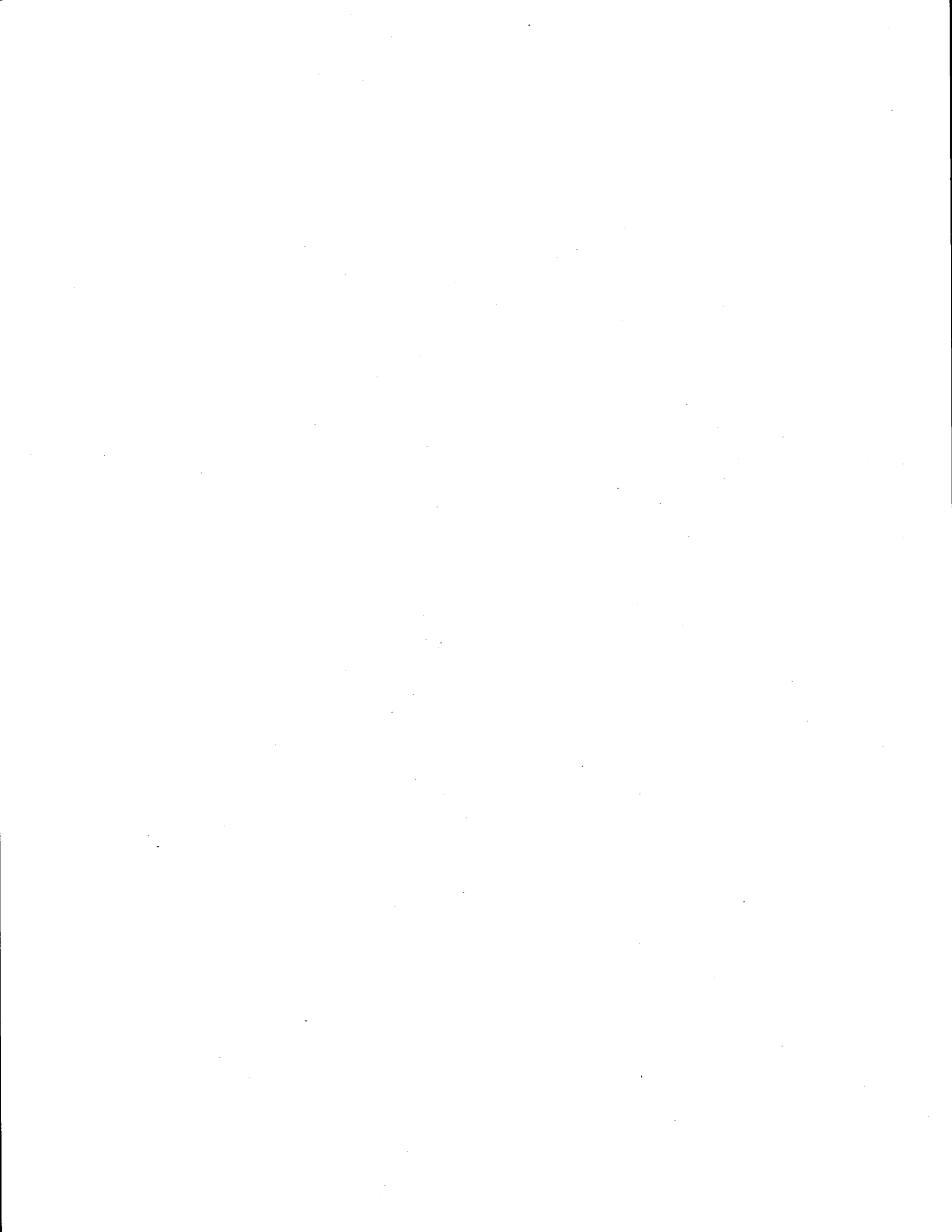


1. Report No. TX-94/1994-3		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle US-75 NORTH CENTRAL EXPRESSWAY RECONSTRUCTION: MAY 1994 TRAFFIC CONDITIONS				5. Report Date November 1994	
				6. Performing Organization Code	
7. Author(s) Kevin D. Tyer				8. Performing Organization Report No. Research Report 1994-3	
9. Performing Organization Name and Address Texas Transportation Institute The Texas A&M University System College Station, Texas 77843-3135				10. Work Unit No. (TR AIS)	
				11. Contract or Grant No. Study No. 7-1994	
12. Sponsoring Agency Name and Address Texas Department of Transportation Research and Technology Transfer Office P. O. Box 5080 Austin, Texas 78763-5080				13. Type of Report and Period Covered Interim: June 1994 - September 1994	
				14. Sponsoring Agency Code	
15. Supplementary Notes Research performed in cooperation with the Texas Department of Transportation. Research Study Title: Highway Planning and Operations for District 18, Phase III					
16. Abstract <p>This report documents the results of the May 1994 traffic data collection efforts during the fourth year of the US-75 North Central Expressway reconstruction project south of the I-635 LBJ Freeway. Traffic conditions and patterns have been monitored during October 1989 and May 1990 (before construction) and each October and May since October 1990 (during the four years of the construction project). An additional study was conducted in March 1994 to evaluate the potential traffic impacts of US-75 North Central Expressway median lane closures between McCommas and Woodall Rodgers Freeway. The traffic conditions prior to construction and during the first three and one-half years of construction were documented in previous reports. The traffic monitoring efforts involved traffic data collection and an automobile users' survey. The traffic data collection included screen line traffic volume counts, vehicle occupancy and classification counts, and travel time runs. The automobile users' survey results for May 1994 are documented in a separate report. Overall, the May 1994 results indicate that traffic patterns and conditions in the US-75 North Central Expressway corridor were affected by lane closures in the S-2 section of the construction project.</p>					
17. Key Words Freeway Reconstruction, Freeway Corridor, Traffic Monitoring			18. Distribution Statement No restrictions. This document is available to the public through NTIS: National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161		
19. Security Classif.(of this report) Unclassified		20. Security Classif.(of this page) Unclassified		21. No. of Pages 102	22. Price



**US-75 NORTH CENTRAL EXPRESSWAY RECONSTRUCTION:
MAY 1994 TRAFFIC CONDITIONS**

by

Kevin D. Tyer
Assistant Research Scientist
Texas Transportation Institute

Research Report 1994-3
Research Study Number 7-1994
Research Study Title: Highway Planning and Operations for District 18, Phase III

Sponsored by the
Texas Department of Transportation

November 1994

TEXAS TRANSPORTATION INSTITUTE
The Texas A&M University System
College Station, TX 77843-3135

IMPLEMENTATION STATEMENT

This report documents the results of the May 1994 traffic data collection efforts during the fourth year of the US-75 North Central Expressway reconstruction project south of the I-635 LBJ Freeway. Traffic conditions and patterns were monitored before construction in October 1989 and May 1990 and during construction each October and May since October 1990. An additional study was conducted in March 1994 to evaluate the potential traffic impacts of US-75 North Central Expressway median lane closures between McCommas and Woodall Rodgers Freeway. The traffic conditions prior to construction and during the first three and one-half years of construction were documented in previous reports. The traffic monitoring efforts involved traffic data collection and an automobile users survey. The traffic data collection included screen line traffic volume counts, vehicle occupancy and classification counts, and travel time runs. The automobile users survey results for May 1994 are documented in a separate report.

The results indicate that the US-75 North Central Expressway reconstruction project had an impact on traffic patterns in the corridor during May 1994. The lane closures in the S-2 section of the project resulted in diversion from US-75 to alternative routes in the corridor. The data collected during these studies, combined with data to be collected in subsequent studies, may be used for several potential applications:

- 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.
- Validation of a traffic simulation model of the US-75 North Central Expressway corridor for evaluating proposed traffic management actions.

DISCLAIMER

The contents of this report reflect the views of the author who is 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, nor is it intended for construction, bidding, or permit purposes.

ACKNOWLEDGMENT

The author gratefully acknowledges Diana Wallace at Texas Transportation Institute in Arlington and staff for their assistance in collecting travel time, traffic volume, and vehicle occupancy and classification data. The author wishes to thank Vincent Musat and Kevin Gee at the Texas Transportation Institute in College Station for their contributions to the data reduction and report preparation.

TABLE OF CONTENTS

LIST OF FIGURES	xi
LIST OF TABLES	xiii
SUMMARY	xv
1. INTRODUCTION	1
Monitoring Effort	1
Project Status	3
Organization of the Report	3
2. TRAFFIC MONITORING PLAN	5
Traffic Data Collection	5
Screen Line Traffic Volume Counts	5
Vehicle Occupancy and Classification Counts	11
Travel Time Runs	11
Automobile User Survey	14
3. MAY 1994 TRAFFIC CONDITIONS	15
Screen Line Traffic Volumes	15
Traffic Patterns on North-South Routes	17
Oak Lawn/Lemmon/Peak Screen Line	17
Mockingbird/Buckner Screen Line	18
Loop 12 Screen Line	18
Traffic Patterns on East-West Routes	18
Traffic Patterns on US-75 North Central Expressway	19
Vehicle Occupancy and Classification	19
Travel Times and Average Travel Speeds	23
North-South Routes	23
East-West Routes	28
US-75 North Central Expressway	28
5. SUMMARY	33

REFERENCES	35
APPENDIX A. MAY 1994 SCREEN LINE TRAFFIC VOLUMES	A-1
APPENDIX B. SCREEN LINE TRAFFIC VOLUMES (MAY STUDIES): PERCENTAGE OF TOTAL SCREEN LINE VOLUME BY ROUTE	B-1
APPENDIX C. TRAFFIC VOLUME CHANGES (MAY STUDIES)	C-1
APPENDIX D. MAY 1994 TRAVEL TIMES	D-1
APPENDIX E. MAY 1994 AVERAGE TRAVEL SPEEDS	E-1

LIST OF FIGURES

FIGURE 1.1.	US-75 North Central Expressway Corridor in Dallas	2
FIGURE 2.1.	US-75 North Central Expressway Corridor Traffic Volume and Vehicle Occupancy and Classification Count Locations	9
FIGURE 2.2.	Automatic Traffic Recorder (ATR) Stations Selected for Control Locations in Dallas	10
FIGURE 2.3.	Travel Time Routes	13
FIGURE 3.1	Daily Traffic Volumes on US-75 Compared to ATR Stations in the Dallas Area from October 1989 to May 1994	20
FIGURE 3.2	Average Peak Hour, Peak Direction Travel Times Between I-635 and Central Business District (May Studies)	26
FIGURE 3.3.	Average Peak Hour, Peak Direction Travel Speeds Between I-635 and Central Business District (May Studies)	27
FIGURE 3.4.	Total Travel Time on US-75 Between I-635 and Central Business District (May Studies)	30
FIGURE 3.5.	Average Travel Speed on US-75 Between I-635 and Central Business District (May Studies)	31
FIGURE B.1.	Percent of Total Screen Line Volume by Route: Oak Lawn/Lemmon/Peak - A.M. Peak Period (May Studies)	B-3
FIGURE B.2.	Percent of Total Screen Line Volume by Route: Oak Lawn/Lemmon/Peak - P.M. Peak Period (May Studies)	B-4
FIGURE B.3.	Percent of Total Screen Line Volume by Route: Oak Lawn/Lemmon/Peak - 24 Hour Period (May Studies)	B-5
FIGURE B.4.	Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - A.M. Peak Period (May Studies)	B-6
FIGURE B.5.	Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - P.M. Peak Period (May Studies)	B-7
FIGURE B.6.	Percent of Total Screen Line Volume by Route: Mockingbird/Buckner - 24 Hour Period (May Studies)	B-8
FIGURE B.7.	Percent of Total Screen Line Volume by Route: Loop 12 - A.M. Peak Period (May Studies)	B-9
FIGURE B.8.	Percent of Total Screen Line Volume by Route: Loop 12 - P.M. Peak Period (May Studies)	B-10

FIGURE B.9.	Percent of Total Screen Line Volume by Route: Loop 12 - 24 Hour Period (May Studies)	B-11
FIGURE B.10.	Percent of Total Screen Line Volume by Route: US-75 - A.M. Peak Period (May Studies)	B-12
FIGURE B.11.	Percent of Total Screen Line Volume by Route: US-75 - P.M. Peak Period (May Studies)	B-13
FIGURE B.12.	Percent of Total Screen Line Volume by Route: US-75 - 24 Hour Period (May Studies)	B-14
FIGURE C.1.	Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - A.M. Peak Period	C-3
FIGURE C.2.	Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - P.M. Peak Period	C-4
FIGURE C.3.	Change in Volume by Route as Compared to May 1990: Oak Lawn/Lemmon/Peak Screen Line - 24 Hour Period	C-5
FIGURE C.4.	Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - A.M. Peak Period	C-6
FIGURE C.5.	Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - P.M. Peak Period	C-7
FIGURE C.6.	Change in Volume by Route as Compared to May 1990: Mockingbird/Buckner Screen Line - 24 Hour Period	C-8
FIGURE C.7.	Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - A.M. Peak Period	C-9
FIGURE C.8.	Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - P.M. Peak Period	C-10
FIGURE C.9.	Change in Volume by Route as Compared to May 1990: Loop 12 Screen Line - 24 Hour Period	C-11
FIGURE C.10.	Change in Volume by Route as Compared to May 1990: US-75 Screen Line - A.M. Peak Period	C-12
FIGURE C.11.	Change in Volume by Route as Compared to May 1990: US-75 Screen Line - P.M. Peak Period	C-13
FIGURE C.12.	Change in Volume by Route as Compared to May 1990: US-75 Screen Line - 24 Hour Period	C-14

LIST OF TABLES

TABLE 2.1.	US-75 North Central Expressway Corridor Data Inventory	6
TABLE 2.2.	Travel Time Routes in the US-75 North Central Expressway Corridor	12
TABLE 3.1.	US-75 North Central Expressway Corridor Traffic Volumes During May 1994	16
TABLE 3.2.	Changes in Daily Traffic Volumes on US-75 During May 1994 . . .	21
TABLE 3.3.	Average Passenger Vehicle Occupancy on US-75 (May Studies) . . .	22
TABLE 3.4.	Vehicle Classification on US-75 (May Studies)	24
TABLE 3.5.	Average Peak Period Travel Time and Speed on North-South Routes During May 1994	25
TABLE 3.6.	Average Peak Period Travel Time and Speed on East-West Routes During May 1994	29
TABLE A.1.	Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1994): Northbound	A-3
TABLE A.2.	Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1994): Southbound	A-4
TABLE A.3.	Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1994): Northbound	A-5
TABLE A.4.	Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1994): Southbound	A-6
TABLE A.5.	Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1994): Northbound	A-7
TABLE A.6.	Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1994): Southbound	A-8
TABLE A.7.	US-75 Screen Line Average Traffic Volumes (May 1994): Eastbound	A-9
TABLE A.8.	US-75 Screen Line Average Traffic Volumes (May 1994): Westbound	A-10
TABLE D.1.	Peak Period, Peak Direction Total Travel Time on North-South Routes (May 1994)	D-3
TABLE D.2.	Peak Period, Off-Peak Direction Total Travel Time on North-South Routes (May 1994)	D-4
TABLE D.3.	Peak Period Total Travel Time on East-West Routes (May 1994) . .	D-5
TABLE D.4.	Off-Peak Period Total Travel Time on US-75 (May 1994)	D-6

TABLE E.1. Peak Period, Peak Direction Average Travel Speed
on North-South Routes (May 1994) E-3

TABLE E.2. Peak Period, Off-Peak Direction Average Travel Speed
on North-South Routes (May 1994) E-4

TABLE E.3. Peak Period Average Travel Speed on East-West Routes
(May 1994) E-5

TABLE E.4. Off-Peak Period Average Travel Speed on US-75
(May 1994) E-6

SUMMARY

The results indicate that the US-75 North Central Expressway construction project during May 1994 had an effect on peak period and daily traffic conditions and travel patterns in the corridor, based upon comparisons of May 1994 versus May 1990 data. The traffic impacts likely resulted from several lane closures: the closed entrance/exit lane at Mockingbird which reduced the freeway capacity from three to two lanes in each direction, and the midday off-peak period lane closures in the S-2 section of the construction project which required the northbound lanes to be reduced from two lanes to one lane at Mockingbird. The major findings of the May 1994 traffic study are summarized as follows:

- Daily traffic volumes on US-75 North Central Expressway were an estimated 18 to 31 percent lower in May 1994 than would be expected without the project.
- The total north-south daily traffic volumes in the US-75 North Central Expressway corridor decreased four percent at the Mockingbird/Buckner screen line and increased two percent at the Oak Lawn/Lemmon/Peak screen line and four percent at the Loop 12 screen line. The decrease in total corridor volumes at the Mockingbird/Buckner screen line indicates that the construction project during May 1994 may have adversely affected trips in the corridor. The total daily traffic volumes crossing US-75 North Central Expressway dropped seven percent in westbound traffic volume and increased eight percent in eastbound volume, suggesting that the construction project may have slightly affected westbound cross-street traffic.
- The peak period and daily traffic patterns at the screen lines changed in the corridor. In general, northbound traffic volumes substantially decreased on US-75 North Central Expressway and increased on the alternative routes.
- The A.M. peak hour, peak direction (southbound) average travel times between the I-635 LBJ Freeway and the Dallas central business district were 3.75 minutes lower on the US-75 North Central Expressway. Correspondingly, average travel speeds on US-75 increased from 56 km/h (35 mph) to 73 km/h (45 mph). The P.M. peak hour, peak direction (northbound) travel times increased on US-75 by 1.25 minutes. Much larger travel time increases occurred on Preston by 9.98 minutes and US-75 Frontage Road by 5.36 minutes. P.M. peak hour, peak direction average travel speeds on US-75 slightly decreased from 39 km/h (24 mph) to 37 km/h (23 mph).

