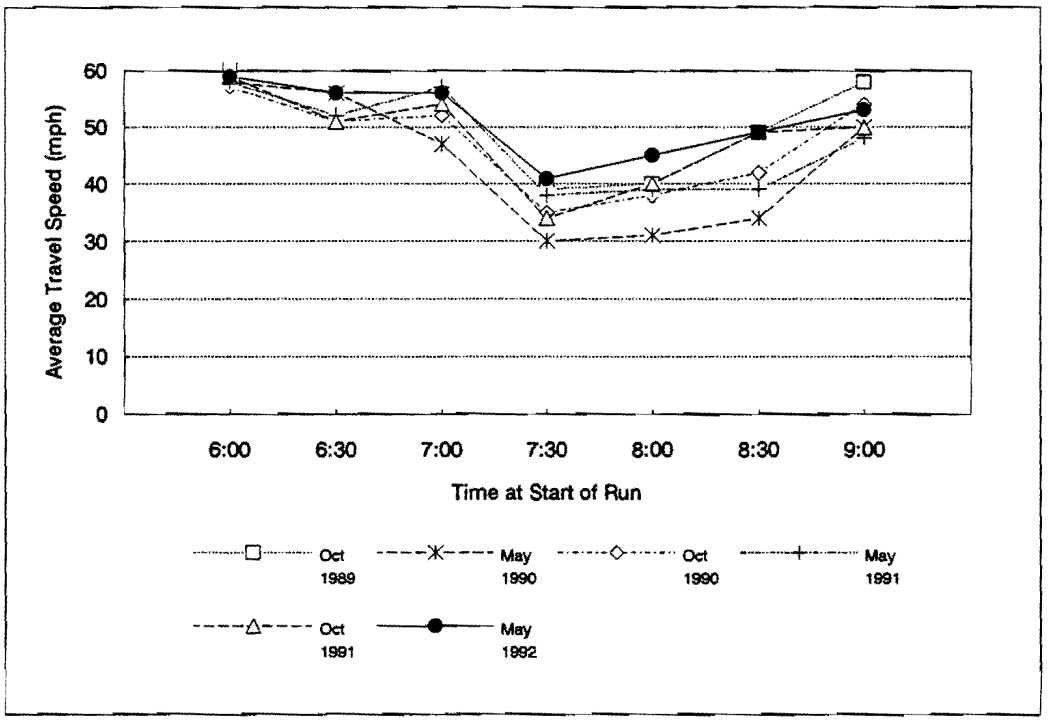


(a) Northbound

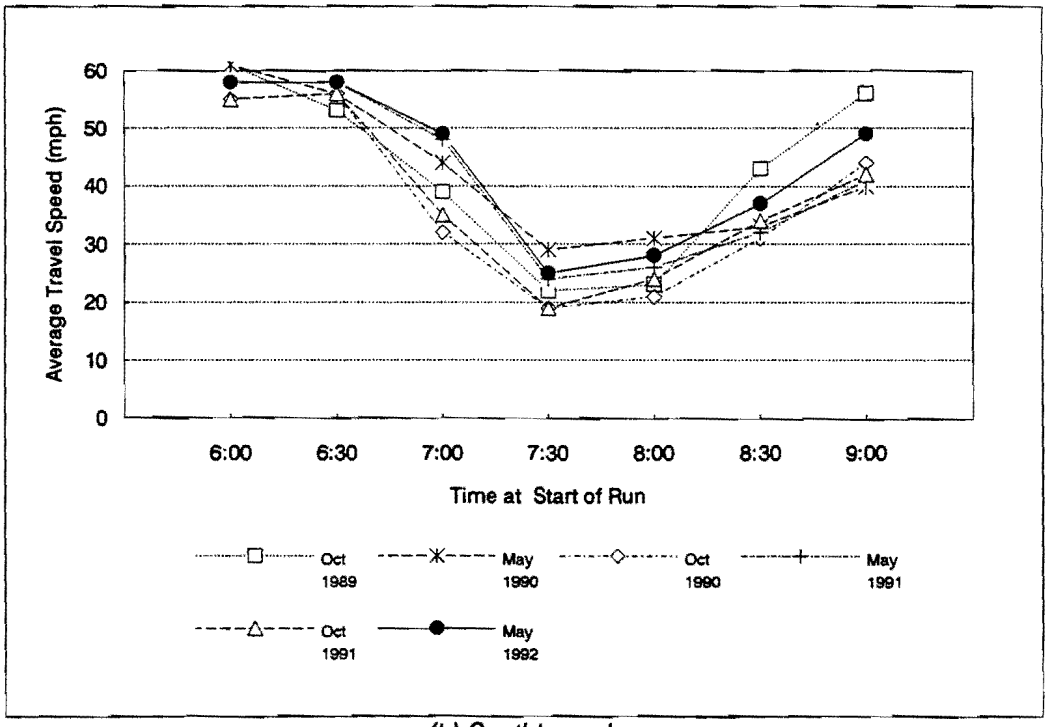


(b) Southbound

Figure E-6. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Hillcrest

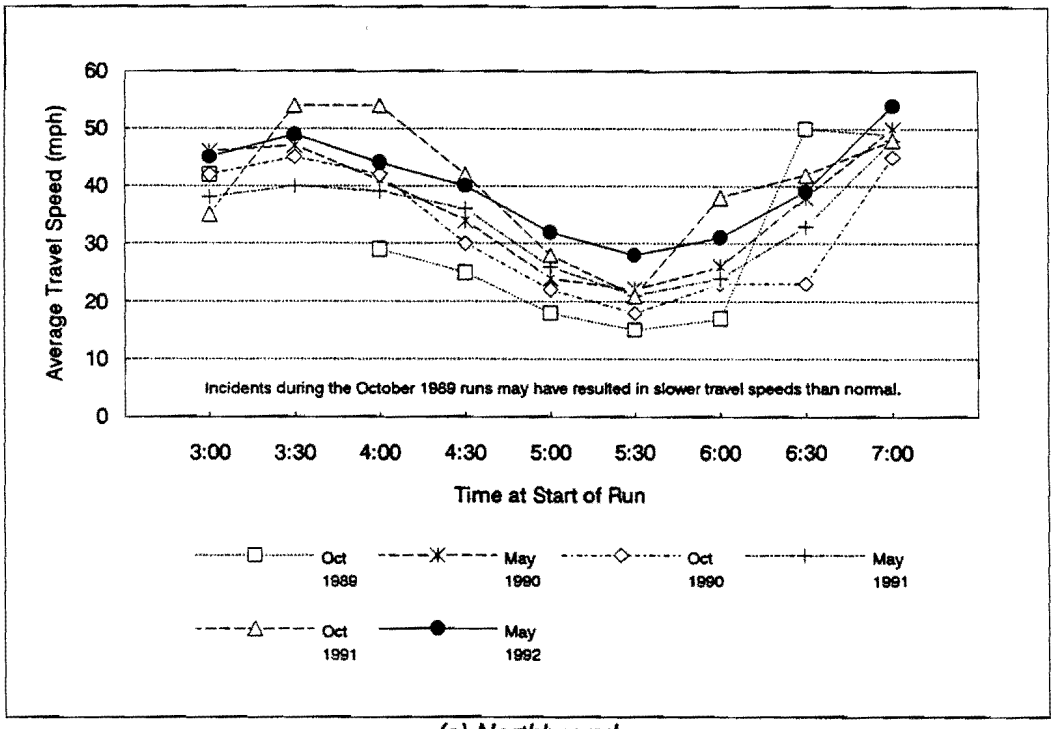


(a) Northbound

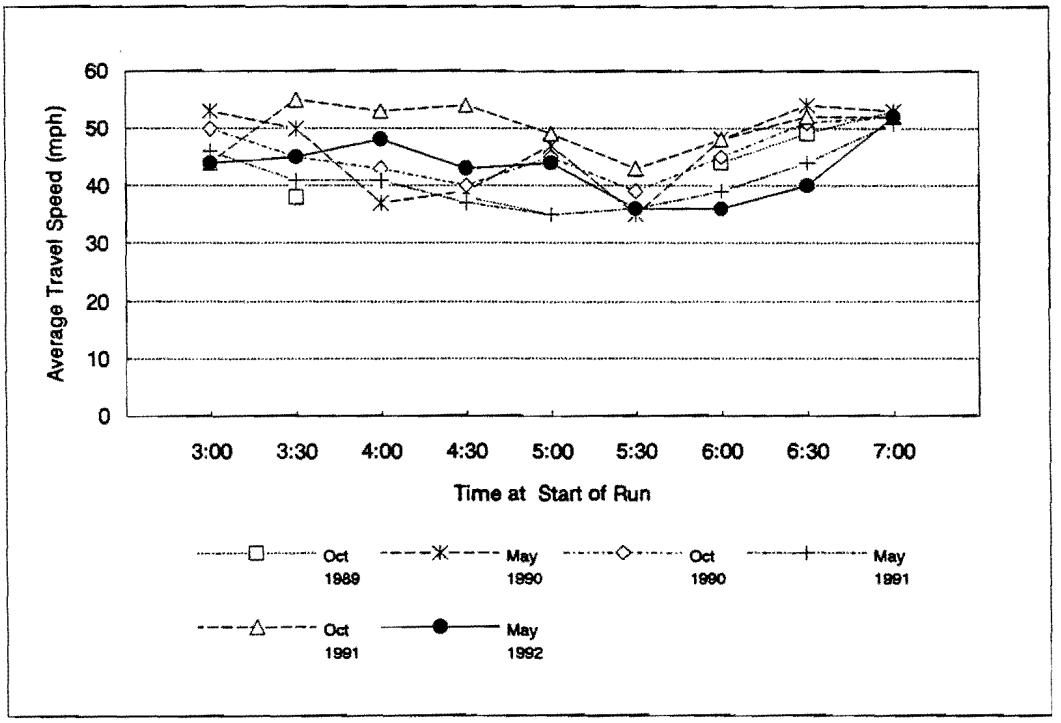


(b) Southbound

Figure E-7. A.M. Peak Period Average Travel Speed Between I-635 and CBD: US-75

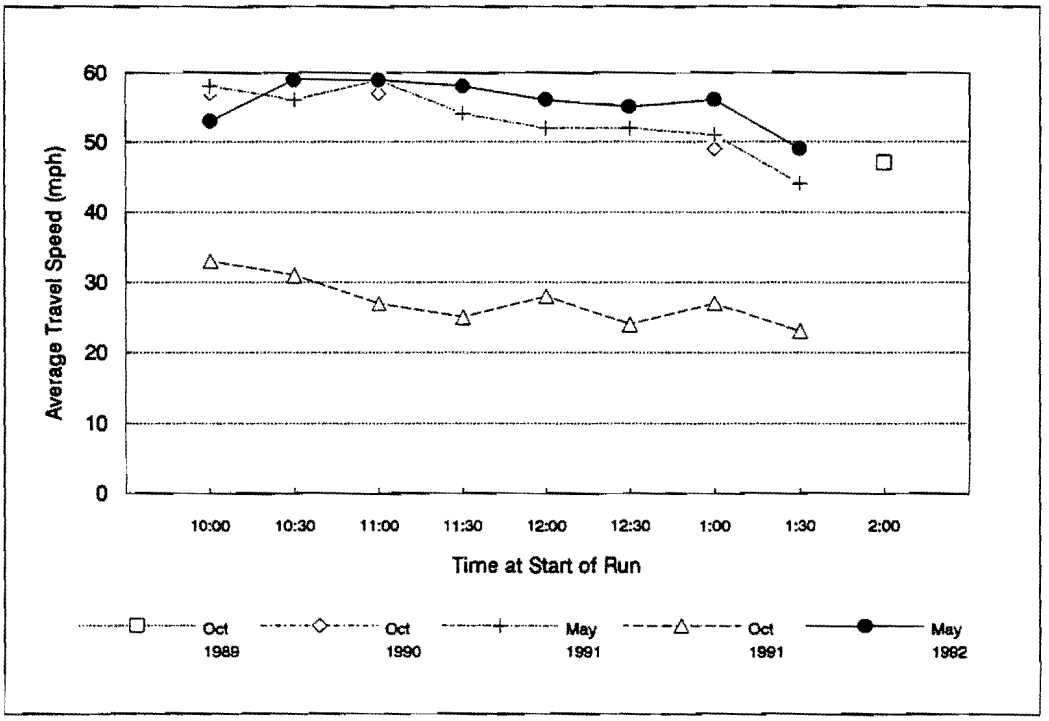


(a) Northbound

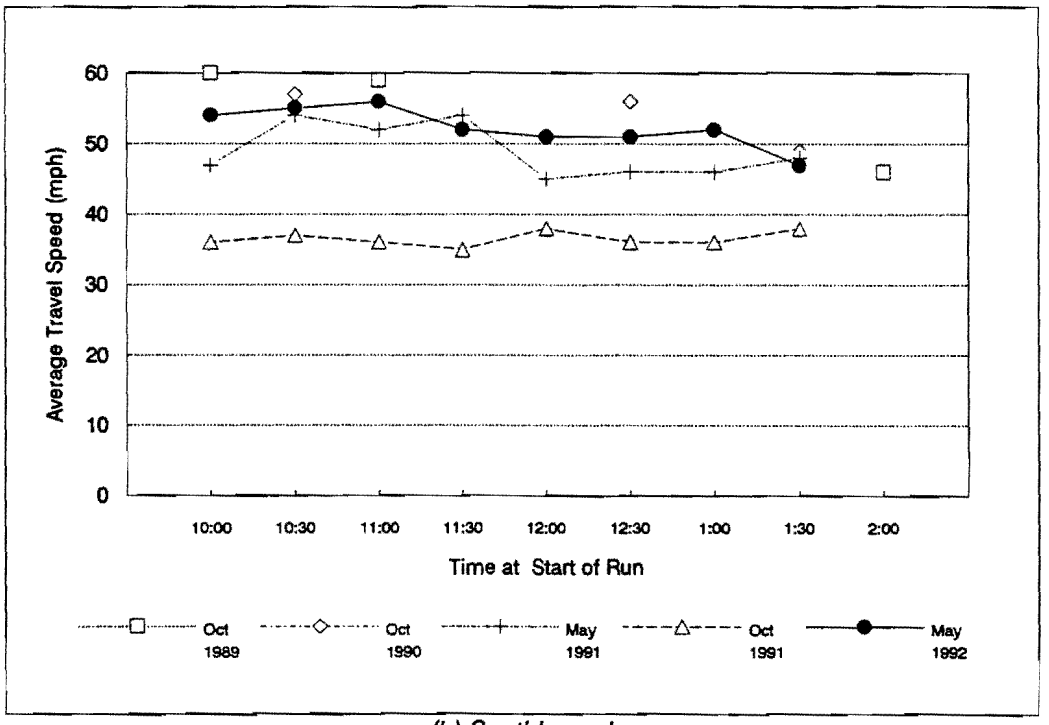


(b) Southbound

Figure E-8. P.M. Peak Period Average Travel Speed Between I-635 and CBD: US-75

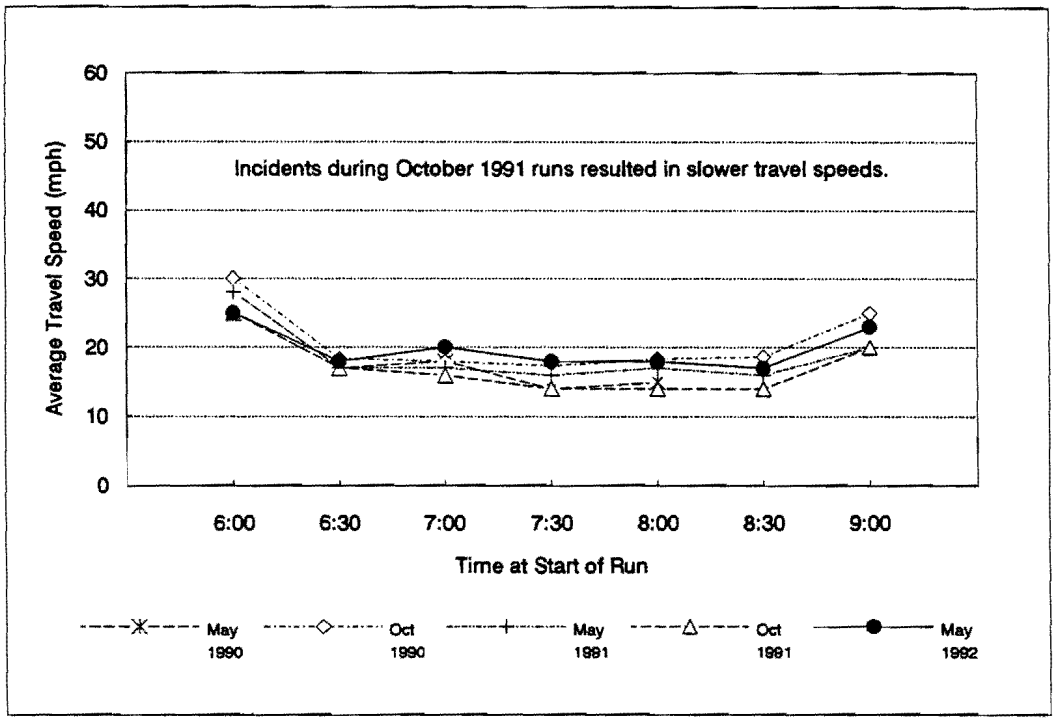


(a) Northbound

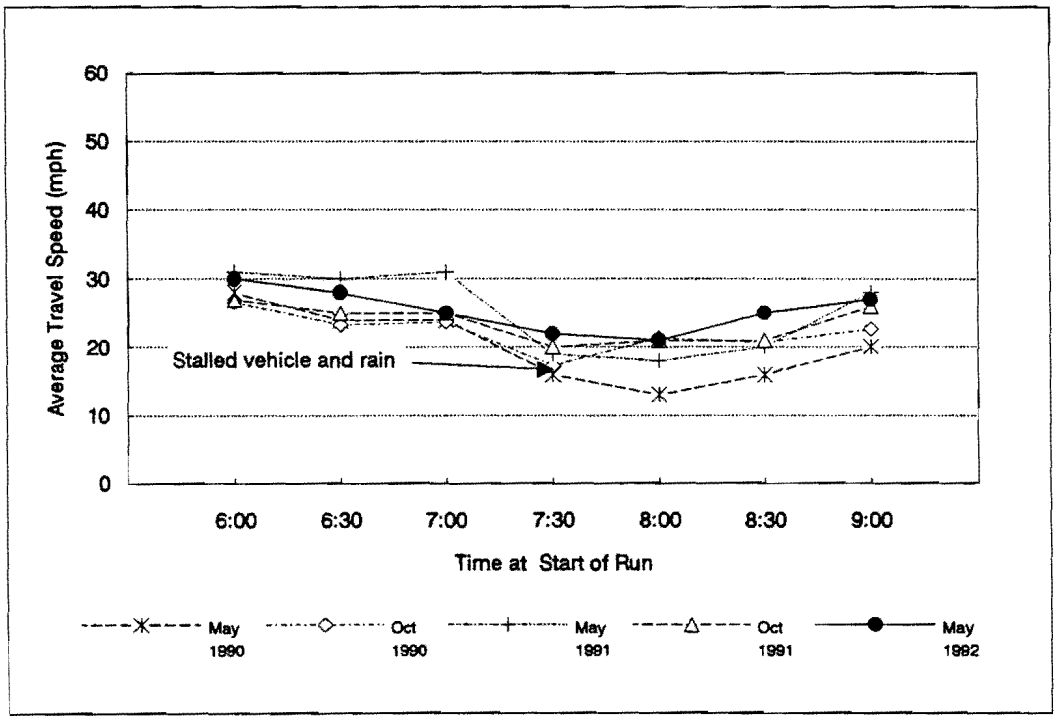


(b) Southbound

Figure E-9. Off-Peak Period Average Travel Speed Between I-635 and CBD: US-75

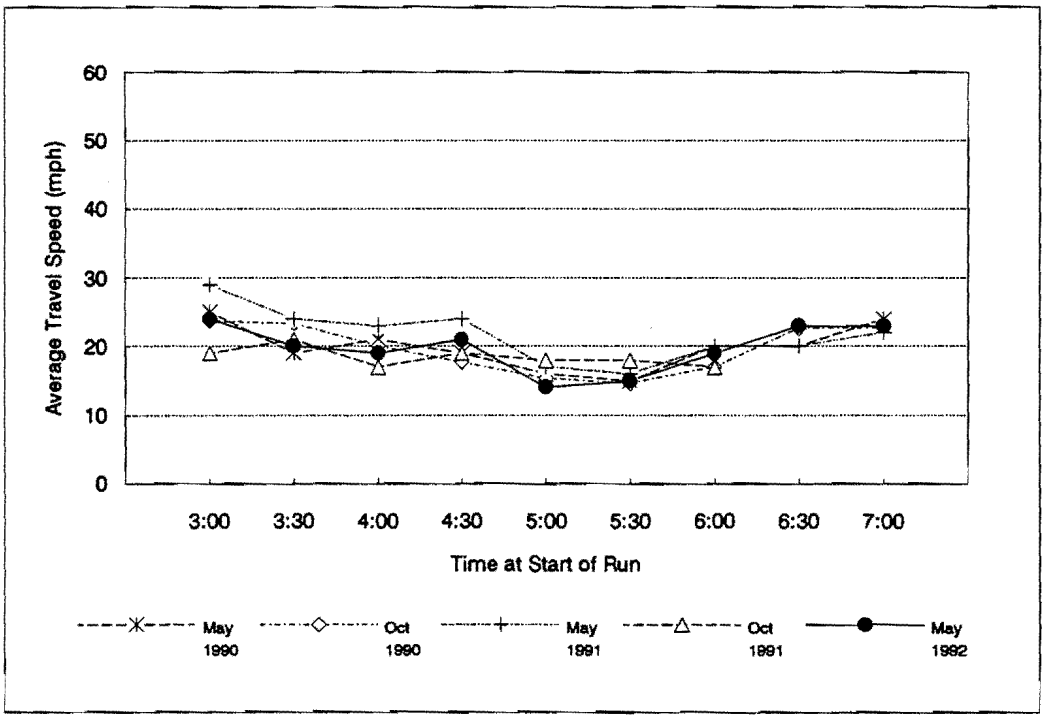