1. INTRODUCTION

The Texas Transportation Institute (TTI) continues to monitor the changes in corridor-wide 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 construction project began during the Summer of 1990 and is expected to be completed in the late 1990s. This report documents the traffic conditions in May 1994 during the project's fourth year.

MONITORING EFFORT

The monitoring effort closely follows the boundaries of the US-75 North Central Expressway corridor (see Figure 1.1) 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, Buckner, and East Grand on the east.
- The Dallas North Tollway (DNT) on the west.

TTI began monitoring the US-75 North Central Expressway corridor during October 1989 and, since that date, has been collecting data twice per year (in October and May). The monitoring effort has two major components:

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

Traffic conditions in the corridor in October 1989 and May 1990 prior to construction were documented in a previous report (1). Other reports documented the traffic conditions during the first year of construction in October 1990 and May 1991 (2), during the second year of construction in October 1991 (3) and May 1992 (4), during the third year of construction in October 1992 and May 1993 (5), and during part of the fourth year of construction in October 1993 and March 1994 (6). The results of the May 1990 through May 1994 automobile user surveys were summarized in separate reports (7-15).

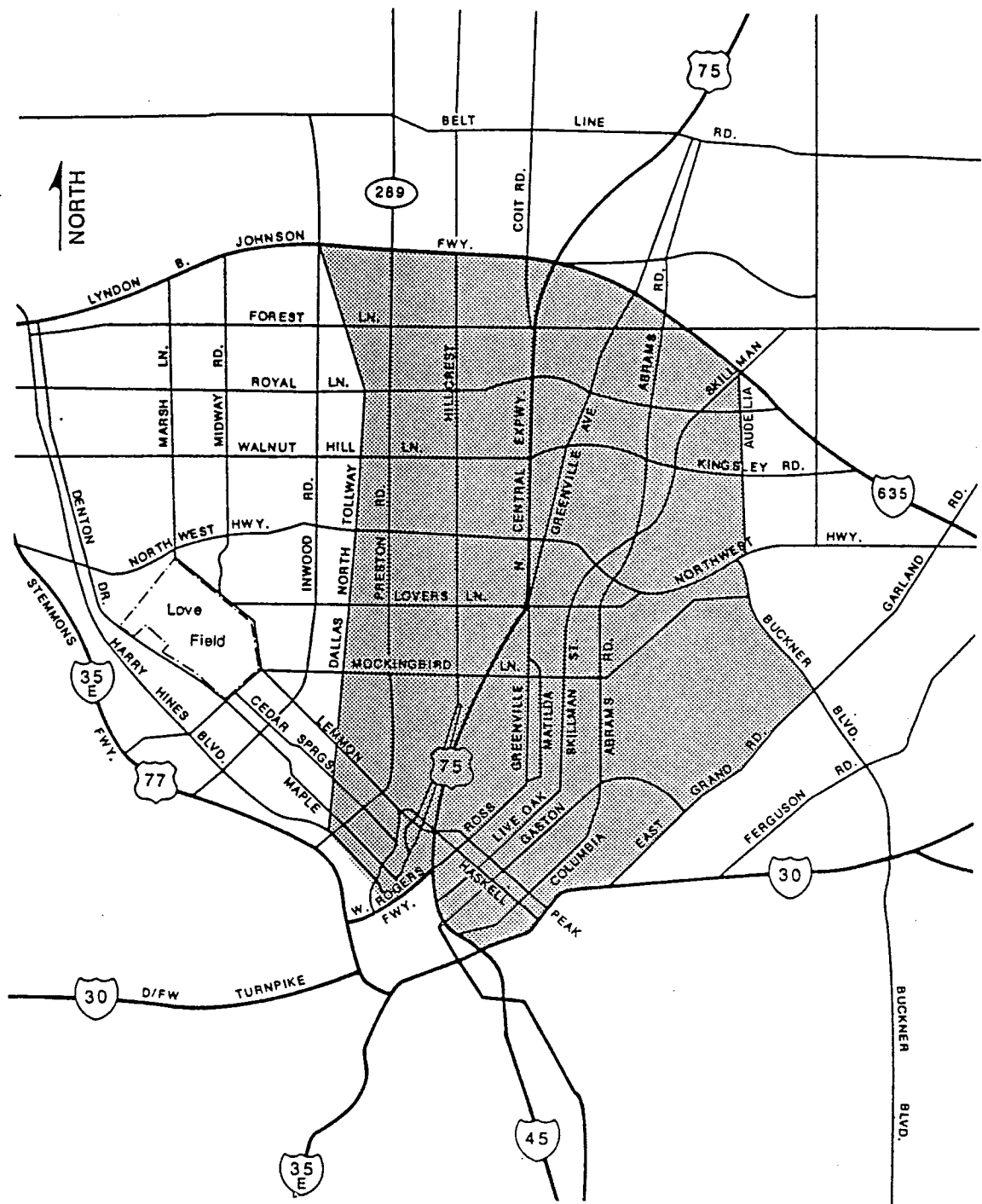


FIGURE 1.1. US-75 North Central Expressway Corridor in Dallas

PROJECT STATUS

Evaluation of traffic conditions and travel patterns observed during the May 1994 study requires knowledge regarding the construction phasing on US-75 North Central Expressway. The status of the construction project is documented in this section.

The N-1 phase of the US-75 North Central Expressway construction project was near completion in May 1994. Several lane closures occurred in the N-1 section during the midday off-peak period to perform irrigation, planter, and paving construction. In addition, the S-1 early ramp project at US-75 North Central Expressway and Woodall Rodgers interchange was completed prior to the May 1994 study.

In the S-2 phase of the project, the US-75 North Central Expressway remained two-lanes in each direction between Mockingbird and McCommas (i.e., the entrance/exit ramp lane was dropped in October 1993). During the off-peak period, one lane in each direction was closed in the S-2 section to remove overhead sign structures and install glare screens and luminaires at the McCommas, Mockingbird, Yale, University, and Lovers cross streets. Construction was also ongoing on the US-75 Frontage Road in the S-1 section of the project which required Frontage Road lane closures in the off-peak period. Finally, the east approach of McCommas, the northbound US-75 Frontage Road, the west approach of Yale/SMU Blvd., and southbound US-75 Frontage Road were closed during May 1994.

ORGANIZATION OF THE REPORT

The body of this report is divided into four chapters. Chapter 2 reviews the traffic monitoring plan used to collect and evaluate traffic conditions and travel patterns in the corridor. The observed traffic conditions during May 1994 are documented in Chapter 3. Chapter 4 summarizes the results of the May 1994 traffic study.

2. TRAFFIC MONITORING PLAN

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 is described in this chapter. The monitoring plan encompasses two components: (1) traffic data collection and (2) automobile user survey.

TRAFFIC DATA COLLECTION

Table 2.1 summarizes the traffic data collection in the US-75 North Central Expressway corridor. The traffic data collection consists of three elements:

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

Data are collected two times during the year and at the same time of the year (October and May). For comparison purposes, this report documents only data for routes that are located within the US-75 North Central Expressway corridor as defined by the Task Force. 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 compared to May 1994). However, traffic volumes on US-75 North Central Expressway 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 screen line traffic volume. Changes in traffic patterns are measured as changes in individual routes' percentage of the total screen line traffic volume and differences in actual traffic volumes.

TABLE 2.1. US-75 North Central Expressway Corridor Data Inventory

Type of Data	Route	Before Construction		During Construction									
		October 1989	May 1990	October 1990	May 1991	October 1991	May 1992	October 1992	May 1993	October 1993	March 1994	May 1994	
Traffic Volumes	Oak Lawn / Lenmon / Peak Screen Line	Harry Hines	.	.	.	.	.	.	.	.	.	.	.
		DNT	.	.	.	.	.	.	.	.	.	.	.
		Maple	.	.	.	.	.	.	.	.	.	.	.
		Cedar Springs	.	.	.	.	.	.	.	.	.	.	.
		Lemmon	.	.	.	.	.	.	.	.	.	.	.
		Oak Lawn	.	.	.	.	.	.	.	.	.	.	.
		Turtle Creek	.	.	.	.	.	.	.	.	.	.	.
		Cole/McKinney	.	.	.	.	.	.	.	.	.	.	.
		US-75	.	.	.	.	.	.	.	.	.	.	.
		Ross	.	.	.	.	.	.	.	.	.	.	.
		Live Oak	.	.	.	.	.	.	.	.	.	.	.
	Gaston	.	.	.	.	.	.	.	.	.	.	.
	Columbin	.	.	.	.	.	.	.	.	.	.	.
	Mockingbird / Buckner Screen Line	Harry Hines	.	.	.	.	.	.	.	.	.	.	.
		Denton	.	.	.	.	.	.	.	.	.	.	.
		Lemmon	.	.	.	.	.	.	.	.	.	.	.
		Inwood	.	.	.	.	.	.	.	.	.	.	.
		DNT	.	.	.	.	.	.	.	.	.	.	.
		Preston	.	.	.	.	.	.	.	.	.	.	.
		Hillcrest	.	.	.	.	.	.	.	.	.	.	.
		US-75	.	.	.	.	.	.	.	.	.	.	.
		Greenville	.	.	.	.	.	.	.	.	.	.	.
		Matilda	.	.	.	.	.	.	.	.	.	.	.
		Skillman	.	.	.	.	.	.	.	.	.	.	.
	Loop 12 Screen Line	Abrams	.	.	.	.	.	.	.	.	.	.	.
		Garland	.	.	.	.	.	.	.	.	.	.	.
		Midway	.	.	.	.	.	.	.	.	.	.	.
		Inwood	.	.	.	.	.	.	.	.	.	.	.
		DNT	.	.	.	.	.	.	.	.	.	.	.
		Preston	.	.	.	.	.	.	.	.	.	.	.
		Hillcrest	.	.	.	.	.	.	.	.	.	.	.
		US-75	.	.	.	.	.	.	.	.	.	.	.

9

TABLE 2.1. US-75 North Central Expressway Corridor Data Inventory (Continued)

Type of Data	Route	Before Construction		During Construction									
		October 1989	May 1990	October 1990	May 1991	October 1991	May 1992	October 1992	May 1993	October 1993	March 1994	May 1994	
Traffic Volumes	US-75 Screen Line	Hall	•		•	•	•	•	•	•	•		•
		Lemmon	•		•	•	•	•	•	•	•		•
		Haskell	•		•	•	•	•	•	•	•		•
		Fitzhugh	•		•	•	•	•	•	•	•		•
		Henderson	•		•	•	•	•	•	•	•		•
		Monticello	•		•	•	•	•	•	•	•		•
		McCommas	•		•	•	•	•	•	•	•		•
		Mockingbird	•	•	•	•	•	•	•	•	•		•
		Yale	•	•	•	•	•	•	•	•	•		•
		University	•	•	•	•	•	•	•	•	•		•
		Lovers	•	•	•	•	•	•	•	•	•		•
		Southwestern	•	•	•	•	•	•	•	•	•		•
		Caruth Haven	•	•	•	•	•	•	•	•	•		•
		Loop 12	•	•	•	•	•	•	•	•	•		•
		Park Lane	•	•	•	•	•	•	•	•	•		•
Walnut	•	•	•	•	•	•	•	•	•		•		
Royal	•	•	•	•	•	•	•	•	•		•		
Forest	•	•	•	•	•	•	•	•	•		•		
Vehicle Classification & Occupancy	US-75		•	•	•	•	•	•	•	•		•	
	Preston		•										
	Skillman		•										
Travel Times	North - South Routes	Midway	•	•									
		Inwood	•	•									
		DNT	•	•	•	•	•	•	•	•	•	•	•
		Preston	•	•	•	•	•	•	•	•	•		•
		Hillcrest	•	•	•	•	•	•	•	•	•		•
		US-75	•	•	•	•	•	•	•	•	•	•	•
		US-75 Frontage		•	•	•	•	•	•	•	•	•	•
		Greenville	•	•	•	•	•	•	•	•	•		•
		Skillman	•	•		•	•	•	•	•	•		•
		Abrams	•	•		•	•	•	•	•	•		•
	Garland	•	•			•	•	•	•	•		•	
	East - West Routes	Lemmon/Peak		•									•
		Mockingbird		•						•	•		•
		Loop 12		•		•	•	•	•	•	•		•
		Royal				•	•	•	•	•	•		•

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.
- US-75 North Central Expressway.

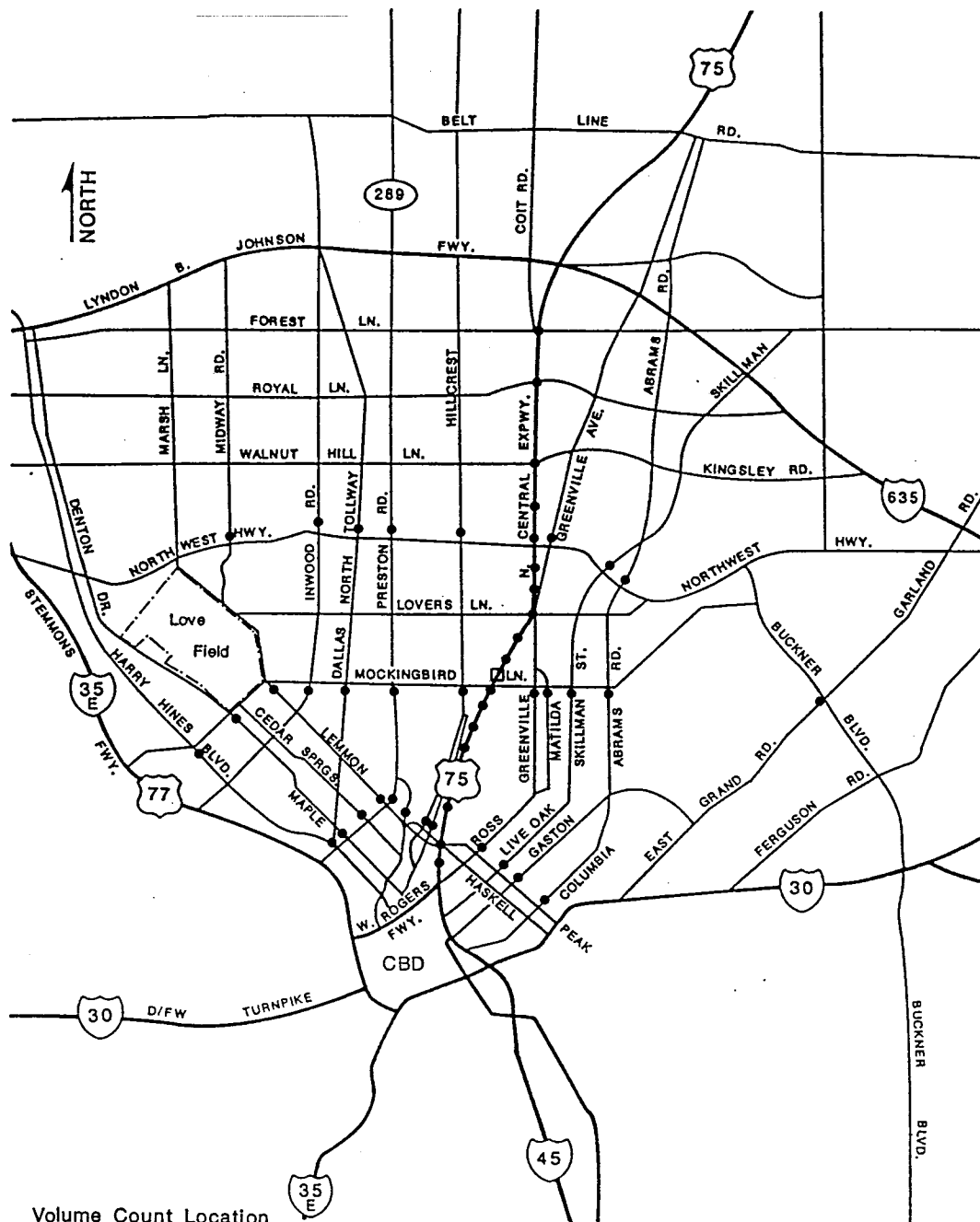
Three screen lines (Oak Lawn/Lemmon/Peak, Mockingbird/Buckner, and Loop 12) identify changes in traffic patterns on north-south routes. The US-75 screen line, which bisects the Expressway, was established to measure changes in east-west traffic patterns. Figure 2.1 identifies the count locations for the May 1994 traffic study.