(a) Northbound

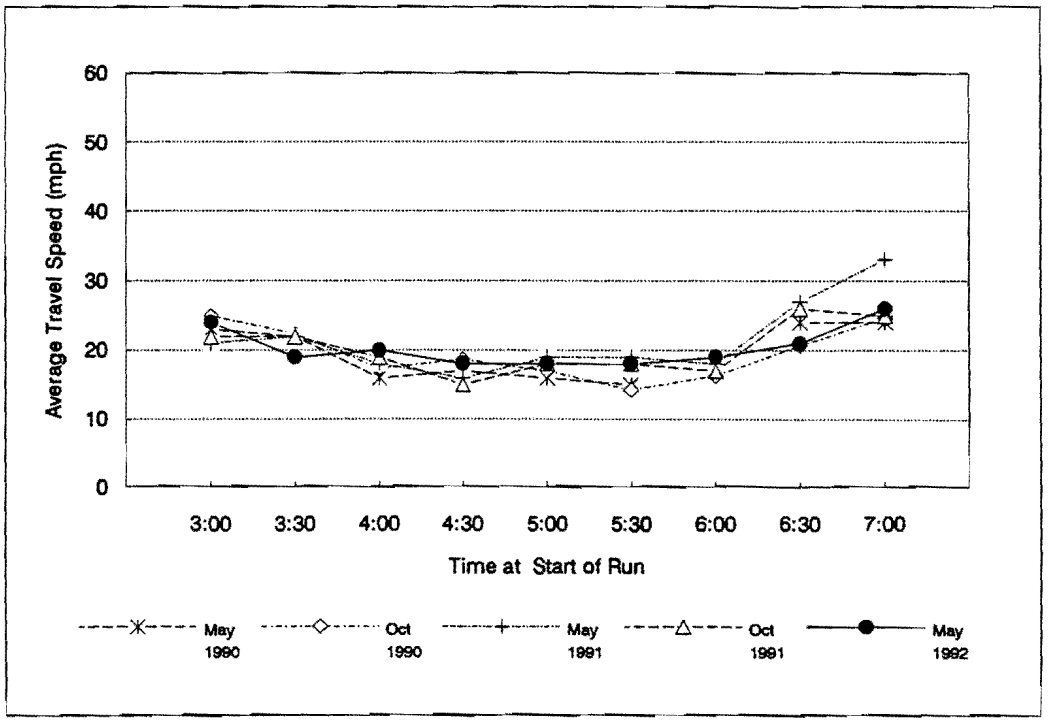


(b) Southbound

Figure E-10. A.M. Peak Period Average Travel Speed Between I-635 and CBD: US-75 Frontage Road

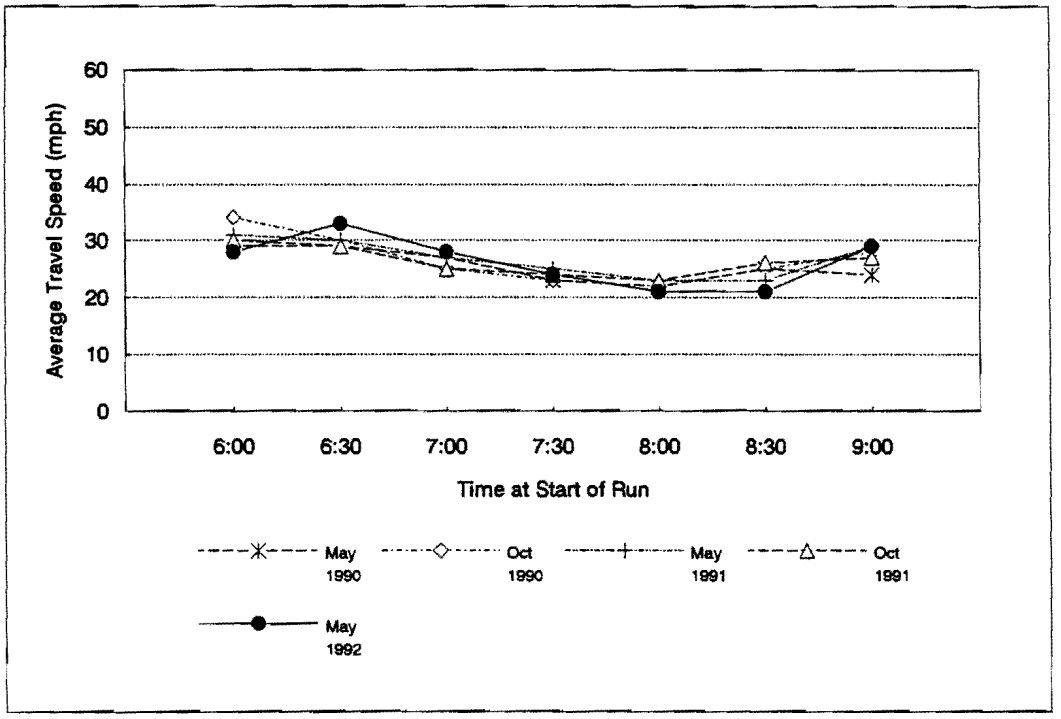


(a) Northbound

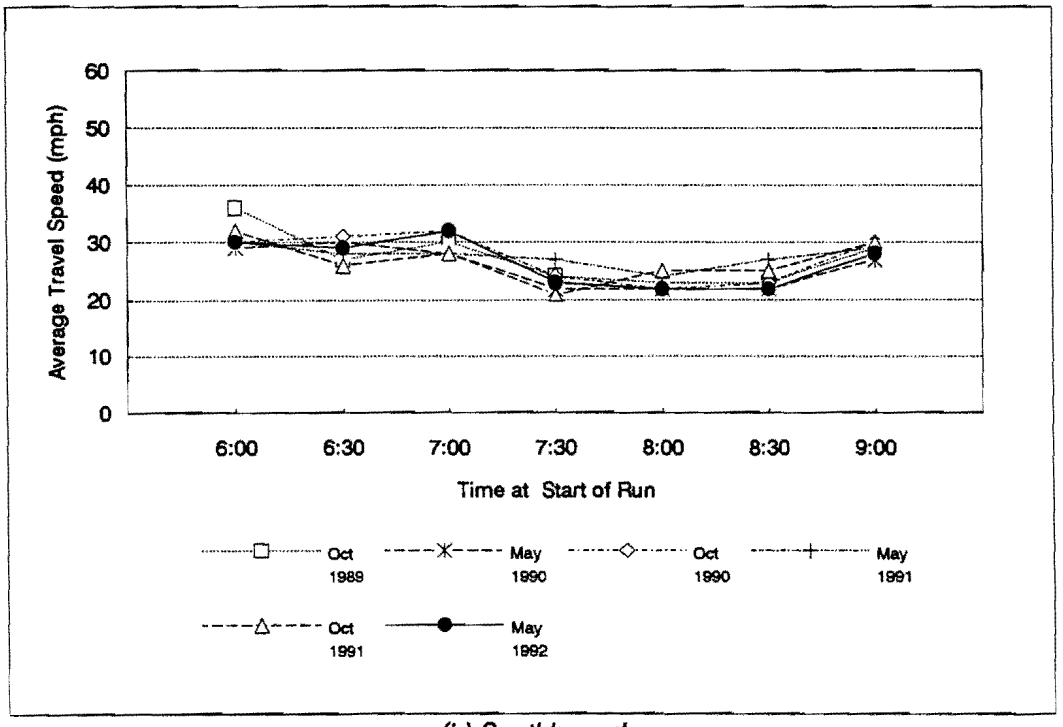


(b) Southbound

Figure E-11. P.M. Peak Period Average Travel Speed Between I-635 and CBD: US-75 Frontage Road

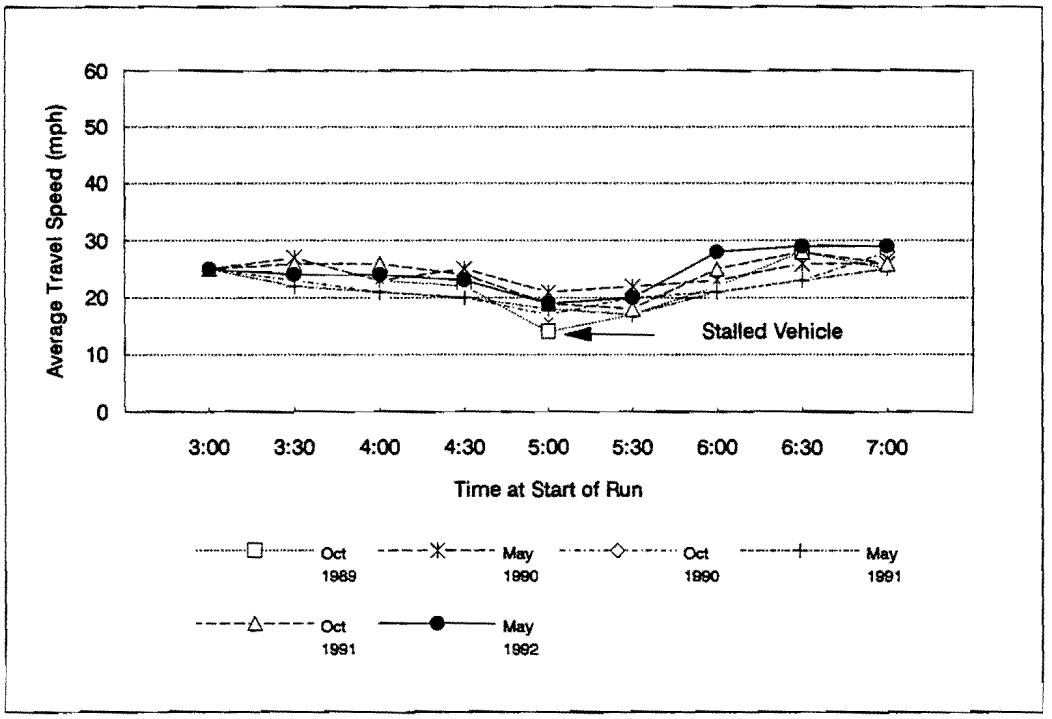


(a) Northbound

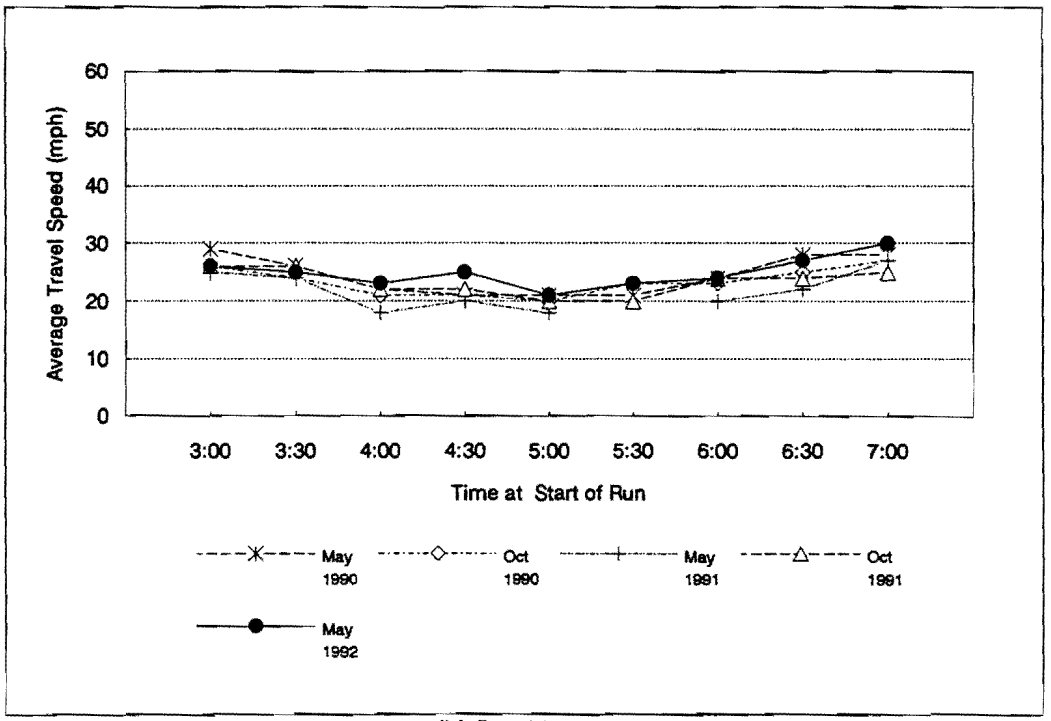


(b) Southbound

Figure E-12. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Greenville

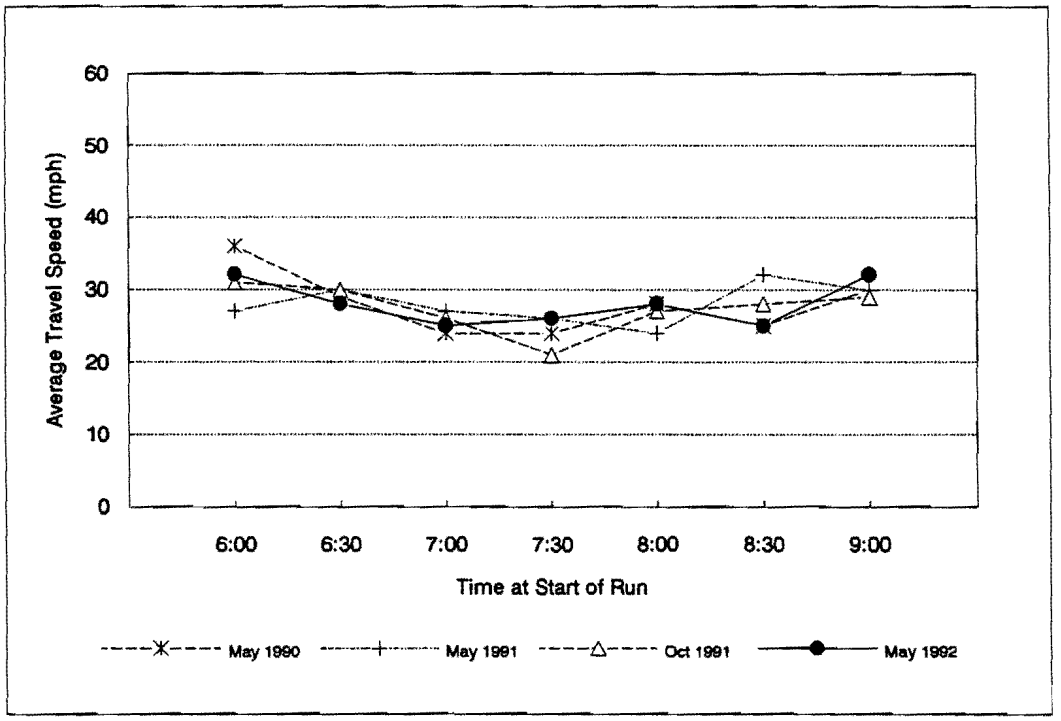


(a) Northbound

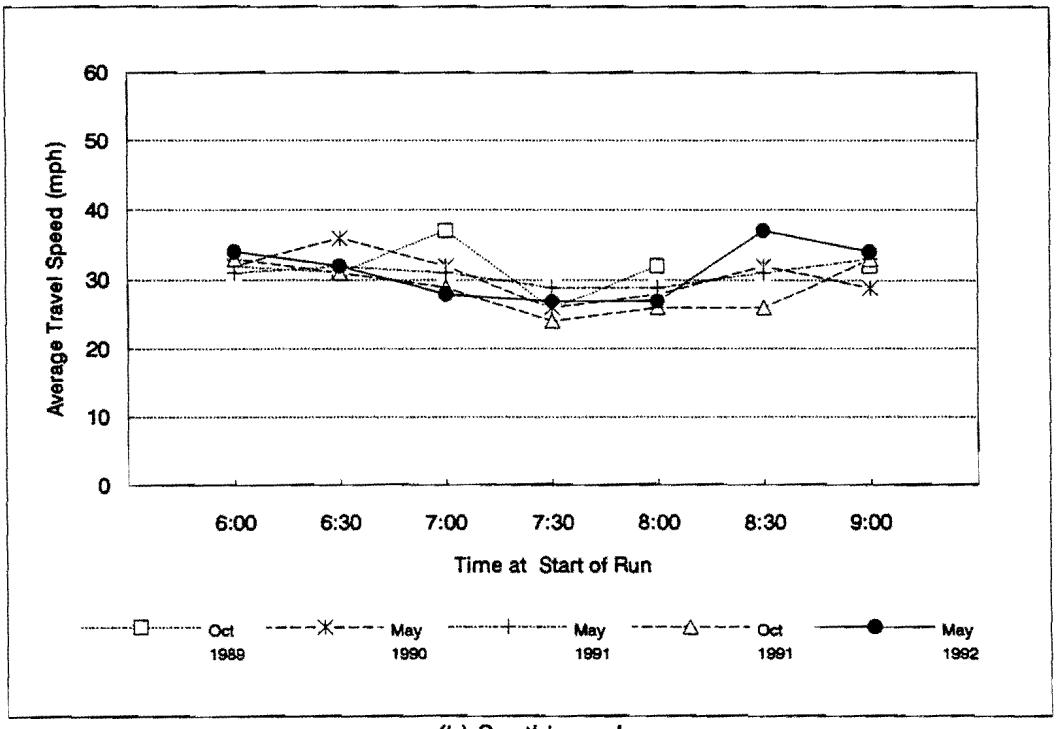


(b) Southbound

Figure E-13. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Greenville

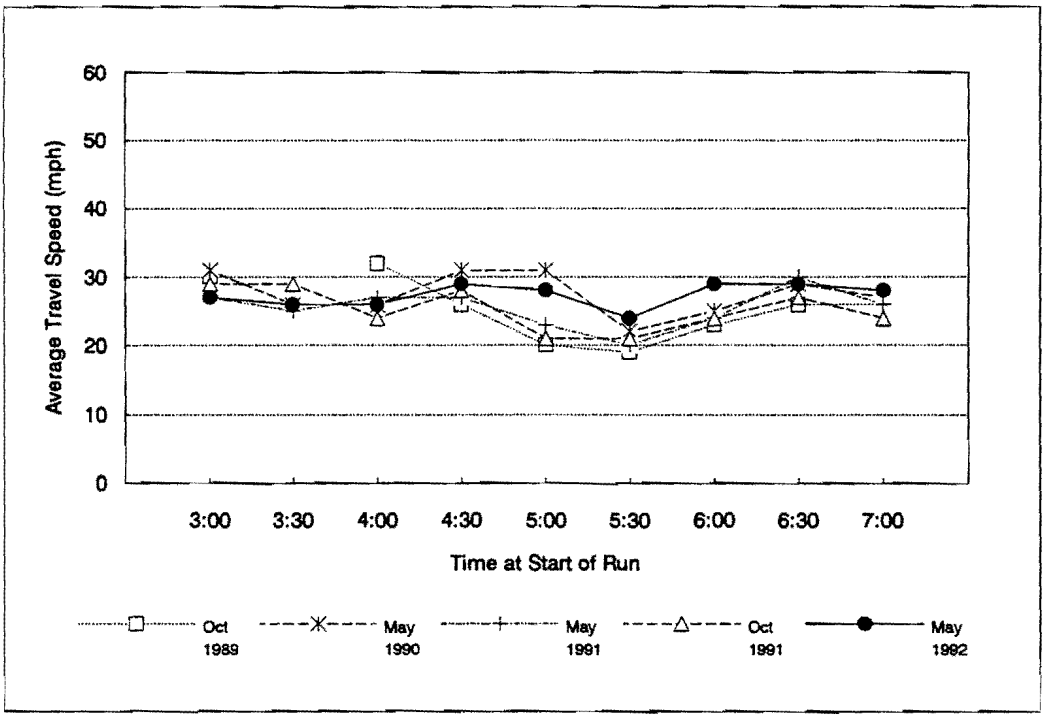


(a) Northbound