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 N-1 and N-2 phases of the US-75 North Central Expressway project. Studies since May 1991 closely resemble the May 1990 (before construction) data collection effort.

Directional 24-hour traffic volumes are collected for at least one mid-week day (i.e., Tuesday, Wednesday, and Thursday) at the screen line count locations during the study period. Volumes are averaged to represent mid-week traffic conditions. The traffic volume data collection uses several methods:

- Pneumatic tube counters to collect traffic volumes on arterial streets.
- Video camera and time-lapse video tape recorder to record traffic on US-75.
- Toll booth data to estimate traffic volumes on Dallas North Tollway.

Automatic Traffic Recorder (ATR) stations in the Dallas metropolitan area that are not affected by the project were selected as control locations to better estimate the volume changes on the US-75 North Central Expressway that are attributable to the construction project. The ATR locations are shown in Figure 2.2. The seasonal patterns on US-75 before construction



Volume Count Location

- May 1994

Volume Occupancy/Classification

- May 1994

FIGURE 2.1. US-75 North Central Expressway Corridor Traffic Volume and Vehicle Occupancy and Classification Count Locations

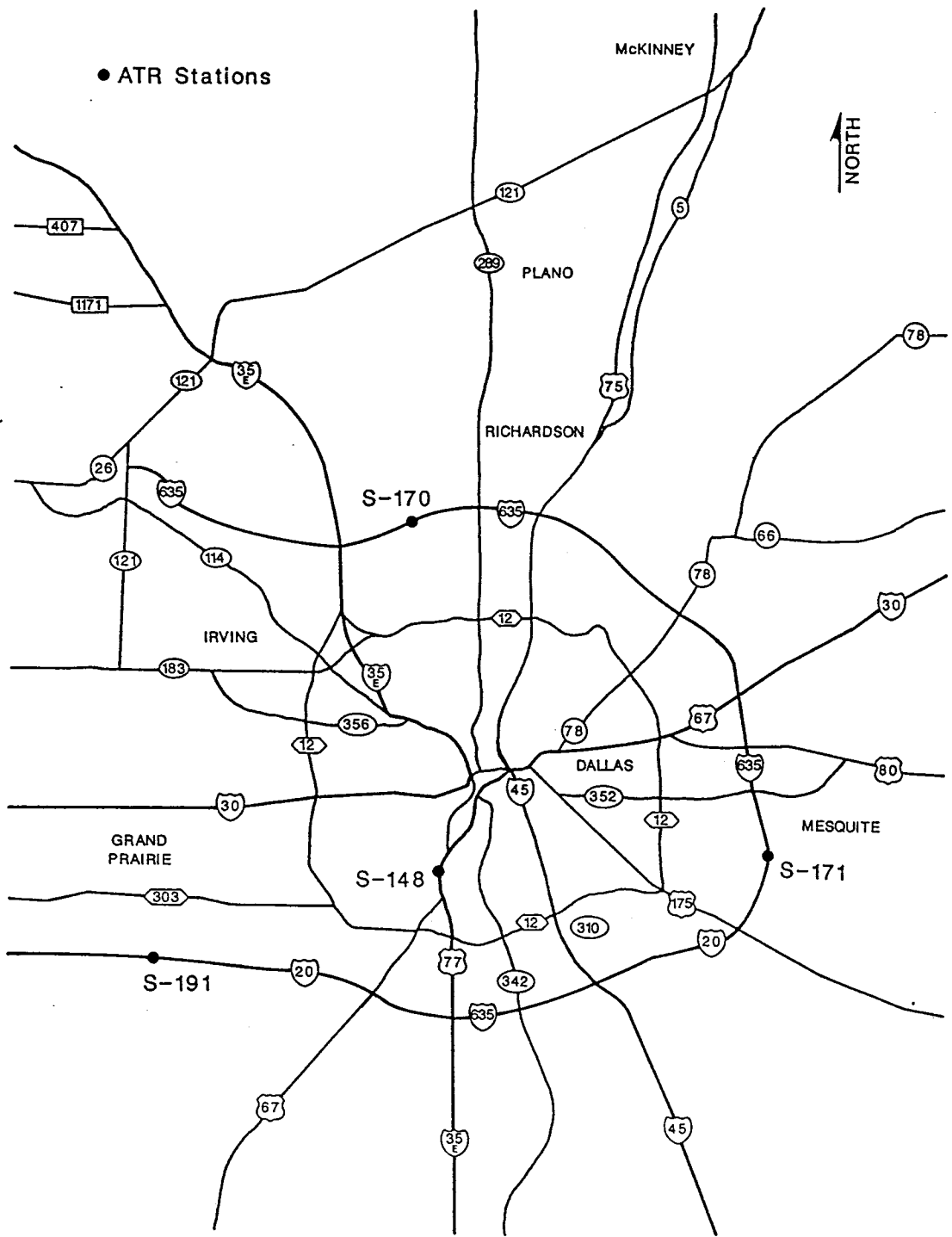


FIGURE 2.2. Automatic Traffic Recorder (ATR) Stations Selected for Control Locations in Dallas

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 main lanes north of the Mockingbird/Buckner screen line during each study. The count location is identified in Figure 2.1.

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 across the corridor. All north-south routes extend between I-635 LBJ Freeway and the Dallas central business district. East-west routes coincide with the east-west screen lines.

Table 2.2 provides a summary of the travel time routes and the number of travel time run repetitions on each route during the 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 2.3 identifies the routes monitored during May 1994.

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 route at half-hour

TABLE 2.2. 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	October 1992	May 1993	October 1993	March 1994
Dallas North Tollway/Harry Hines/Akard	1	1	1	1	1	1	1	1	1	1
Preston/Cedar Springs/Field	1	3	1	1	1	1	1	1	1	-
Hillcrest/McKinney/Akard	1	1	1	-	1	1	1	1	1	-
US-75 (North Central Expressway)	1	2	3	3	3	3	3	3	3	1
US-75 Frontage Road	-	1	3	1	1	1	1	1	1	1
Greenville/Ross	1	3	1	1	1	1	1	1	1	-
Skillman/Live Oak	1	1	-	1	1	1	1	1	1	-
Abrams/Gaston	1	1	-	1	1	1	1	1	1	-
Garland/Gaston	1	1	-	-	1	1	1	1	1	-
Oak Lawn/Lemmon/Peak/Haskell	-	1	-	-	-	-	-	-	-	-
Mockingbird	-	1	-	-	-	-	-	1	1	-
Loop 12	-	1	-	1	1	1	1	1	1	-
Royal	-	-	-	1	1	1	1	1	1	-

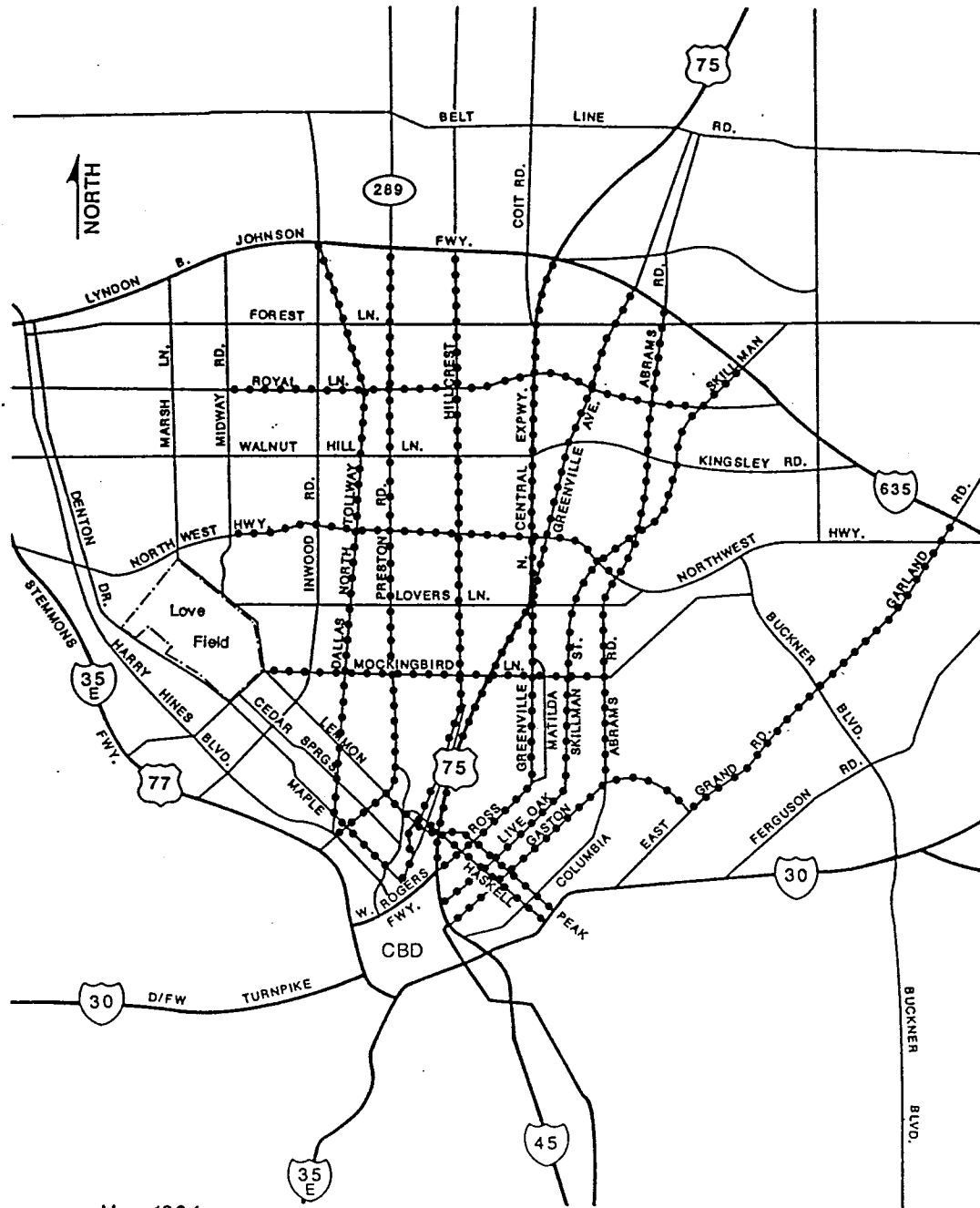


FIGURE 2.3. Travel Time Routes

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 USER SURVEY

Biannual surveys of automobile users in the US-75 North Central Expressway corridor are conducted as part of the traffic monitoring studies. The role of the surveys in the overall monitoring effort is to obtain information on the perceptions and travel behavior of individual automobile users in the corridor as well as current public opinion regarding the reconstruction project. Periodically surveying the panel members permits changes in perceptions and behavior to be monitored. Details of the surveying effort and results were documented in other reports (7-15).

Original panel members (i.e., automobile users who agreed to be surveyed biannually) were recruited from a license plate study conducted during May 1990 at the Loop 12 screen line. The most recent panel of automobile users originated from a license plate survey performed at the Oak Lawn/Lemmon/Peak screen line in October 1992. This new panel was recruited to increase the number of survey participants. The original panel and the new panel were surveyed in May 1994.

3. MAY 1994 TRAFFIC CONDITIONS

The traffic conditions observed during May 1994, almost four years after the US-75 North Central Expressway reconstruction project began, are documented in this chapter. Traffic conditions are reported as changes in traffic patterns, vehicle occupancy and classification, and travel times and average travel speeds. May 1994 traffic volume and travel time data are summarized in Appendices A through E.

SCREEN LINE TRAFFIC VOLUMES

Summaries of the screen line traffic volume counts are presented 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 that summarize each route's percentage of the total screen line volume; 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 summarizing the actual change in volumes on each route between the May studies.

Screen line traffic volumes were evaluated for three time periods (A.M. peak, P.M. peak, and 24 hours) and were compared only for the May studies. Comparisons primarily consist of changes between May 1990 (before construction) and May 1994 data. The evaluation of US-75 traffic volumes, however, compares both October and May data to better estimate the traffic impacts of the project.

Table 3.1 summarizes the total corridor traffic volumes at each screen line for May 1994 compared to May 1990. The total 24-hour north-south traffic volumes decreased four percent at the Mockingbird/Buckner screen line, and increased two percent at the Oak Lawn/Lemmon/Peak screen line and four percent at the Loop 12 screen line. The total 24-hour east-west traffic volume crossing the US-75 screen line changed very little, although by direction the eastbound traffic volume increased eight percent and the westbound volume decreased seven percent.

The corridor-wide traffic patterns and traffic volume changes are presented for the north-south and east-west routes separately. An analysis of US-75 traffic volumes including comparisons to control locations in the Dallas area is also provided.

TABLE 3.1. US-75 North Central Expressway Corridor Traffic Volumes During May 1994

Screen Line	Period	Direction	Traffic Volumes (veh)			
			May 1990	May 1994	Change	% Change
Oak Lawn/ Lemmon/ Peak	A.M. Peak	Northbound	33,010	34,270	1,260	3.82
		Southbound	48,710	52,720	4,010	8.23
		Total	81,720	86,990	5,270	6.45
	P.M. Peak	Northbound	74,760	73,860	-900	-1.20
		Southbound	57,370	60,620	3,250	5.66
		Total	132,130	134,480	2,350	1.78
	24 Hour	Northbound	231,110	229,920	-1,190	-0.51
		Southbound	222,210	233,430	11,220	5.05
		Total	453,320	463,350	10,030	2.21
Mockingbird	A.M. Peak	Northbound	26,740	27,560	820	3.07
		Southbound	40,440	40,150	-290	-0.72
		Total	67,180	67,710	530	0.79
	P.M. Peak	Northbound	59,500	55,040	-4,460	-7.50
		Southbound	48,090	48,530	440	0.91
		Total	107,590	103,570	-4,020	-3.74
	24 Hour	Northbound	190,680	176,370	-14,310	-7.50
		Southbound	187,820	185,230	-2,590	-1.38
		Total	378,500	361,600	-16,900	-4.46
Loop 12	A.M. Peak	Northbound	25,060	26,910	1,850	7.38
		Southbound	35,790	36,480	690	1.93
		Total	60,850	63,390	2,540	4.17
	P.M. Peak	Northbound	54,170	56,820	2,650	4.89
		Southbound	46,150	49,950	3,800	8.23
		Total	100,320	106,770	6,450	6.43
	24 Hour	Northbound	174,280	179,600	5,320	3.05
		Southbound	175,740	186,050	10,310	5.87
		Total	350,020	365,650	15,630	4.47
US-75	A.M. Peak	Eastbound	18,400	22,050	3,650	19.84
		Westbound	52,150	48,940	-3,210	-6.16
		Total	70,550	70,990	440	0.62
	P.M. Peak	Eastbound	66,680	72,220	5,540	8.31
		Westbound	53,890	49,930	-3,960	-7.35
		Total	120,570	122,150	1,580	1.31
	24 Hour	Eastbound	195,080	211,480	16,400	8.41
		Westbound	225,300	209,790	-15,510	-6.88
		Total	420,380	421,270	890	0.21

Traffic Patterns on North-South Routes

The north-south traffic patterns observed during May 1994 at the Oak Lawn/Lemmon/Peak, Mockingbird/Buckner, and Loop 12 screen lines fluctuated more in the northbound direction than in the southbound direction. The observed northbound daily traffic volumes on US-75 at the three screen lines were between 18 and 36 percent lower in May 1994 than in May 1990. The largest reductions in peak period, peak direction traffic volumes on US-75 occurred in the northbound direction during the P.M. peak period. Though not as large, changes were also observed in the southbound direction. Depending on the screen line, traffic increases occurred on alternative routes including DNT, Lemmon, Oak Lawn, Preston, Cole, McKinney, Hillcrest, Ross, Live Oak, Greenville, Matilda, Skillman, and Abrams. These changes signify possible diversion from US-75 to other routes in the corridor.