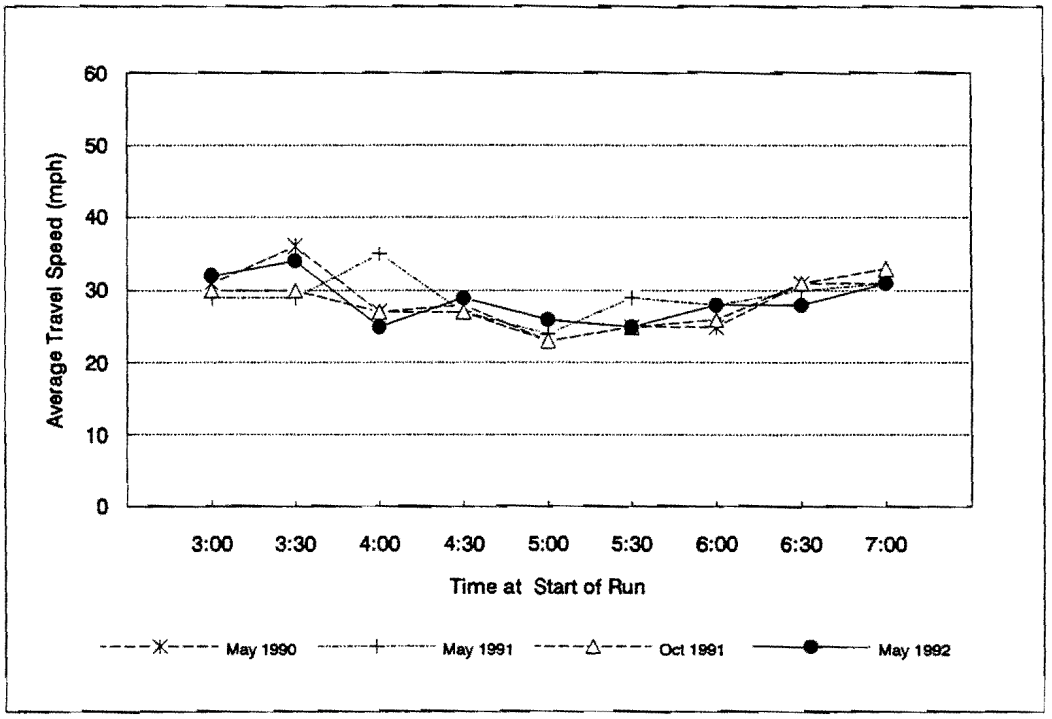


(b) Southbound

Figure E-14. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Skillman

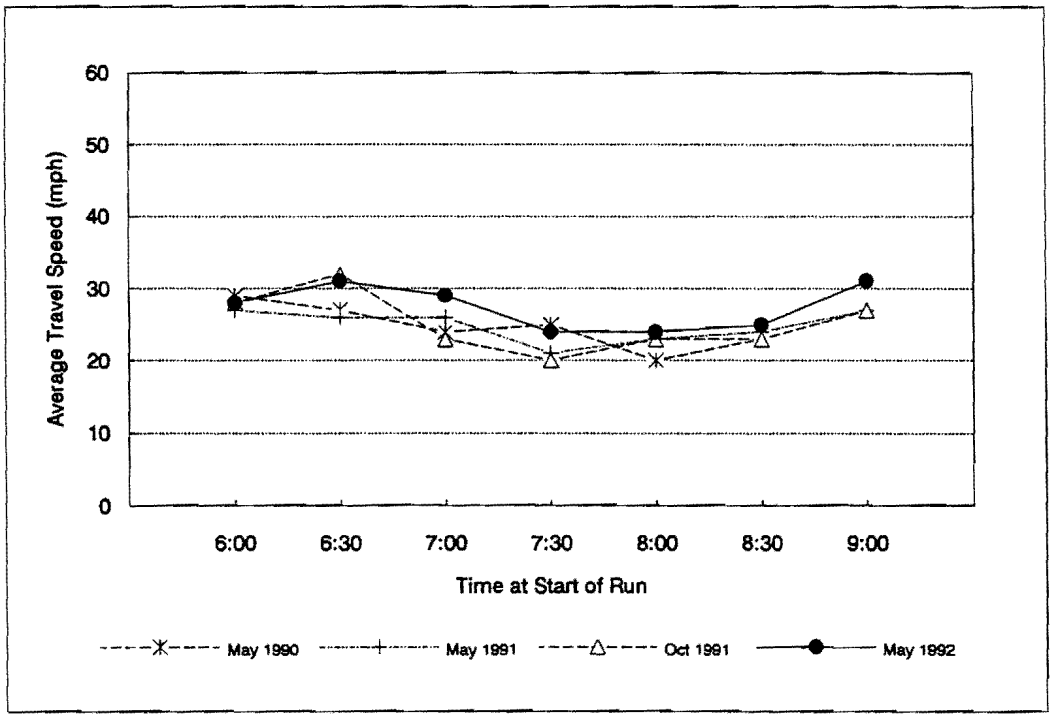


(a) Northbound

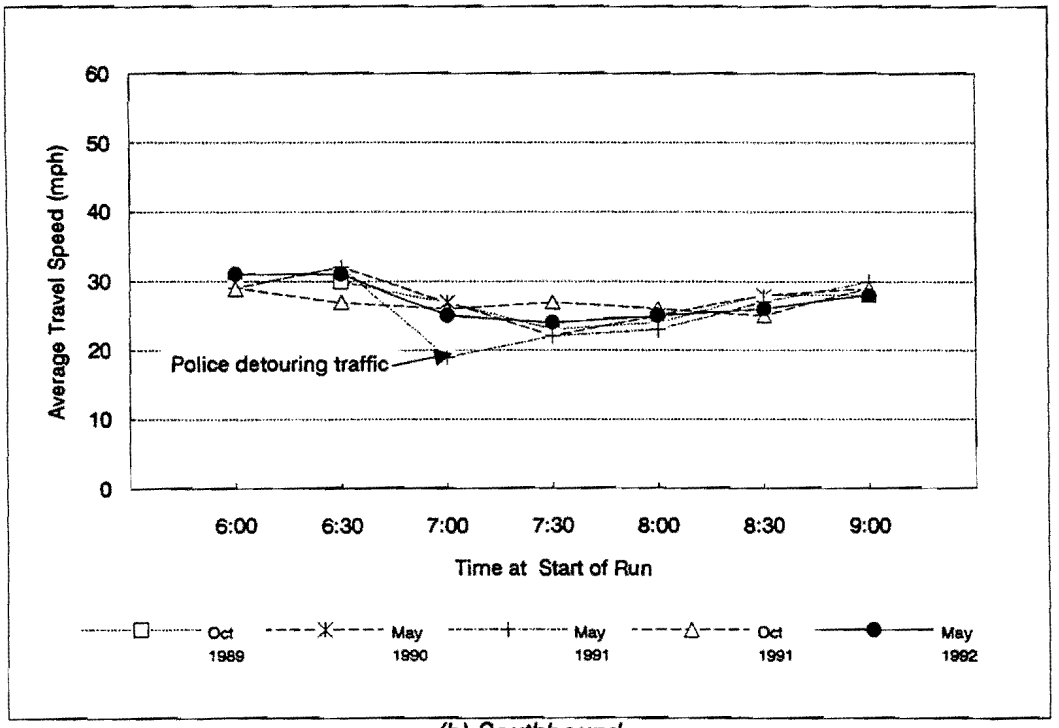


(b) Southbound

Figure E-15. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Skillman

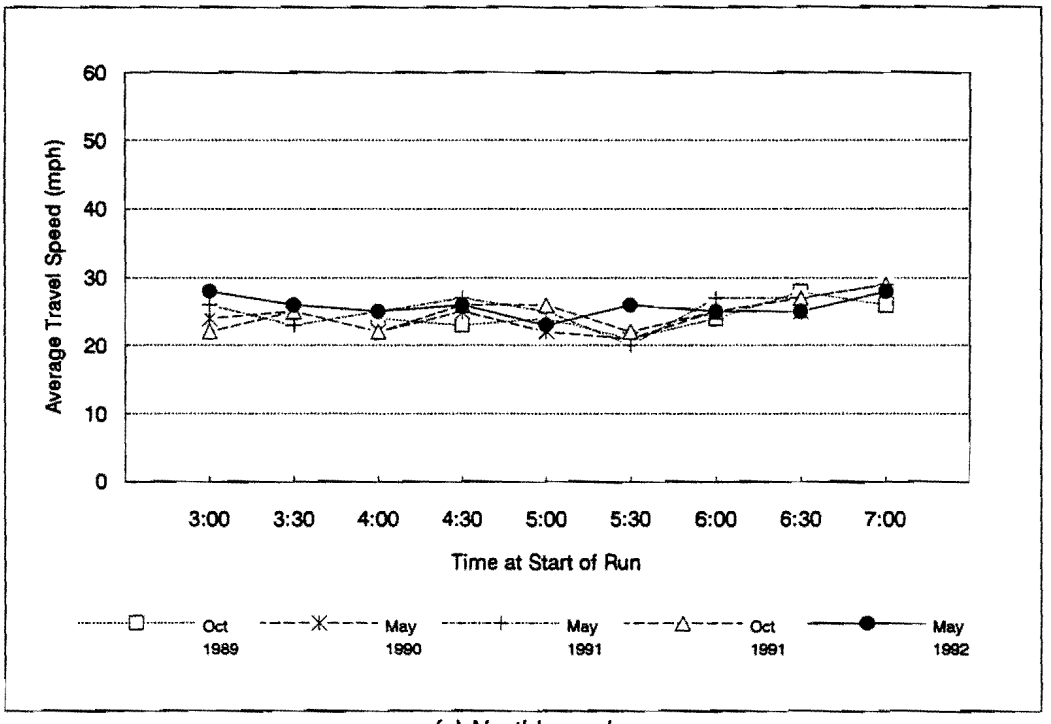


(a) Northbound

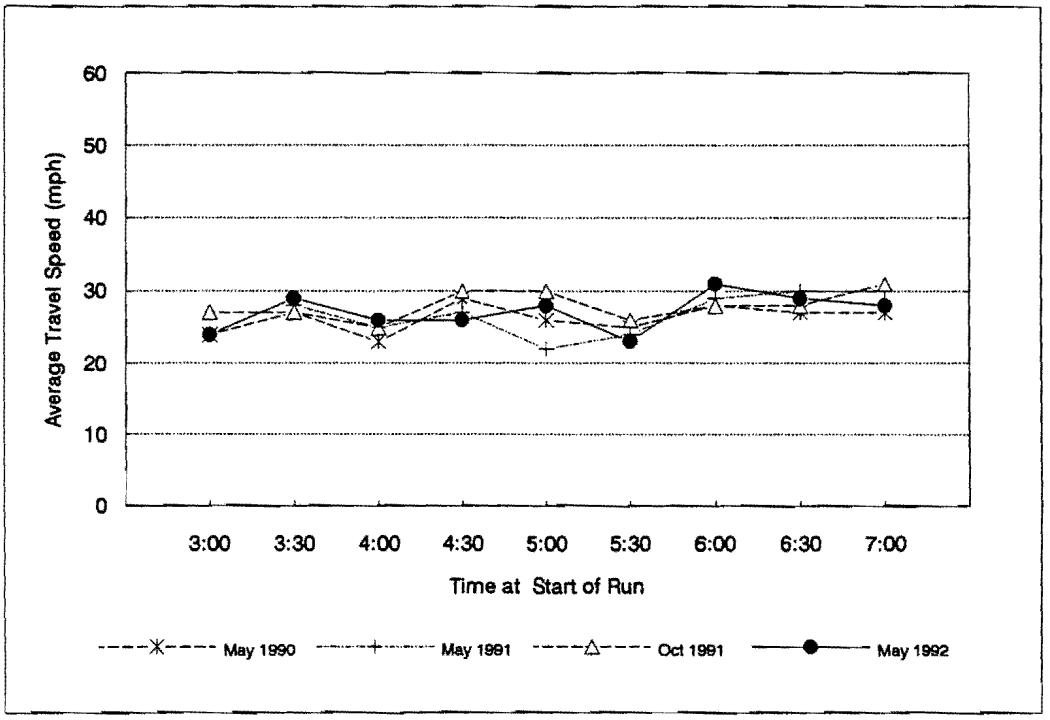


(b) Southbound

Figure E-16. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Abrams

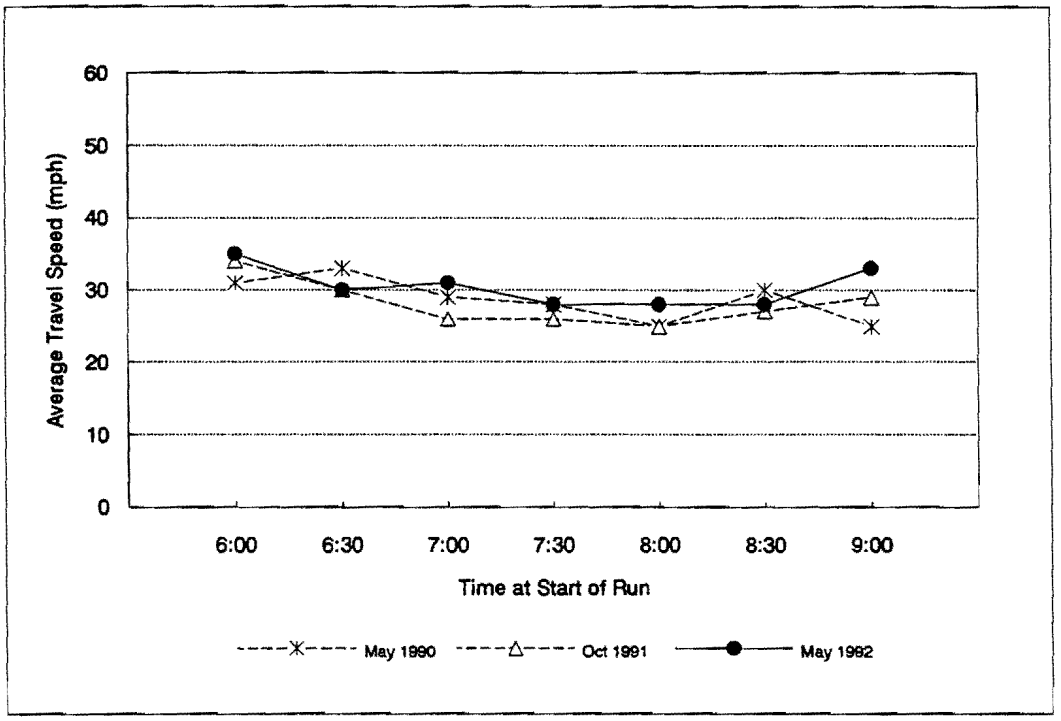


(a) Northbound

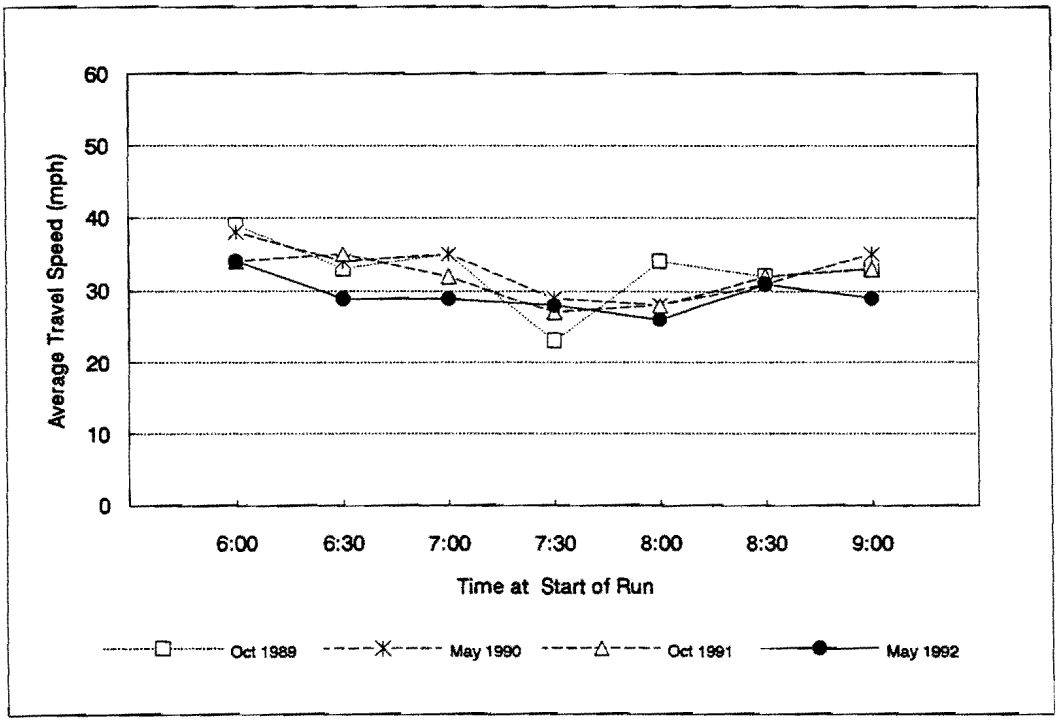


(b) Southbound

Figure E-17. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Abrams

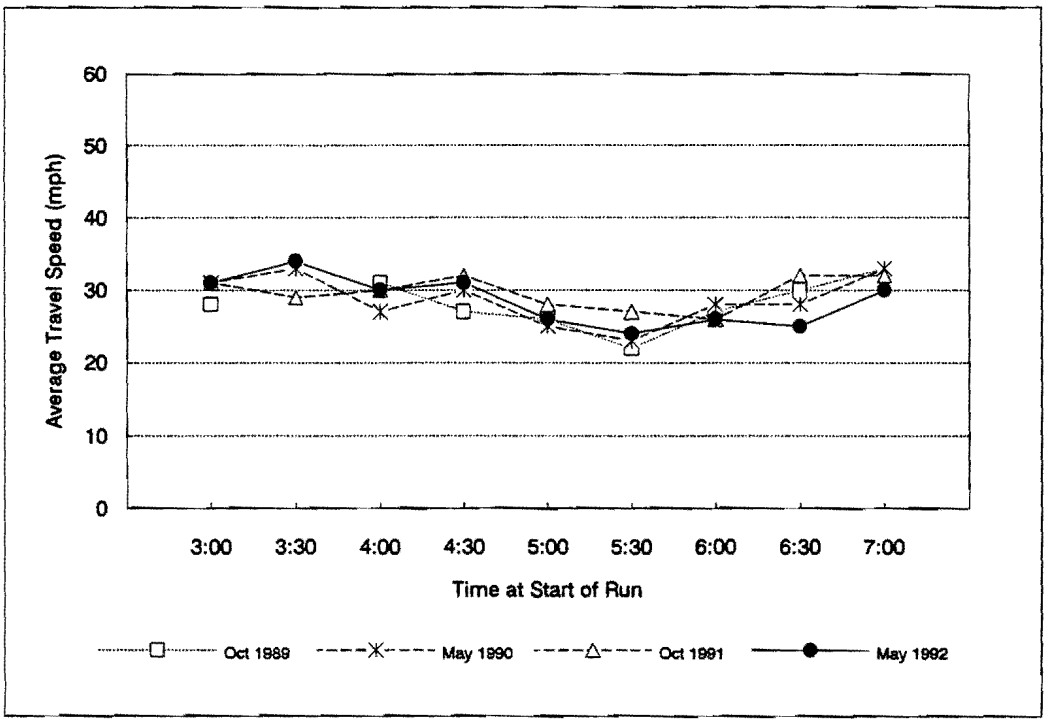


(a) Northbound

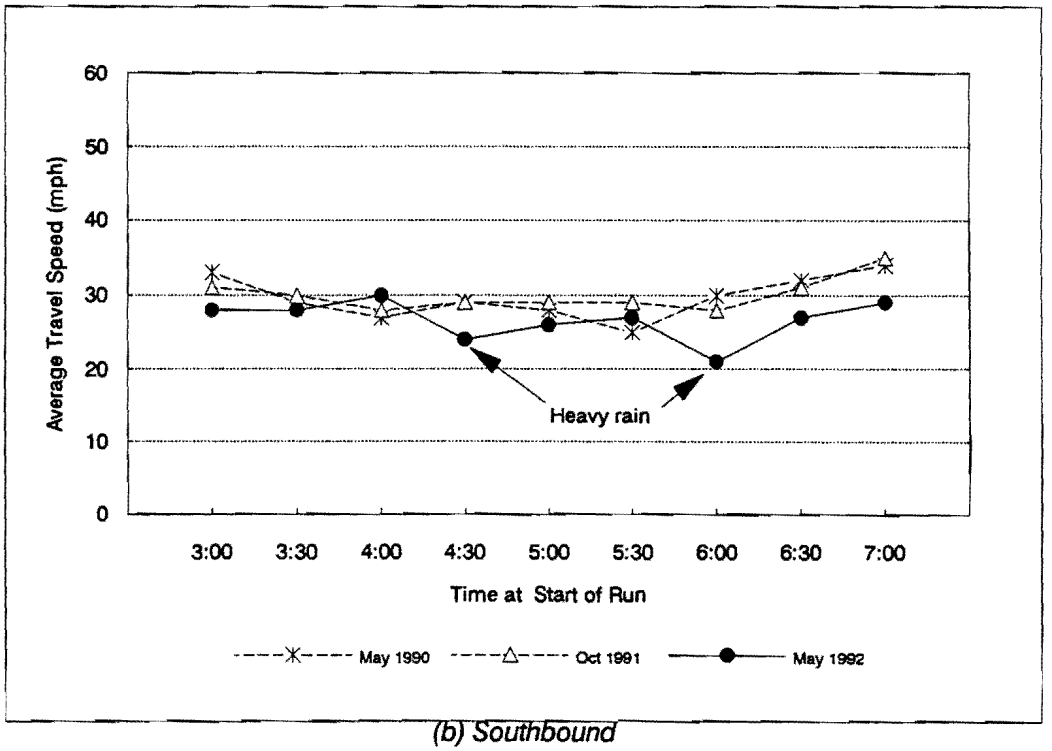


(b) Southbound

Figure E-18. A.M. Peak Period Average Travel Speed Between I-635 and CBD: Garland