The drop in traffic volumes on US-75 North Central Expressway may have been due to the construction underway in May 1994. The number of lanes at Mockingbird, where the largest volume decrease was observed, has been reduced from three to two lanes in each direction during construction (i.e., the entrance/exit ramp lane has been removed). The construction in the S-2 section required the northbound main lanes at Mockingbird to be reduced from two lanes to one lane during the midday off-peak period. These lane closures resulted in diversion from US-75 North Central Expressway to alternative routes.

Oak Lawn/Lemmon/Peak Screen Line

The Oak Lawn/Lemmon/Peak screen line traffic distribution show that fluctuations in each route's percentage of total screen line traffic volume were as much as eight percent between May 1990 and May 1994 (see Figures B.1 through B.3). In May 1994, US-75 did not carry the majority of the peak period, peak direction traffic (see Figures B.1, b and B.2, a). Instead, DNT had the largest peak period, peak direction traffic volume in the corridor. Some deviations were observed in the May 1994 peak period, off-peak direction traffic patterns, but US-75 continued to have the largest volume along the screen line (see Figures B.1, a and B.2, b). Despite the changes in peak period traffic patterns, US-75 carried most (i.e., 27 percent) of the daily traffic volumes across the corridor (see Figure B.3). Traffic volumes generally decreased on US-75 and increased on most alternative routes (see Figures C.1 through C.3).

Mockingbird/Buckner Screen Line

The fluctuations in each route's percentage of the total screen line traffic at the Mockingbird/Buckner screen line were as much as nine percent between May 1990 and May 1994 (see Figures B.4 through B.6). US-75 no longer had the highest peak period, peak direction (northbound) traffic volume in May 1994 (see Figure B.5, a). Instead, DNT carried the majority of the traffic volume in the corridor. A substantial decrease in peak period and daily traffic volumes occurred on US-75 while volumes generally increased on other routes in the corridor (see Figures C.4 through C.6).

Loop 12 Screen Line

The traffic patterns at the Loop 12 screen line show fluctuations as large as eight percent in each route's percentage of total screen line traffic volume between May 1990 and May 1994 (see Figures B.7 through B.9). DNT carried the majority of the north-south peak period, peak direction traffic crossing the screen line. However, the traffic distribution indicates that US-75 had the highest percentage of total screen line traffic volume for the 24-hour period. Northbound volumes were lower on US-75 and higher on alternative routes (see Figures C.7 through C.9).

Traffic Patterns on East-West Routes

Traffic crosses US-75 North Central Expressway on eighteen routes between the I-635 LBJ Freeway and the Woodall Rodgers Freeway. The traffic distribution along the US-75 screen line show that the cross-street route's percentage of total screen line volume fluctuated by as much as nine percent between May 1990 and May 1994 (see Figures B.10 through B.12). Westbound traffic volumes generally decreased on McCommas, Mockingbird, Yale, University, Lovers, Southwestern, and Caruth Haven (see Figures C.10 through C.12). In addition, traffic on Walnut Hill substantially increased in the eastbound direction.

Traffic Patterns on US-75 North Central Expressway

The daily traffic volume on US-75 North Central Expressway at the three screen line count locations from October 1989 to May 1994 and the corresponding average Automatic Traffic Recorder (ATR) traffic volumes for the Dallas area are shown in Figure 3.1. The US-75 traffic patterns generally follow the trends at control locations in the Dallas area before construction. Prior to October 1991, other than the normal variation in traffic volumes due to seasonal patterns, the total traffic on US-75 during construction had not changed significantly. Since October 1991, the volume trend lines have deviated from ATR trends. The daily traffic volume on US-75 at Lemmon continues to decrease. Daily volume at Mockingbird significantly dropped in May 1994. The traffic volume at Loop 12 was lower in May 1994 than previous May data.

The US-75 North Central Expressway daily traffic volumes at the three screen line count locations in May 1994 compared to seasonally adjusted before construction volumes are summarized in Table 3.2. The changes in US-75 traffic volumes were an estimated reduction of 21 percent at Lemmon, 31 percent at Mockingbird, and 18 percent at Loop 12. Thus, the US-75 daily traffic volumes were much lower in May 1994 than volumes that would have been expected in the absence of the construction project.

VEHICLE OCCUPANCY AND CLASSIFICATION

Table 3.3 summarizes the average occupancy of passenger vehicles on the US-75 North Central Expressway for the May studies. The occupancy data indicate that the average passenger vehicle occupancy is lower in the A.M. peak period than in the P.M. peak period, and also that the peak period, peak direction traffic has a lower vehicle occupancy than the off-peak direction traffic. The May 1994 A.M. peak period, peak direction data show an average occupancy of 1.11 persons per passenger vehicle with 90 percent of the passenger vehicles carrying one person; 9 percent, two persons; and 1 percent, more than two persons. During the P.M. peak period, the peak direction average passenger vehicle occupancy was 1.23 persons per vehicle with 81 percent of the passenger vehicles being single-occupant vehicles; 16 percent carrying two persons; and 3 percent having more than two persons. The average number of occupants per passenger vehicle has not changed significantly during construction. The majority of the automobile users on US-75 North Central Expressway continue to drive alone.

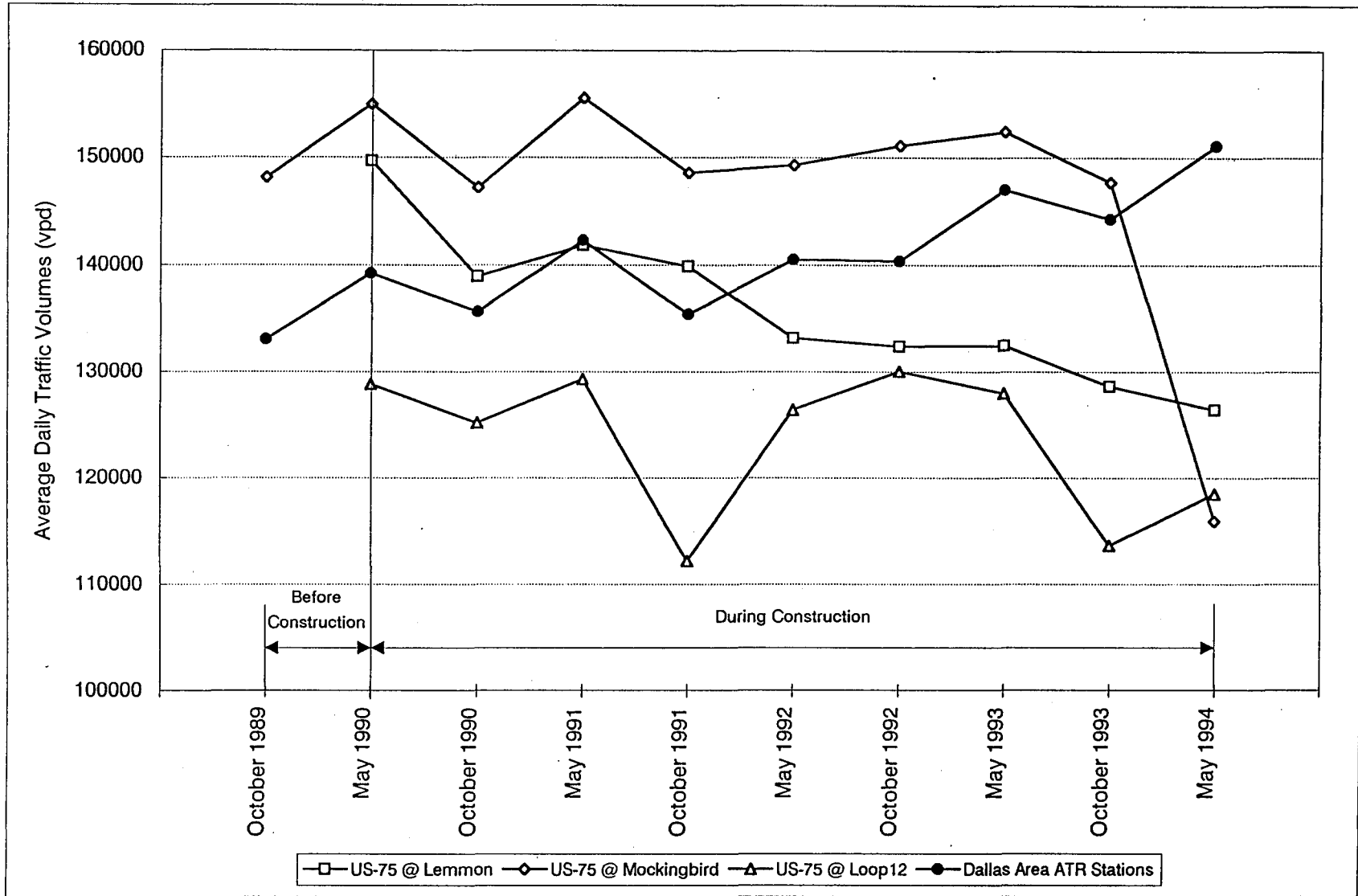


FIGURE 3.1. Daily Traffic Volumes on US-75 Compared to ATR Stations in the Dallas Area from October 1989 to May 1994

TABLE 3.2. Changes in Daily Traffic Volumes on US-75 During May 1994

Screen Line Count Location	Direction	Daily Traffic Volumes				
		Before (May 1990)	During Construction (May 1994)			
		Observed	Estimated ^a	Observed	Change	% Change
Lemmon	Northbound	76,060	81,630	62,600	-19,030	-23.31
	Southbound	73,618	79,010	63,770	-15,240	-19.29
	Total	149,678	160,640	126,370	-34,270	-21.33
Mockingbird	Northbound	79,212	85,690	50,520	-35,170	-41.04
	Southbound	75,727	81,920	65,460	-16,460	-20.09
	Total	154,939	167,610	115,980	-51,630	-30.80
Loop 12	Northbound	68,100	76,280	56,170	-20,110	-26.36
	Southbound	60,677	67,960	62,330	-5,630	-8.28
	Total	128,777	144,240	118,500	-25,740	-17.85

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

TABLE 3.3. Average Passenger Vehicle Occupancy on US-75 (May Studies)

Time Period	Direction	Average Occupancy (persons/vehicle)				
		May 1990	May 1991	May 1992	May 1993	May 1994
A.M. Peak	Northbound	1.23	1.14	1.23	1.22	1.21
	Southbound	1.19	1.08	1.11	1.11	1.11
	Both	1.20	1.11	1.16	1.16	1.16
P.M. Peak	Northbound	1.19	1.16	1.22	1.21	1.23
	Southbound	1.28	1.18	1.29	1.30	1.27
	Both	1.22	1.17	1.25	1.26	1.25

Note: Peak period, peak direction data are shown in boldface.

The vehicle classification data are summarized in Table 3.4. In May 1994, the peak period, peak direction vehicle mix on US-75 averaged 94-95 percent passenger vehicles, 4-5 percent commercial trucks, and 1 percent other (bus and motorcycle). The vehicle mix in the peak period, peak direction traffic was similar to previous studies.

TRAVEL TIMES AND AVERAGE TRAVEL SPEEDS

Travel times and speeds collected during May 1994 are summarized in tabular form in Appendices D and E. Appendix D contains tables summarizing the peak period, peak, and off-peak direction travel times for nine north-south routes in the corridor. In addition, peak period travel times for four east-west routes and off-peak period travel times on US-75 North Central Expressway are presented. Appendix E contains tables summarizing the corresponding average travel speeds.

The peak period and peak hour travel time and speed results are presented for the north-south and east-west routes separately. US-75 North Central Expressway travel times and speeds are then presented in more detail.

North-South Routes

The peak period average travel times and speeds on the north-south routes between I-635 and the central business district are given in Table 3.5. Of the nine routes, US-75 had the lowest peak period, peak direction average travel time of 12.37 minutes, while Preston had the highest average travel time of 33.49 minutes. Because the travel distances vary between I-635 and the central business district, the average travel speed is considered a better measure to compare the different routes. The highest peak period, peak direction average travel speed, approximately 78 km/h (48 mph), was observed on DNT, while the lowest average travel speed, 29 km/h (18 mph), was on Preston.

The peak hour average travel times and travel speeds in the peak direction for the May studies are shown in Figures 3.2 and 3.3. As the figures illustrate, peak hour travel times and speeds have fluctuated over the years to some degree. It appears that some changes occurred during May 1994.

TABLE 3.4. Vehicle Classification on US-75 (May Studies)

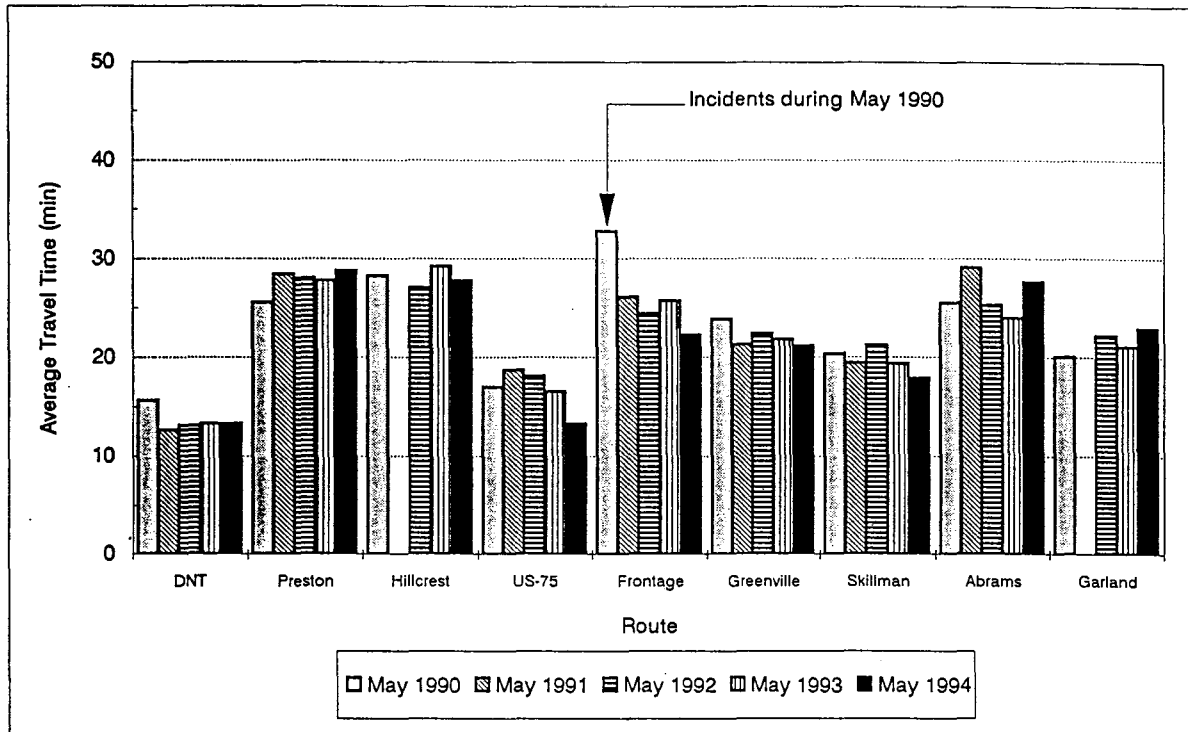
Time Period	Vehicle Type	Percent of Vehicles									
		May 1990		May 1991		May 1992		May 1993		May 1994	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
A.M. Peak	Passenger Vehicle	89.56	95.00	92.80	96.03	92.93	97.12	92.58	95.91	90.89	95.37
	Commercial Truck	9.39	3.98	6.13	3.06	6.09	1.92	6.44	3.20	8.31	3.69
	Bus	0.98	0.83	0.89	0.83	0.92	0.90	0.90	0.71	0.73	0.88
	Motorcycle	0.07	0.17	0.10	0.08	0.06	0.06	0.08	0.18	0.07	0.05
P.M. Peak	Passenger Vehicle	94.40	94.30	95.60	95.40	96.47	96.02	94.47	96.41	93.64	91.16
	Commercial Truck	3.78	4.40	3.08	3.83	2.54	3.23	4.54	2.87	5.34	8.15
	Bus	1.04	1.10	1.03	0.67	0.84	0.62	0.90	0.61	0.89	0.57
	Motorcycle	0.28	0.10	0.24	0.10	0.15	0.13	0.10	0.12	0.13	0.12

Note: Peak period, peak direction data are shown in boldface.