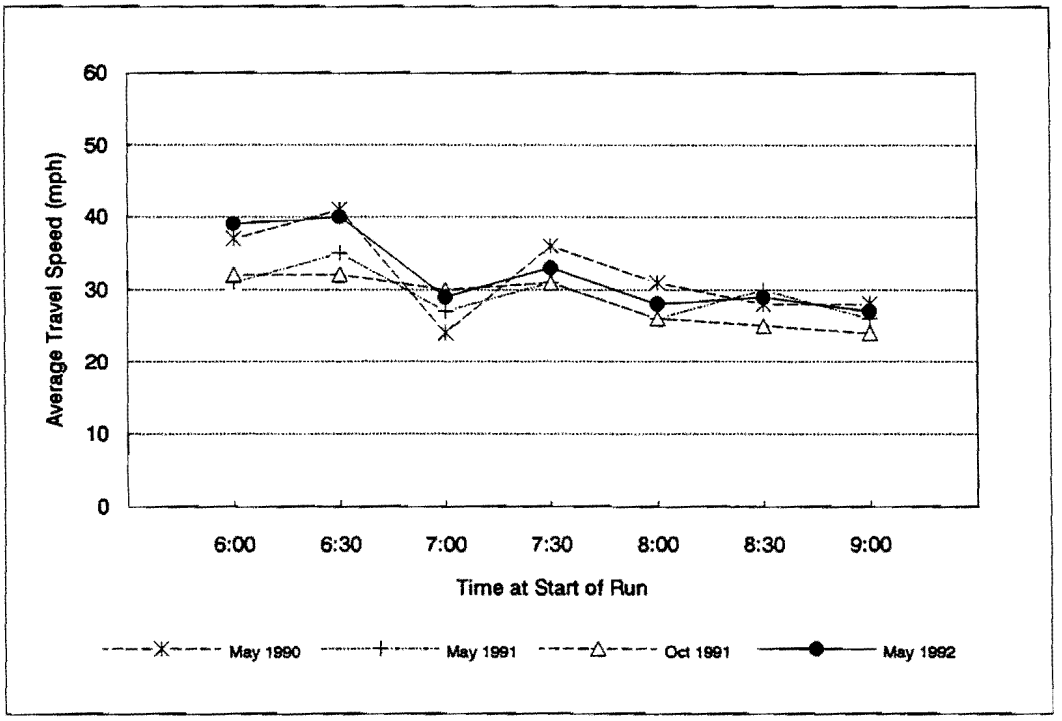


(a) Northbound

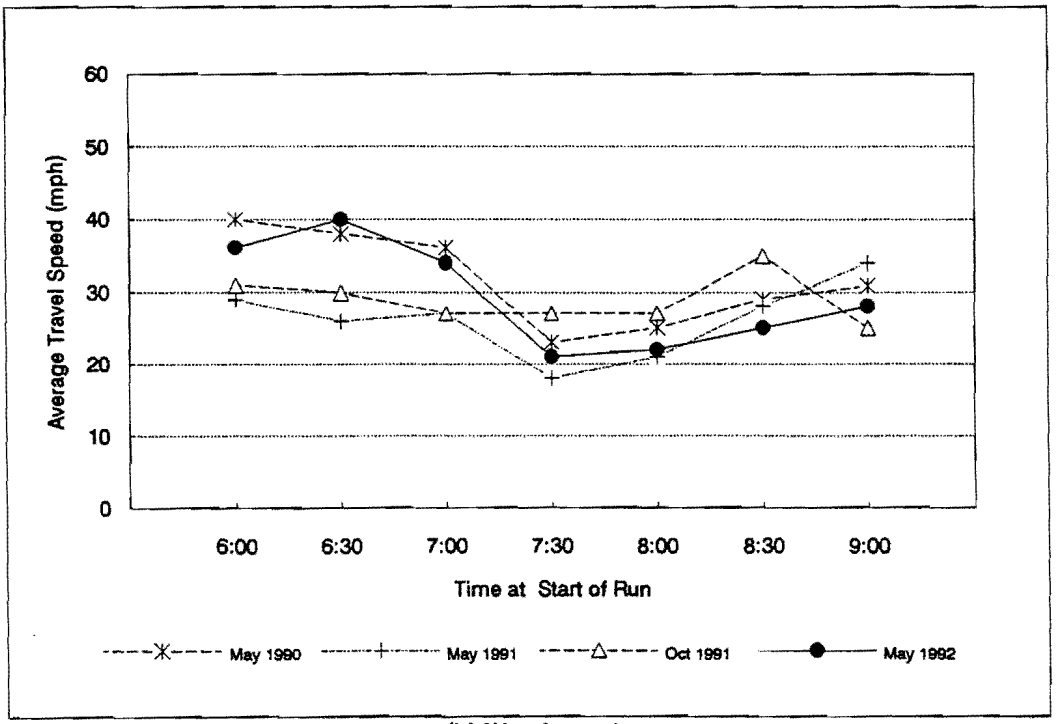


(b) Southbound

Figure E-19. P.M. Peak Period Average Travel Speed Between I-635 and CBD: Garland

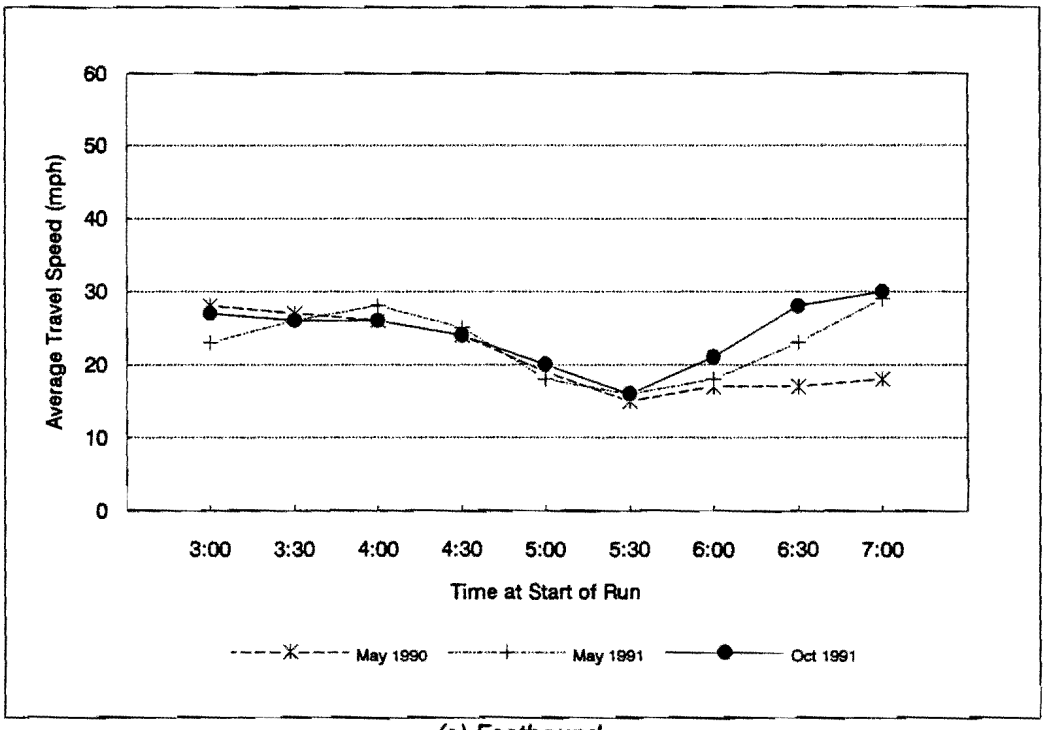


(a) Eastbound

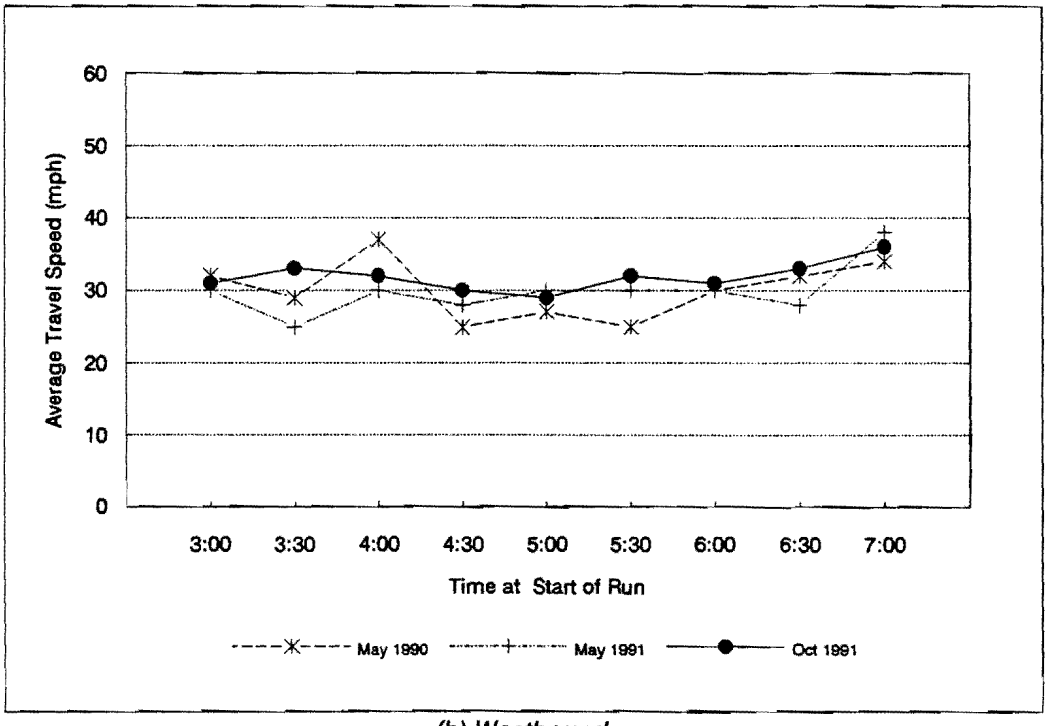


(b) Westbound

Figure E-20. A.M. Peak Period Average Travel Speed Between Midway and Abrams: Loop 12

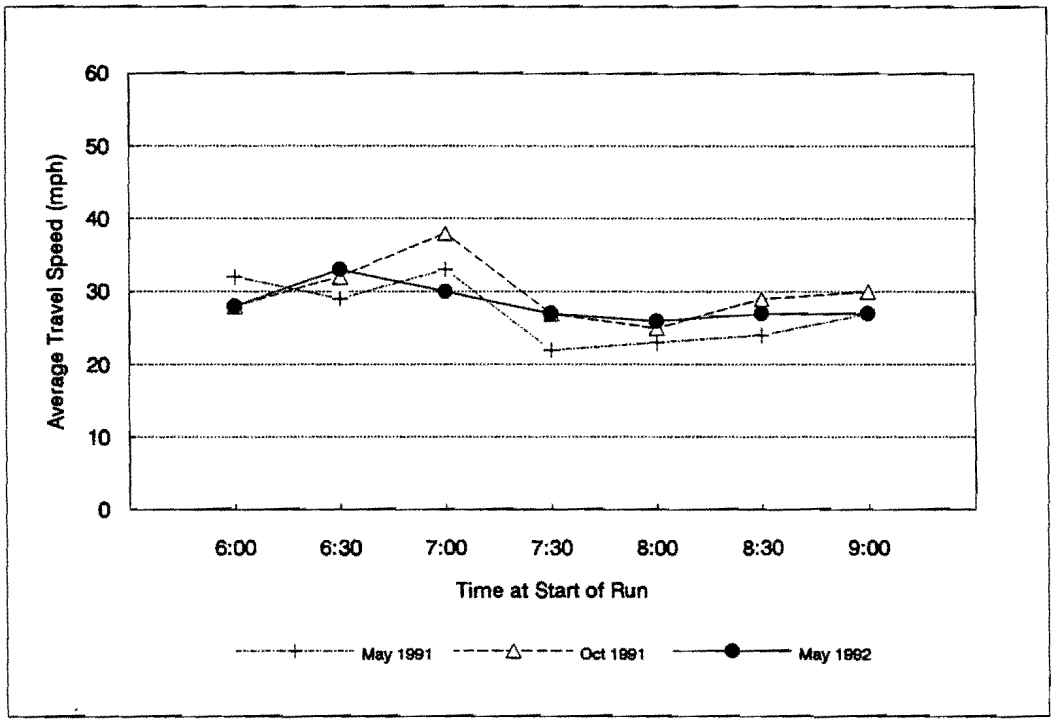


(a) Eastbound

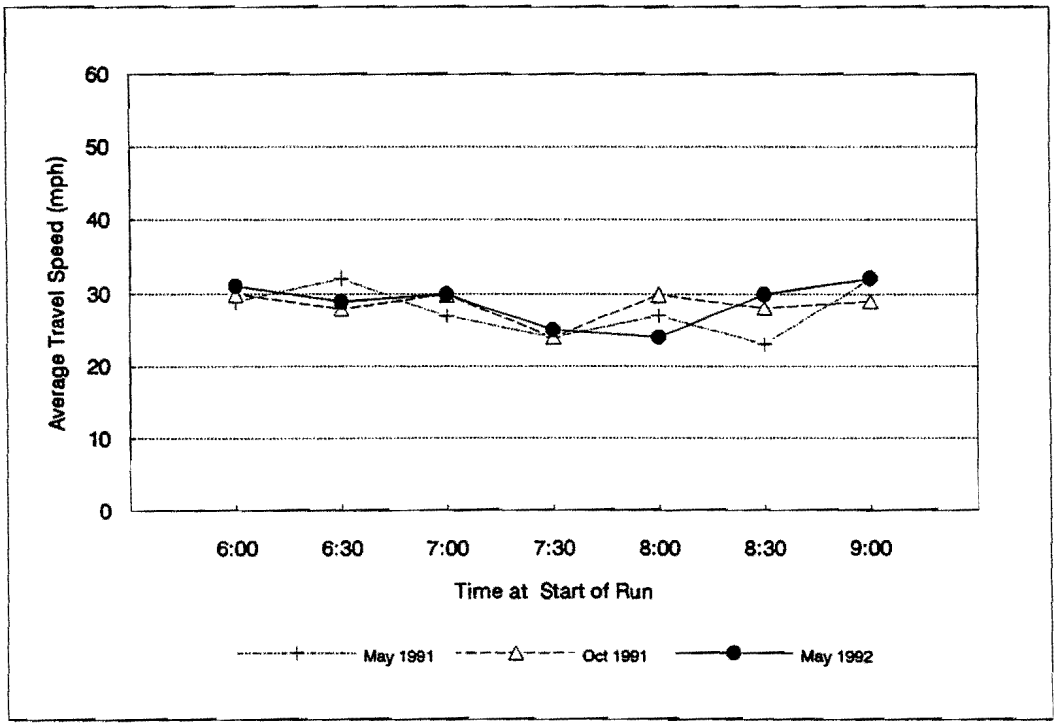


(b) Westbound

Figure E-21. P.M. Peak Period Average Travel Speed Between Midway and Abrams: Loop 12

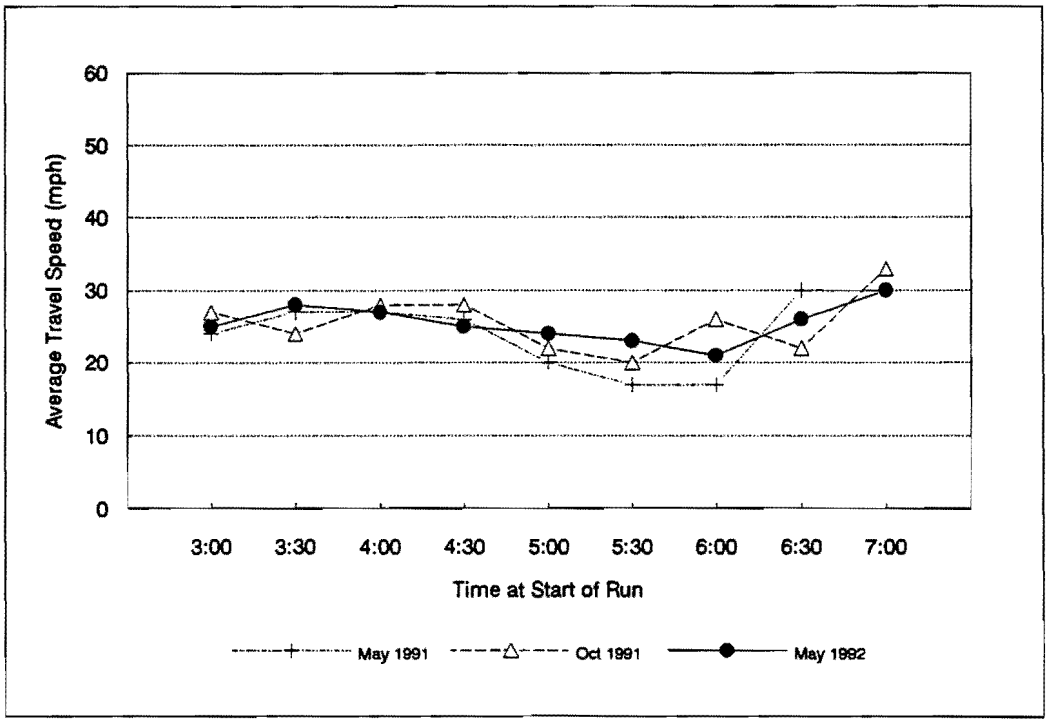


(a) Eastbound

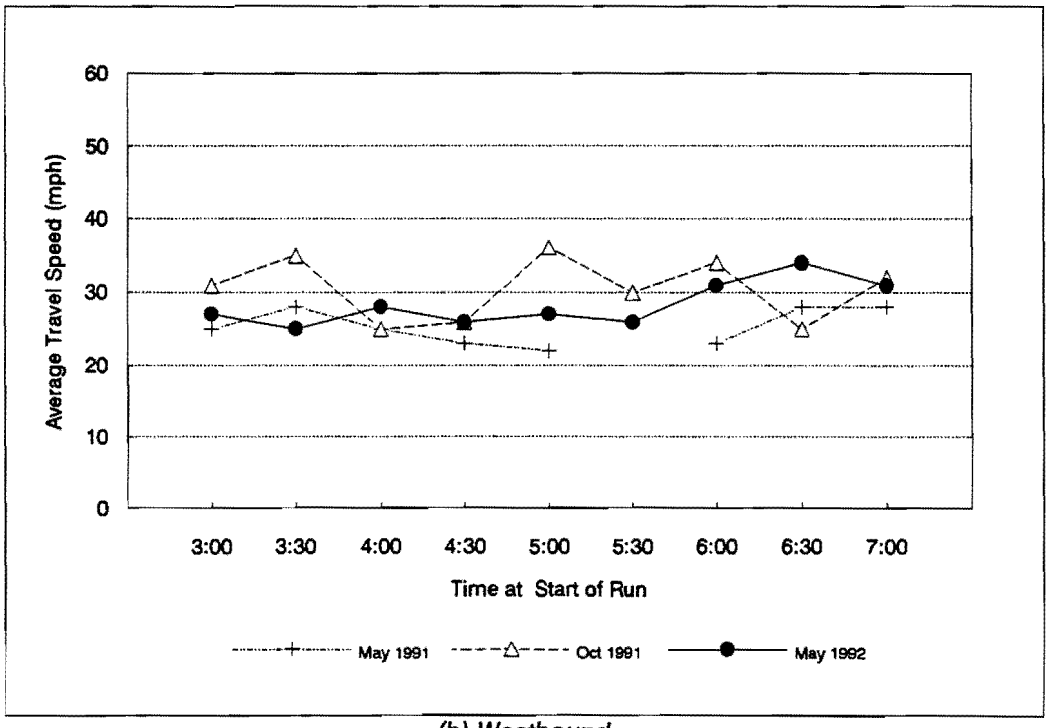


(b) Westbound

Figure E-22. A.M. Peak Period Average Travel Speed Between Midway and Skillman: Royal



(a) Eastbound



(b) Westbound

Figure E-23. P.M. Peak Period Average Travel Speed Between Midway and Skillman: Royal