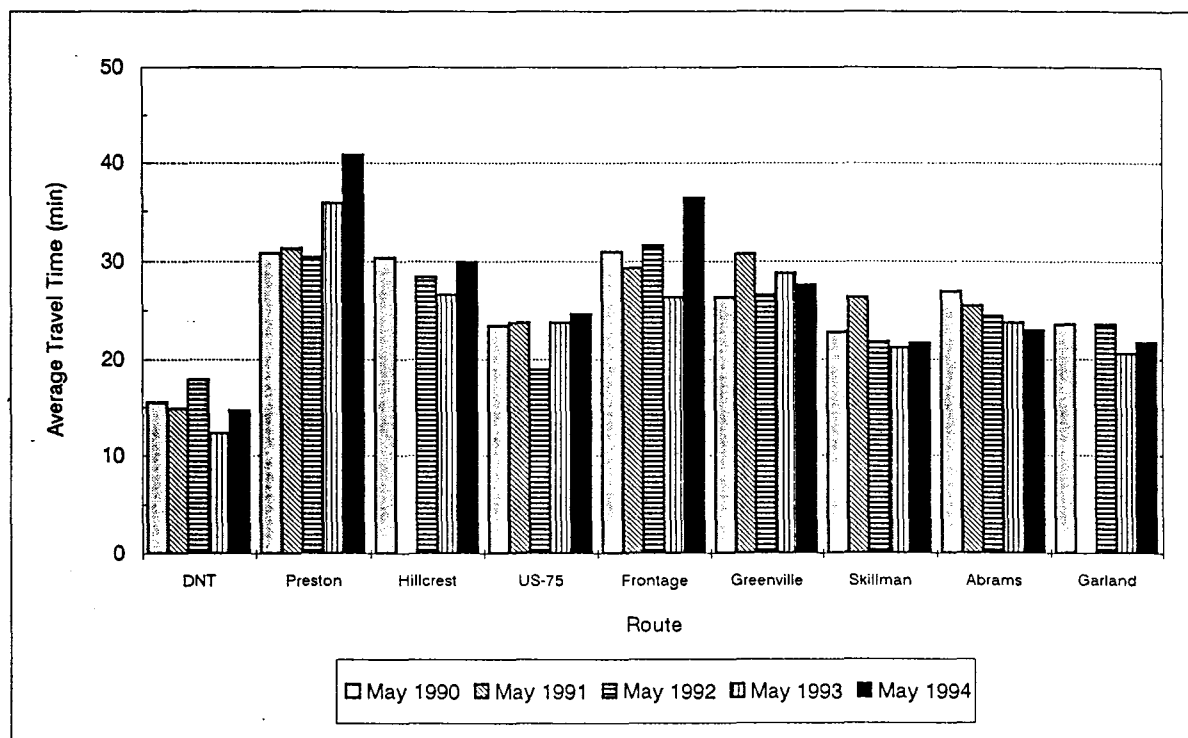
**TABLE 3.5. Average Peak Period Travel Time and Speed
on North-South Routes During May 1994**

Period	Route	Northbound		Southbound	
		Average Travel Time (min)	Average Travel Speed (km/h)	Average Travel Time (min)	Average Travel Speed (km/h)
A.M. Peak	DNT	13.15	73	12.48	78
	Preston	26.37	35	26.96	35
	Hillcrest	26.44	36	25.32	38
	US-75	15.09	66	12.37	77
	US-75 Frontage	23.96	38	23.38	38
	Greenville	22.43	41	20.19	45
	Skillman	19.55	48	18.15	51
	Abrams	23.05	43	23.98	43
	Garland	21.09	46	20.94	48
P.M. Peak	DNT	13.65	71	12.58	76
	Preston	33.49	29	30.21	31
	Hillcrest	28.59	33	27.37	35
	US-75	19.04	53	10.77	85
	US-75 Frontage	30.03	31	25.73	35
	Greenville	26.17	35	23.75	38
	Skillman	20.57	46	19.74	48
	Abrams	23.26	42	24.71	41
	Garland	21.58	45	22.60	44

Note: Peak direction data are shown in boldface.

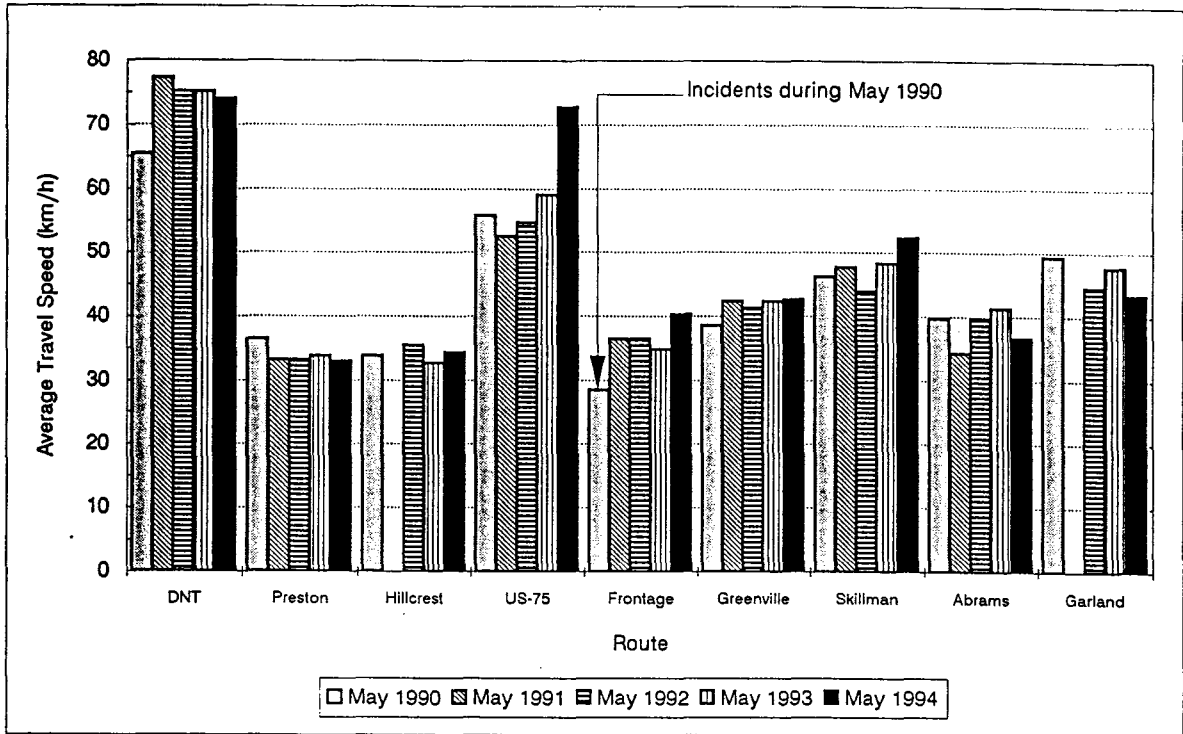


(a) A.M. Peak

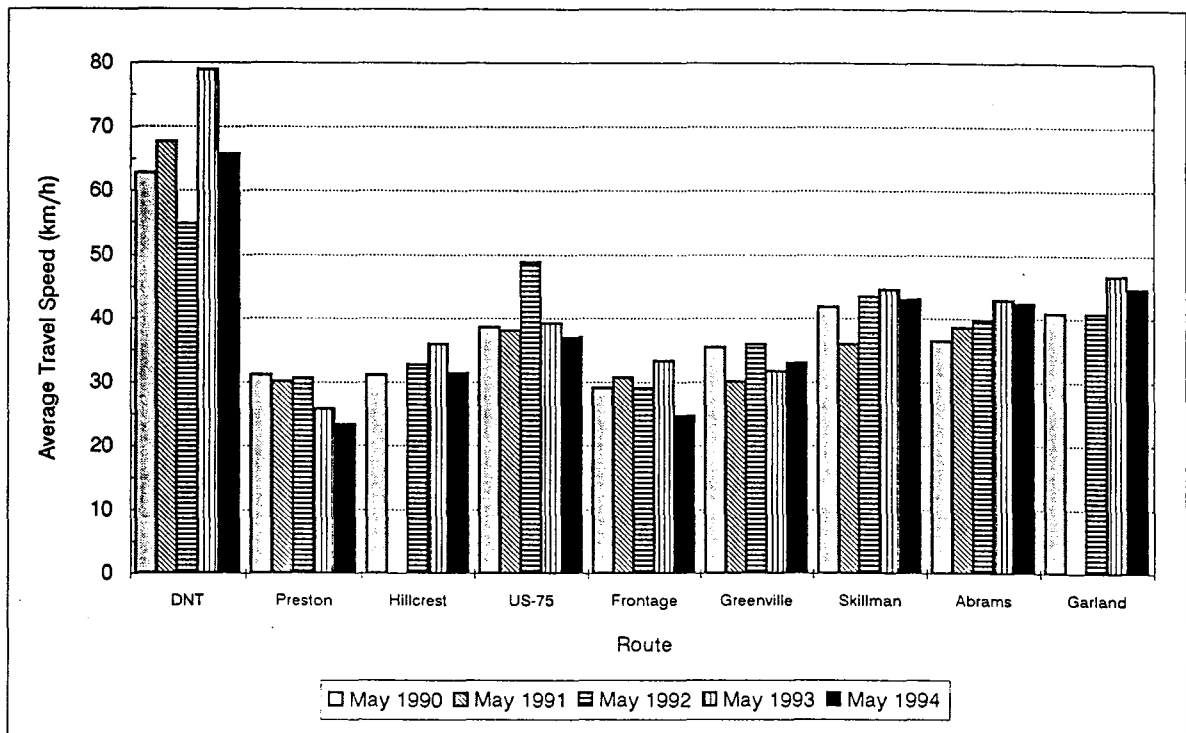


(b) P.M. Peak

FIGURE 3.2. Average Peak Hour, Peak Direction Travel Times Between I-635 and Central Business District (May Studies)



(a) A.M. Peak



(b) P.M. Peak

FIGURE 3.3. Average Peak Hour, Peak Direction Travel Speeds Between I-635 and Central Business District (May Studies)

A.M. peak hour, peak direction (southbound) average travel times in May 1994 were higher on Preston (3.20 minute increase), Abrams (2.15 minute increase), and Garland (2.76 minute increase) compared to May 1990 before construction began. Average travel times during the A.M. peak hour were lower on DNT (2.37 minute decrease), US-75 (3.75 minute decrease), Greenville (2.72 minute decrease), and Skillman (2.42 minute decrease). The large 10.46 minute reduction in travel times on the US-75 Frontage Road is probably due to higher than normal May 1990 travel times that resulted from incidents. The average travel time on the US-75 Frontage Road, however, was lower than previous studies. In the P.M. peak hour, peak direction (northbound), average travel times increased on Preston (9.98 minutes), US-75 (1.25 minutes), US-75 Frontage Road (5.36 minutes), and Greenville (1.26 minutes). Reductions occurred on Skillman (1.16 minute), Abrams (4.00 minute), and Garland (1.91 minute).

Similar results were found in the peak hour, peak direction average travel speeds. In the A.M. peak hour, the US-75 average travel speed increased from 56 km/h (35 mph) in May 1990 to 73 km/h (45 mph) in May 1994. P.M. peak hour average travel speeds slightly decreased on US-75 from 39 km/h (24 mph) to 37 km/h (23 mph).

East-West Routes

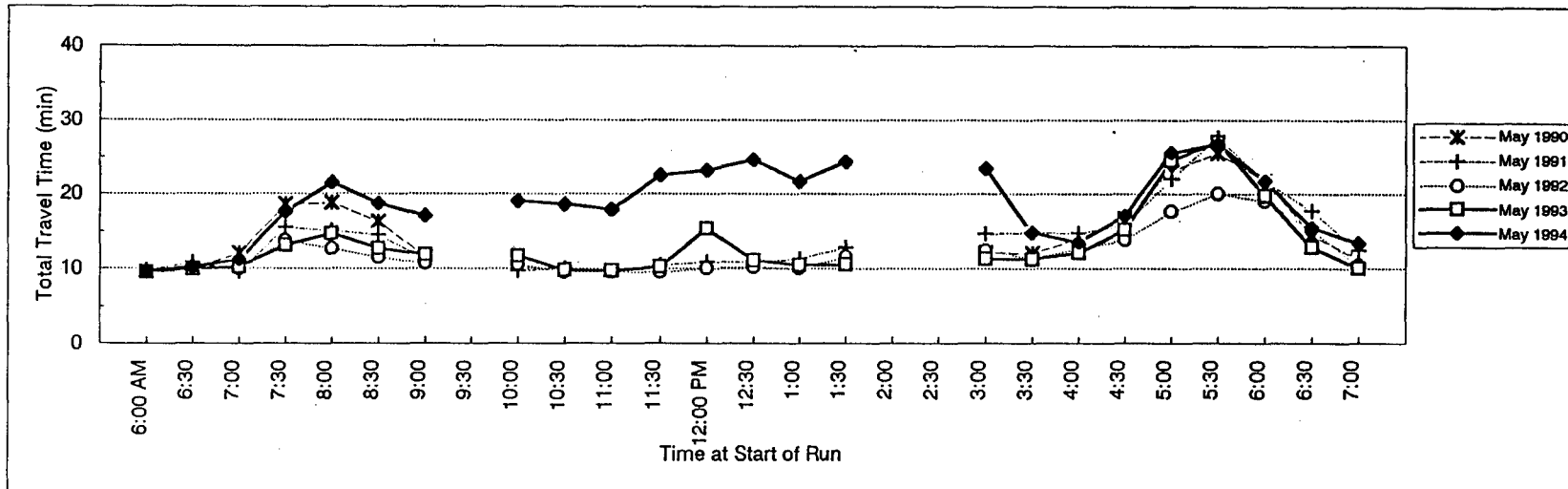
Table 3.6 summarizes the peak period average travel times and speeds for the east-west routes. Of the four east-west routes monitored, Mockingbird had the lowest average travel speed in both directions. These May 1994 travel times and speeds appear to be similar to those collected in previous studies.

US-75 North Central Expressway

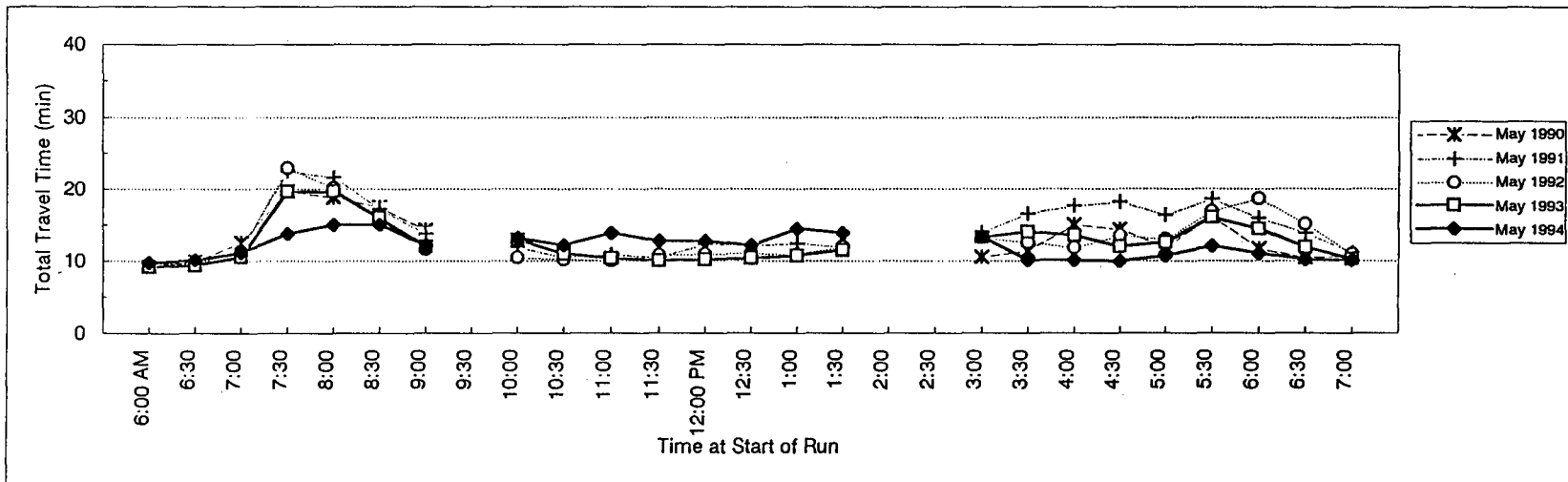
The travel times and average travel speeds on US-75 from 6:00 A.M. to 7:00 P.M. are illustrated in Figures 3.4 and 3.5. The May 1994 data are shown relative to other May studies. In addition to peak period, peak direction conditions, these plots provide insight into the off-peak direction and off-peak period travel times and speeds. The northbound travel times and speeds in May 1994 were higher than in other May studies. The northbound off-peak period travel times were much longer than previous data. These results suggest that the

**TABLE 3.6. Average Peak Period Travel Time and Speed
on East-West Routes During May 1994**

Period	Route	Eastbound		Westbound	
		Average Travel Time (min)	Average Travel Speed (km/h)	Average Travel Time (min)	Average Travel Speed (km/h)
A.M. Peak	Lemmon/Peak	11.89	31	10.73	35
	Mockingbird	13.86	34	15.87	29
	Loop 12	11.59	46	11.54	47
	Royal	15.00	44	16.02	42
P.M. Peak	Lemmon/Peak	13.88	28	13.21	32
	Mockingbird	18.91	24	16.87	27
	Loop 12	14.93	36	11.57	45
	Royal	17.36	39	15.23	44

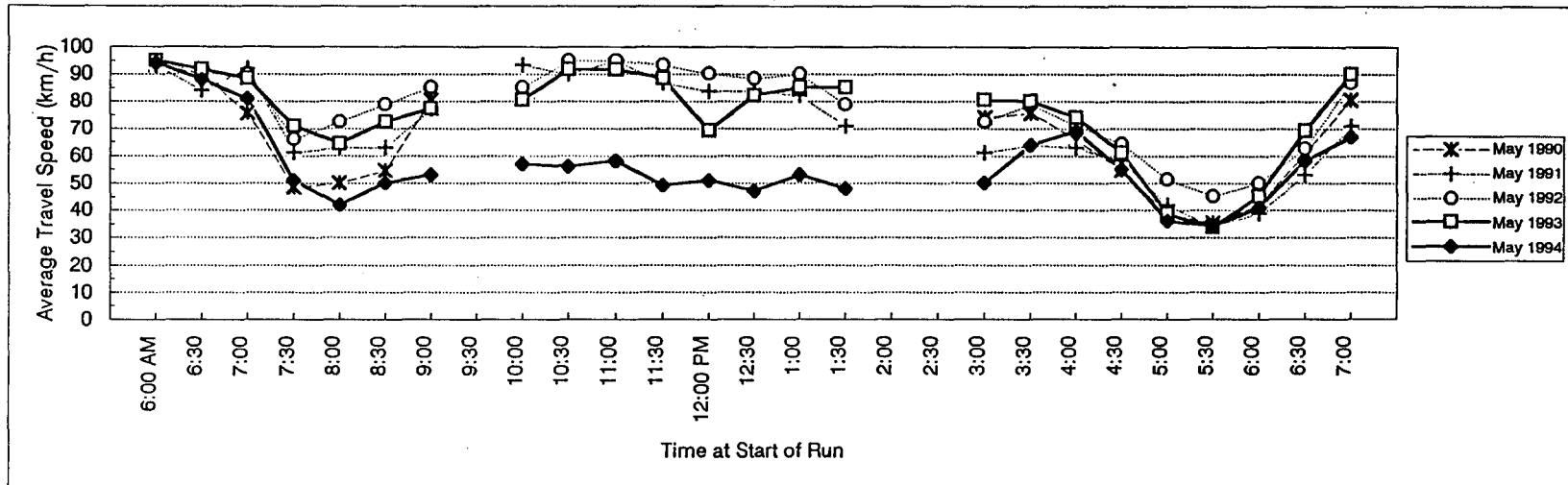


a) Northbound

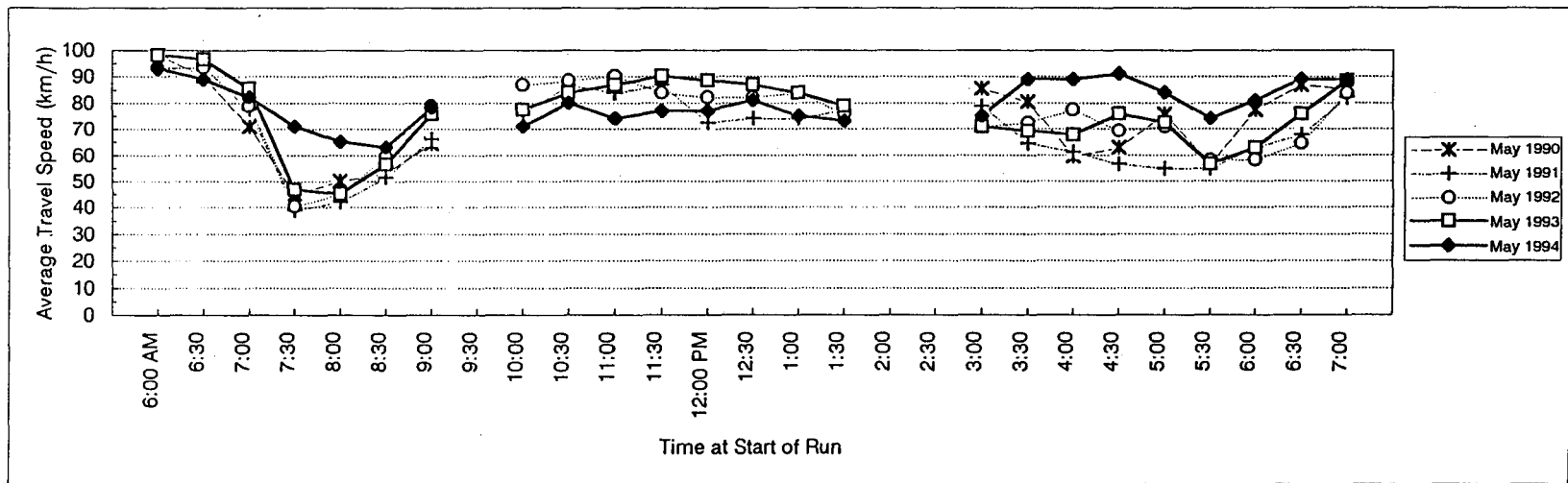


b) Southbound

FIGURE 3.4. Total Travel Time on US-75 Between I-635 and Central Business District (May Studies)



a) Northbound



b) Southbound

FIGURE 3.5. Average Travel Speed on US-75 Between I-635 and Central Business District (May Studies)

lane closures during the off-peak period adversely affected travel times on US-75. The southbound values indicate that the travel times during the A.M. and P.M. peak periods were lower than observed during earlier studies. The off-peak period travel times in the southbound direction were only slightly higher. Correspondingly, northbound average travel speeds were lower than found in previous studies. The southbound average travel speeds were generally higher in May 1994. The results suggest that the construction underway south of Mockingbird during May 1994 may have affected US-75 northbound travel while southbound traffic conditions generally improved.

4. SUMMARY

This chapter summarizes the results of the May 1994 traffic monitoring effort. The study evaluated the traffic impacts of the construction project on traffic conditions and travel patterns throughout the corridor, based upon comparisons of May 1994 versus May 1990 data.

The results indicate that the US-75 North Central Expressway construction project during May 1994 had an effect on peak period and daily traffic conditions and travel patterns in the corridor. The change in traffic volumes likely resulted from several lane closures: the closed entrance/exit lane at Mockingbird which reduced the freeway capacity from three to two lanes in each direction, and the midday off-peak period lane closures in the S-2 section of the construction project which required the northbound lanes to be reduced from two lanes to one lane at Mockingbird. The major findings of the May 1994 traffic study are summarized as follows:

- Daily traffic volumes on US-75 North Central Expressway were an estimated 18 to 31 percent lower in May 1994 than would be expected in the absence of the construction project.
- The total north-south daily traffic volumes in the US-75 North Central Expressway corridor decreased four percent at the Mockingbird/Buckner screen line, and increased two percent at the Oak Lawn/Lemmon/Peak screen line and four percent at the Loop 12 screen line. The decrease in total corridor volumes at the Mockingbird/Buckner screen line indicates that the construction project during May 1994 may have adversely affected trips in the corridor. The total daily traffic volumes crossing US-75 North Central Expressway dropped seven percent in westbound traffic volume and increased eight percent in eastbound volume, suggesting that the construction project may have slightly affected westbound cross-street traffic.
- The peak period and daily traffic patterns at the screen lines changed in the corridor, primarily in the northbound direction. In general, northbound traffic volumes substantially decreased on US-75 North Central Expressway and increased on the alternative routes.

- Peak period, peak direction traffic on US-75 North Central Expressway consists of 94-95 percent passenger vehicles, 4-5 percent commercial trucks, and 1 percent other (bus and motorcycle). Of the passenger vehicles, 81 to 90 percent carried one person; 9 to 16 percent, two persons; and 1 to 3 percent, more than two persons. The peak direction average passenger vehicle occupancy ranged from 1.11 to 1.23. The majority of the automobile users on US-75 North Central Expressway continue to travel alone.
- The A.M. peak hour, peak direction (southbound) average travel times between the I-635 LBJ Freeway and the Dallas central business district were 3.75 minutes lower on the US-75 North Central Expressway. Correspondingly, average travel speeds on US-75 increased from 56 km/h (35 mph) to 73 km/h (45 mph). Other reductions in travel time were observed on DNT, Skillman, and Greenville ranging from 2.37 to 2.72 minutes. The P.M. peak hour, peak direction (northbound) travel times increased on US-75 North Central Expressway by 1.25 minutes. Much larger travel time increases occurred on Preston by 9.98 minutes and US-75 Frontage Road by 5.36 minutes. P.M. peak hour, peak direction average travel speeds slightly decreased on US-75 from 39 km/h (24 mph) to 37 km/h (23 mph).

REFERENCES

1. Wohlschlaeger, S.D. and R.A. Krammes. *US-75 North Central Expressway Reconstruction: Pre-Construction Traffic Conditions*. Research Report 984-2. Texas Transportation Institute, College Station, Texas. November 1990.
2. Wohlschlaeger, S.D. and R.A. Krammes. *US-75 North Central Expressway Reconstruction: October 1990 and May 1991 Traffic Conditions*. Research Report 984-5F. Texas Transportation Institute, College Station, Texas. December 1991.
3. Tyer, K.D. and R.A. Krammes. *US-75 North Central Expressway Reconstruction: October 1991 Traffic Conditions*. Research Report 1940-1. Texas Transportation Institute, College Station, Texas. May 1992.
4. Tyer, K.D. and R.A. Krammes. *US-75 North Central Expressway Reconstruction: May 1992 Traffic Conditions*. Research Report 1940-4. Texas Transportation Institute, College Station, Texas. May 1993.
5. Tyer, K.D. and R.A. Krammes. *US-75 North Central Expressway Reconstruction: October 1992 and May 1993 Traffic Conditions*. Research Report 1940-7F. Texas Transportation Institute, College Station, Texas. November 1993.
6. Tyer, K.D. *US-75 North Central Expressway Reconstruction: October 1993 and March 1994 Traffic Conditions*. Research Report 1994-2. Texas Transportation Institute, College Station, Texas. August 1994.
7. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels Initial Survey Results*. Research Report 984-1. Texas Transportation Institute, College Station, Texas. September 1990.
8. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels November 1990 Survey Results*. Research Report 984-3. Texas Transportation Institute, College Station, Texas. May 1991.

9. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels May 1991 Survey Results*. Research Report 984-4. Texas Transportation Institute, College Station, Texas. November 1991.
10. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels October 1991 Survey Results*. Research Report 1940-2. Texas Transportation Institute, College Station, Texas. May 1992.
11. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Northwest Highway Screen Line Automobile and Transit User Panels May 1992 Survey Results*. Research Report 1940-3. Texas Transportation Institute, College Station, Texas. November 1992.
12. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Lemmon/Oak Lawn/Peak Screen Line Automobile User Panels October 1992 Survey Results*. Research Report 1940-5. Texas Transportation Institute, College Station, Texas. May 1993.
13. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Lemmon/Oak Lawn/Peak Screen Line Automobile User Panels May 1993 Survey Results*. Research Report 1940-6. Texas Transportation Institute, College Station, Texas. October 1993.
14. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Lemmon/Oak Lawn/Peak Screen Line Automobile User Panels October 1993 Survey Results*. Research Report 1994-1. Texas Transportation Institute, College Station, Texas. May 1994.
15. Ullman, G.L. and R.A. Krammes. *U.S. 75 North Central Expressway Reconstruction: Lemmon/Oak Lawn/Peak Screen Line Automobile User Panels May 1994 Survey Results*. Research Report 1994-4. Texas Transportation Institute, College Station, Texas. October 1994.

APPENDIX A

MAY 1994 SCREEN LINE TRAFFIC VOLUMES



TABLE A.1. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1994): 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	37	260	89	202	190	119	50	107	1248	90	77	80	107	2657
2	29	149	51	103	120	75	36	64	737	61	40	56	57	1577
3	20	117	33	79	101	50	26	48	456	37	37	44	52	1101
4	16	82	22	38	61	29	8	21	354	22	25	26	27	730
5	17	138	19	28	110	21	10	15	364	18	11	17	32	799
6	106	369	48	67	235	39	14	23	1076	38	35	33	91	2173
7	754	1738	127	182	872	170	49	86	3398	149	89	111	142	7867
8	1361	3268	259	310	1363	503	176	273	4479	641	198	238	259	13326
9	988	3162	276	302	1149	734	301	358	4103	828	314	254	299	13066
10	462	2216	283	312	842	669	320	322	2677	444	337	316	384	9583
11	439	2061	281	370	848	677	335	364	2641	458	392	409	442	9717
12	526	2644	438	512	1280	982	593	646	3160	678	651	551	544	13203
13	586	2519	513	596	1552	1159	686	777	3095	721	776	560	600	14141
14	571	2613	404	556	1295	1026	574	717	3004	628	589	452	515	12945
15	557	2734	373	527	1206	918	544	633	3271	636	551	472	610	13032
16	491	3309	373	490	1144	904	558	656	3651	759	679	663	881	14559
17	646	4901	473	600	1378	1058	839	1031	4120	1209	1284	899	1390	19829
18	800	5313	551	795	1553	1350	1534	1630	3502	1616	1959	1069	1641	23312
19	358	3752	352	639	1260	996	923	1044	3539	931	1020	570	780	16163
20	234	2089	249	527	1050	746	527	714	3364	520	480	333	396	11230
21	183	1330	229	504	884	544	355	473	2719	420	349	257	279	8527
22	189	1198	203	562	785	488	325	414	2700	353	300	206	252	7975
23	200	1218	182	445	659	414	283	391	3339	261	193	134	209	7929
24	94	607	140	358	412	254	158	255	1602	177	129	116	182	4483
24 Hr. Total	9665	47787	5971	9100	20347	13925	9224	11063	62599	11693	10513	7866	10170	229924

A-3

TABLE A.2. Oak Lawn/Lemmon/Peak Screen Line Average Traffic Volumes (May 1994): 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	46	187	78	202	197	109	24	79	782	93	43	61	36	1936
2	25	99	57	103	118	67	18	49	525	56	27	39	21	1203
3	22	80	53	79	88	56	17	44	414	48	17	25	20	964
4	17	59	22	38	49	35	8	19	272	25	17	20	19	598
5	17	90	22	28	51	30	10	17	348	22	30	29	31	723
6	44	343	50	67	124	59	28	50	1084	99	112	113	101	2274
7	192	2070	184	182	430	227	179	245	3292	440	578	458	387	8863
8	535	5660	377	310	1126	798	876	775	5067	1124	2338	1199	1004	21189
9	619	5652	453	302	1544	925	1322	1112	4750	1391	2466	1228	907	22670
10	489	3311	294	312	949	684	666	558	3443	819	780	630	423	13356
11	463	2315	285	370	904	696	480	474	2912	629	497	492	257	10773
12	592	2392	360	512	1150	809	565	598	3108	710	615	474	311	12195
13	648	2475	477	596	1729	956	857	721	3098	804	917	586	441	14305
14	648	2845	464	556	1671	1008	867	730	3550	820	803	591	395	14948
15	614	2714	370	527	1397	892	562	560	3473	690	610	579	379	13364
16	955	2999	350	490	1766	829	479	516	3989	653	539	465	330	14362
17	1407	3175	367	600	1864	817	469	581	4229	646	560	419	327	15462
18	1514	3160	398	795	2046	810	553	546	4358	728	795	422	294	16418
19	654	3564	300	639	1535	831	529	528	4045	620	510	405	217	14379
20	361	1853	225	527	1114	678	411	424	3064	454	346	294	196	9947
21	236	1184	178	504	886	555	249	388	2317	364	277	249	142	7527
22	156	1011	170	562	754	508	178	324	2201	312	212	207	140	6736
23	123	723	131	445	593	395	131	264	2107	234	125	150	123	5543
24	116	401	119	358	402	236	77	177	1346	177	103	107	82	3701
24 Hr. Total	10490	48365	5783	9100	22487	13011	9554	9777	63774	11951	13317	9243	6582	233434

TABLE A.3. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1994): Northbound

Hour Ending	Route									Total
	DNT	Preston	Hillcrest	US-75	Greenville	Matilda	Skillman	Abrams	Garland	
1	246	55	25	989	123	60	73	92	134	1798
2	134	31	13	640	80	35	44	50	82	1109
3	104	21	6	529	65	31	28	37	54	873
4	75	16	1	349	31	10	22	33	48	585
5	128	18	4	418	20	14	17	30	71	719
6	294	37	14	1072	25	43	56	101	208	1850
7	1472	178	60	3371	88	155	238	337	584	6483
8	2923	549	238	3633	164	518	679	826	1040	10569
9	2899	846	405	2947	226	559	756	968	901	10506
10	2300	742	394	1659	312	423	542	786	895	8054
11	1947	839	394	1697	324	442	486	768	926	7825
12	2519	955	468	1704	339	641	575	785	1147	9132
13	2333	999	482	1611	349	832	726	899	1188	9419
14	2462	998	481	1726	342	805	682	880	1157	9533
15	2652	1013	464	1801	349	751	721	901	1226	9878
16	3002	931	429	2371	307	756	878	1019	1354	11047
17	4347	1033	508	2803	390	734	1084	1051	1558	13508
18	5091	1205	662	3709	553	973	1425	1318	1776	16712
19	3973	970	531	3516	502	694	1071	1042	1469	13768
20	2102	616	350	3638	368	465	584	753	1043	9918
21	1273	462	227	3005	309	302	428	570	826	7401
22	1112	418	200	3048	314	239	316	407	625	6678
23	1068	285	136	2627	261	194	229	270	497	5567
24	572	156	67	1656	240	125	156	151	320	3442
24 Hr. Total	45026	13370	6561	50519	6082	9801	11816	14071	19127	176372

A-5

TABLE A.4. Mockingbird/Buckner Screen Line Average Traffic Volumes (May 1994): Southbound

Hour Ending	Route									Total
	DNT	Preston	Hillcrest	US-75	Greenville	Matilda	Skillman	Abrams	Garland	
1	167	36	17	741	137	27	79	81	145	1430
2	90	21	10	456	98	12	44	49	57	837
3	59	11	3	377	55	11	24	30	39	610
4	52	8	2	289	31	9	22	14	35	462
5	79	12	2	347	28	3	24	24	69	589
6	321	29	10	1006	48	5	57	58	233	1768
7	1816	140	63	3416	215	29	440	176	891	7186
8	4970	565	320	5291	817	225	1630	690	1758	16266
9	5035	920	523	5192	898	275	1553	696	1607	16700
10	3344	632	365	3829	548	99	681	498	1138	11133
11	2243	648	342	3147	563	124	507	576	1011	9160
12	2384	727	404	3419	637	186	559	594	1066	9977
13	2355	809	463	3515	690	312	622	636	1180	10580
14	2679	829	486	3661	708	265	622	624	1190	11063
15	2616	771	505	3372	708	250	640	721	1173	10755
16	2779	712	441	4032	652	307	687	726	1305	11641
17	3081	770	453	4140	689	272	707	696	1220	12028
18	3425	773	496	4293	827	392	858	799	1325	13188
19	2725	696	445	3830	786	242	814	841	1293	11671
20	1661	524	291	3164	738	166	560	597	1010	8711
21	1015	372	200	2440	589	129	431	462	838	6477
22	1032	314	177	2403	533	125	389	381	654	6007
23	694	175	109	1942	425	84	271	236	425	4361
24	375	96	35	1157	330	49	158	141	284	2625
24 Hr. Total	44999	10589	6163	65459	11747	3598	12380	10345	19945	185225

TABLE A.5. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1994): Northbound

Hour Ending	Route							Total
	DNT	Preston	Hillcrest	US-75	Greenville	Skillman	Abrams	
1	314	31	38	1071	305	240	140	2139
2	169	23	22	672	231	136	84	1336
3	124	16	23	564	185	129	67	1108
4	86	10	10	336	59	65	47	611
5	125	17	9	387	41	49	35	663
6	307	38	32	863	58	91	75	1465
7	1685	136	144	3369	229	300	267	6130
8	3434	467	465	3755	814	634	607	10178
9	3262	581	622	3569	1090	702	782	10608
10	2019	617	570	2042	762	516	575	7100
11	2064	664	571	2052	913	571	588	7423
12	2462	842	619	2327	1314	724	711	8998
13	2453	892	765	2385	1628	817	771	9710
14	2695	931	734	2350	1557	902	808	9978
15	2828	960	738	2226	1490	939	827	10008
16	3326	842	712	3232	1399	1186	901	11597
17	4660	836	847	3672	1490	1662	935	14102
18	5535	1004	1056	3894	1977	2429	1079	16974
19	4421	846	824	3603	1579	1864	1009	14147
20	2433	585	497	3212	1148	1119	826	9822
21	1510	463	416	3014	939	956	708	8005
22	1353	356	378	2947	927	889	658	7508
23	1087	209	232	2748	748	595	398	6018
24	655	97	89	1877	528	438	291	3975
24 Hr. Total	49008	11463	10412	56167	21410	17954	13189	179604

TABLE A.6. Loop 12 (Northwest Highway) Screen Line Average Traffic Volumes (May 1994): Southbound

Hour Ending	Route							Total
	DNT	Preston	Hillcrest	US-75	Greenville	Skillman	Abrams	
1	191	38	44	878	281	153	106	1691
2	101	17	17	510	164	98	59	966
3	65	13	15	383	112	71	43	702
4	49	11	5	311	30	49	29	483
5	91	13	14	365	29	69	31	611
6	434	40	36	942	67	192	87	1796
7	1993	215	191	3120	338	940	264	7060
8	4645	888	778	3877	1493	2440	678	14800
9	4478	1177	1039	3349	1630	2139	806	14617
10	2750	823	760	3335	924	999	638	10229
11	2280	767	702	2896	948	809	673	9076
12	2444	856	829	2958	1233	868	823	10011
13	2451	884	846	2795	1508	981	860	10325
14	2621	936	844	2842	1453	939	846	10481
15	2649	875	795	3277	1205	897	846	10544
16	2879	826	933	3698	1151	888	909	11285
17	3340	769	993	4079	1222	1046	1008	12457
18	3738	803	1133	3973	1554	1183	1216	13601
19	2804	755	944	4454	1328	1205	1114	12604
20	1701	532	650	3812	1054	993	831	9573
21	1191	386	430	2931	904	828	667	7337
22	1163	293	356	3217	874	688	536	7128
23	809	175	177	2590	716	484	363	5314
24	409	70	102	1734	510	316	221	3362
24 Hr. Total	45273	12161	12633	62326	20731	19276	13653	186053

TABLE A.7. US-75 Screen Line Average Traffic Volumes (May 1994): 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	45	85	89	260	155	14	2	171	9	69	134	24	48	340	153	265	82	72	2016
2	19	51	67	185	74	12	0	77	8	44	79	9	26	166	77	137	44	29	1103
3	17	43	64	164	50	3	1	63	6	45	31	7	21	164	56	122	36	24	917
4	12	20	30	67	38	3	2	39	3	14	13	4	8	71	40	74	21	23	481
5	8	29	32	46	21	4	0	31	6	16	10	3	5	66	26	51	23	25	403
6	16	45	77	71	45	6	2	76	21	26	34	9	23	114	52	143	46	60	866
7	46	153	264	209	112	14	9	200	56	158	87	40	109	361	164	882	201	205	3270
8	123	277	614	360	223	54	13	309	145	564	263	187	415	842	410	2213	689	573	8272
9	139	391	620	437	302	99	29	411	198	708	314	268	477	1015	702	2671	1008	712	10503
10	139	384	478	500	376	90	33	629	153	414	440	262	370	1060	574	2093	582	689	9266
11	171	410	449	567	391	107	45	659	123	353	480	258	378	1185	688	2033	536	803	9635
12	194	446	542	689	543	161	45	790	143	449	560	333	465	1580	913	2344	619	1057	11873
13	245	539	695	773	661	188	65	849	191	530	650	345	399	1520	1186	2558	731	1193	13317
14	248	543	655	774	671	168	47	820	241	463	669	303	340	1391	1122	2557	756	1064	12833
15	243	502	550	814	668	168	48	800	216	445	643	284	232	1813	1051	2621	840	1108	13046
16	231	514	584	921	725	204	46	721	160	450	691	330	232	2222	1113	2704	1126	1388	14363
17	296	640	718	1151	891	318	64	950	161	386	716	470	280	2769	1046	2817	1640	2106	17419
18	357	751	1042	1439	1177	517	182	1225	190	348	737	712	370	3303	1241	3654	2470	2623	22337
19	258	566	632	1140	966	353	84	1144	170	312	730	544	397	2687	1338	3052	1814	1910	18096
20	186	386	435	820	831	189	41	925	105	347	685	309	292	1934	1094	1972	762	910	12225
21	147	299	353	662	758	141	29	825	51	245	575	200	239	1564	912	1539	560	550	9649
22	134	261	311	621	676	98	17	765	37	218	541	164	240	1747	984	1322	462	420	9019
23	97	218	282	582	595	84	16	622	39	173	456	103	165	953	572	945	309	252	6464
24	72	156	181	409	386	48	9	361	29	114	292	46	98	647	333	605	164	154	4103
24 Hr. Total	3444	7708	9765	13362	11336	3043	827	13463	2462	6890	9827	5216	5628	29514	15848	39373	15520	17950	211477

A-9

TABLE A.8. US-75 Screen Line Average Traffic Volumes (May 1994): Westbound

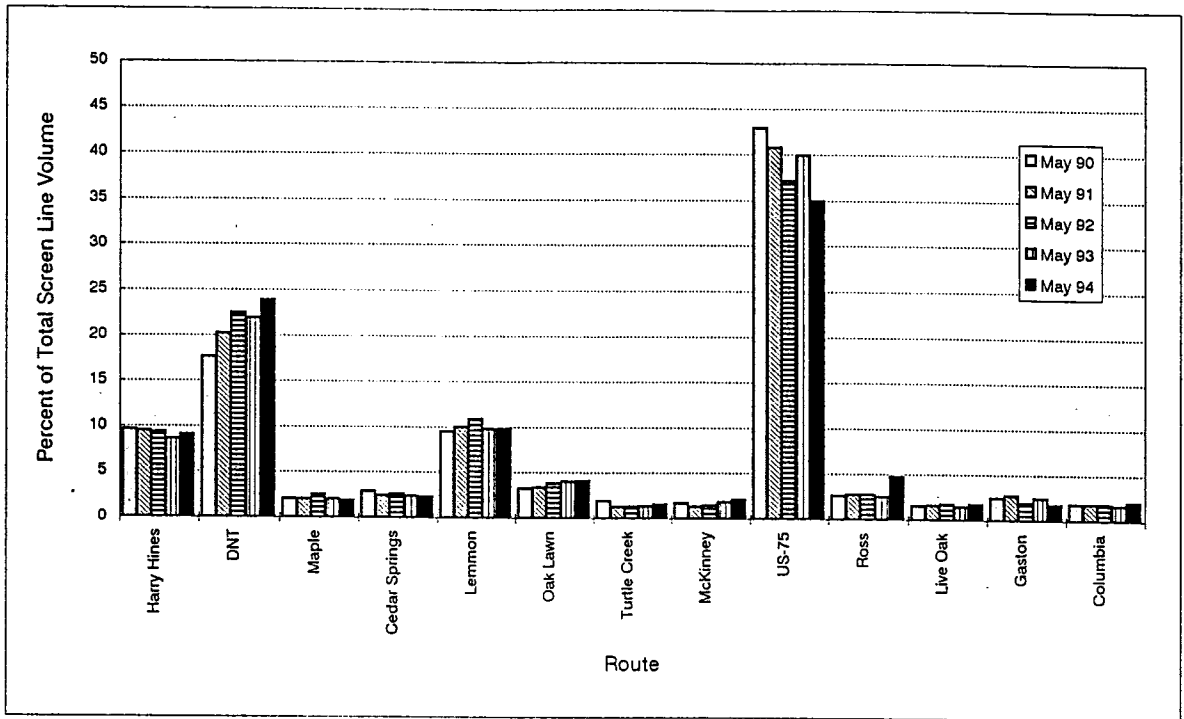
Hour Ending	Route																		Total
	Hall	Lemmon	Haskell	Fitzhugh	Henderson	Monticello	McCommas	Mockingbird	Yale	University	Lovers	South western	Caruth Haven	Loop 12	Park Lane	Walnut	Royal	Forest	
1	49	105	37	180	109	31	0	155	81	62	110	58	16	222	217	180	67	118	1798
2	49	63	21	99	93	16	1	80	67	35	70	45	10	109	144	109	38	67	1116
3	40	49	26	87	47	13	2	80	65	32	99	37	6	107	110	90	33	52	973
4	52	36	10	65	42	7	0	79	32	11	26	12	6	88	50	40	18	41	617
5	98	117	8	78	65	5	0	71	30	13	26	10	3	156	48	27	27	60	842
6	118	276	51	200	227	27	0	224	34	22	92	46	18	418	107	93	98	207	2258
7	390	959	234	589	676	151	11	784	70	93	442	215	69	1919	425	509	689	1268	9494
8	564	1409	490	1050	1154	641	19	1646	222	289	1130	858	156	3352	808	1341	2027	3167	20323
9	714	1331	595	1113	939	772	33	1647	222	425	1200	814	156	3015	808	1192	1471	2676	19123
10	387	709	365	741	608	429	19	1125	203	344	670	378	97	1828	622	997	710	1541	11771
11	334	637	339	642	647	278	7	1006	233	336	598	305	80	1527	619	1078	531	1262	10459
12	333	766	528	721	722	271	3	1049	245	435	640	354	113	1601	753	1347	665	1479	12025
13	318	843	503	799	945	319	15	1048	247	495	716	421	110	1632	796	1425	675	1712	13020
14	320	811	477	796	922	344	30	1094	257	441	703	403	111	1517	789	1264	684	1620	12584
15	339	826	444	760	760	271	31	1020	233	453	608	369	100	1496	788	1296	737	1540	12034
16	339	780	497	737	810	241	10	886	262	487	585	353	105	1570	776	1290	765	1513	12007
17	319	839	621	806	765	237	11	800	305	515	666	418	155	1679	812	1379	948	1471	12747
18	309	856	780	821	738	248	4	806	288	525	732	433	180	1728	945	1764	1074	1554	13787
19	272	646	438	678	767	258	16	846	183	465	661	432	124	1580	757	1206	859	1207	11397
20	198	522	266	578	635	244	9	1000	139	357	527	348	76	1274	722	960	531	919	9306
21	177	459	220	465	515	163	4	654	94	305	406	286	67	970	578	807	470	741	7382
22	172	424	175	439	465	120	2	593	116	303	365	254	67	859	501	722	392	553	6520
23	149	324	127	359	314	94	4	404	102	203	269	150	49	652	499	559	250	416	4923
24	97	185	106	292	224	60	1	284	85	106	184	104	26	438	347	372	126	252	3289
24 Hr. Total	6136	13975	7357	13097	13187	5239	231	17384	3815	6751	11523	7104	1899	29737	13022	20048	13888	25400	209792

A-10

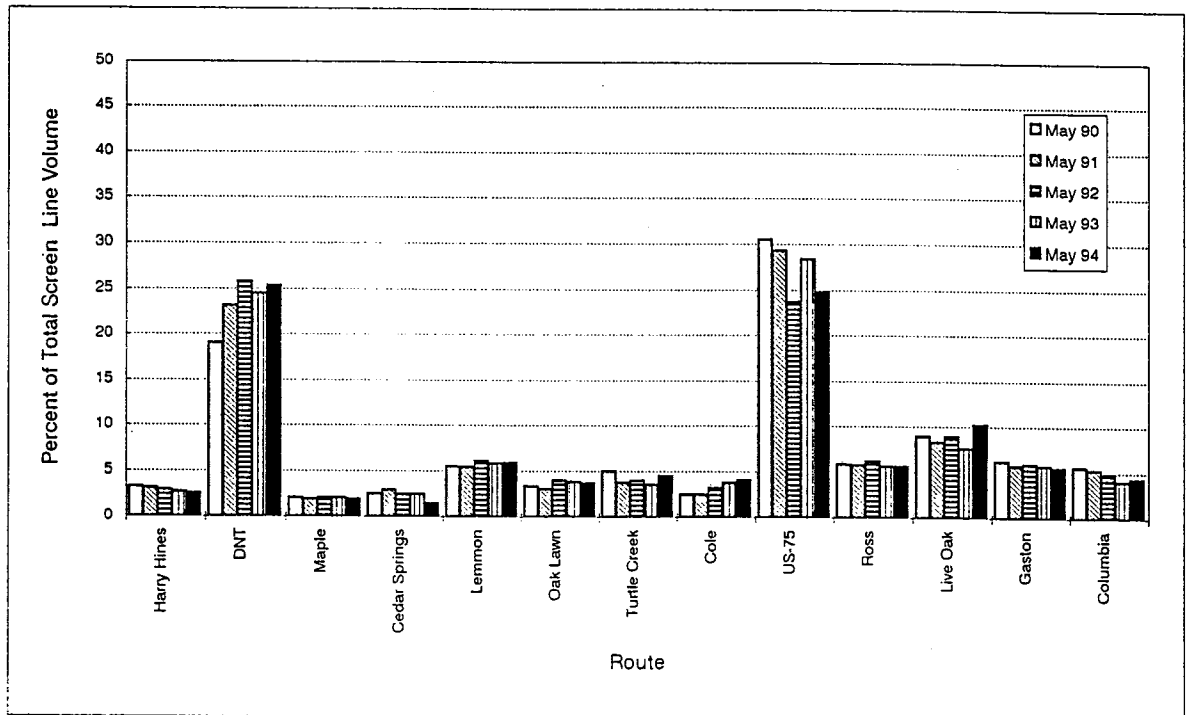
APPENDIX B

**SCREEN LINE TRAFFIC VOLUMES (MAY STUDIES):
PERCENTAGE OF TOTAL SCREEN LINE VOLUME BY ROUTE**



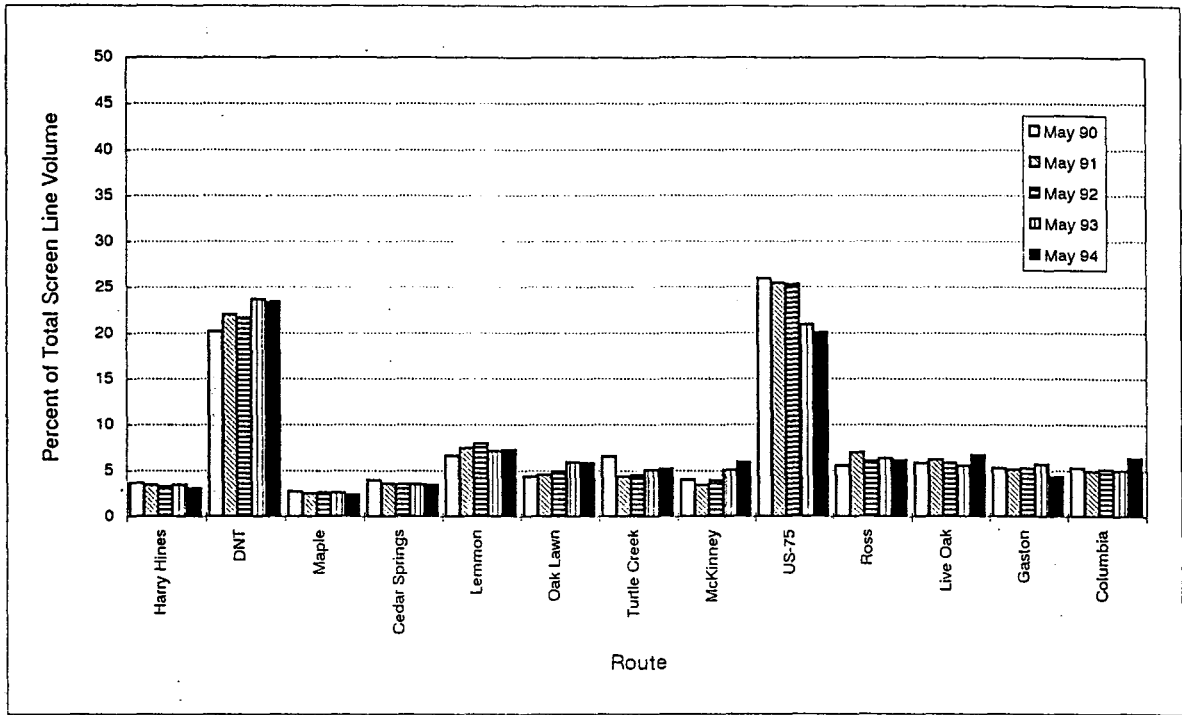


a) Northbound

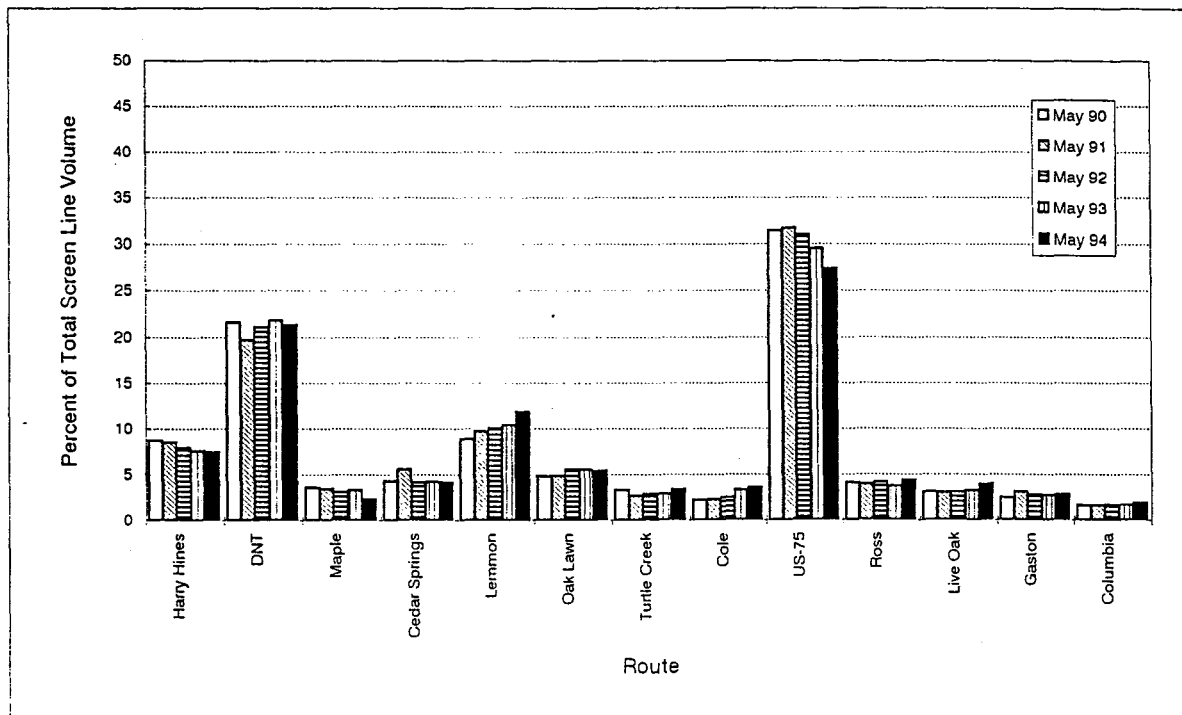


b) Southbound

FIGURE B.1. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - A.M. Peak Period (May Studies)

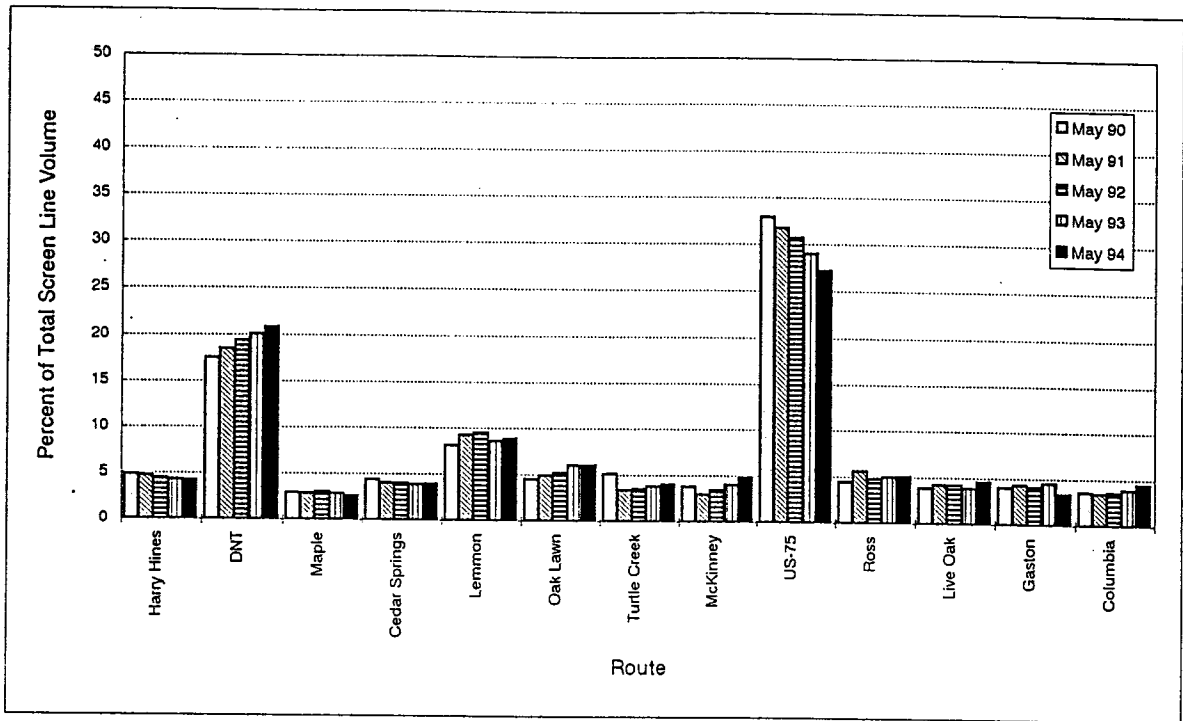


a) Northbound

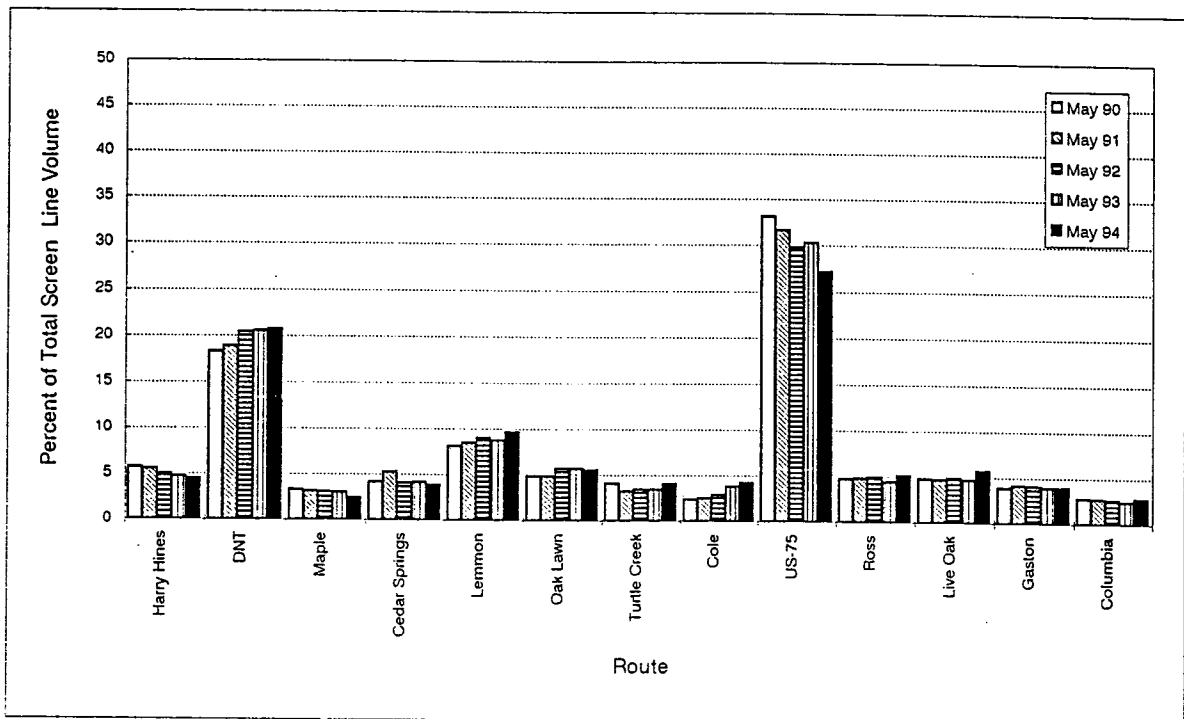


b) Southbound

FIGURE B.2. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - P.M. Peak Period (May Studies)

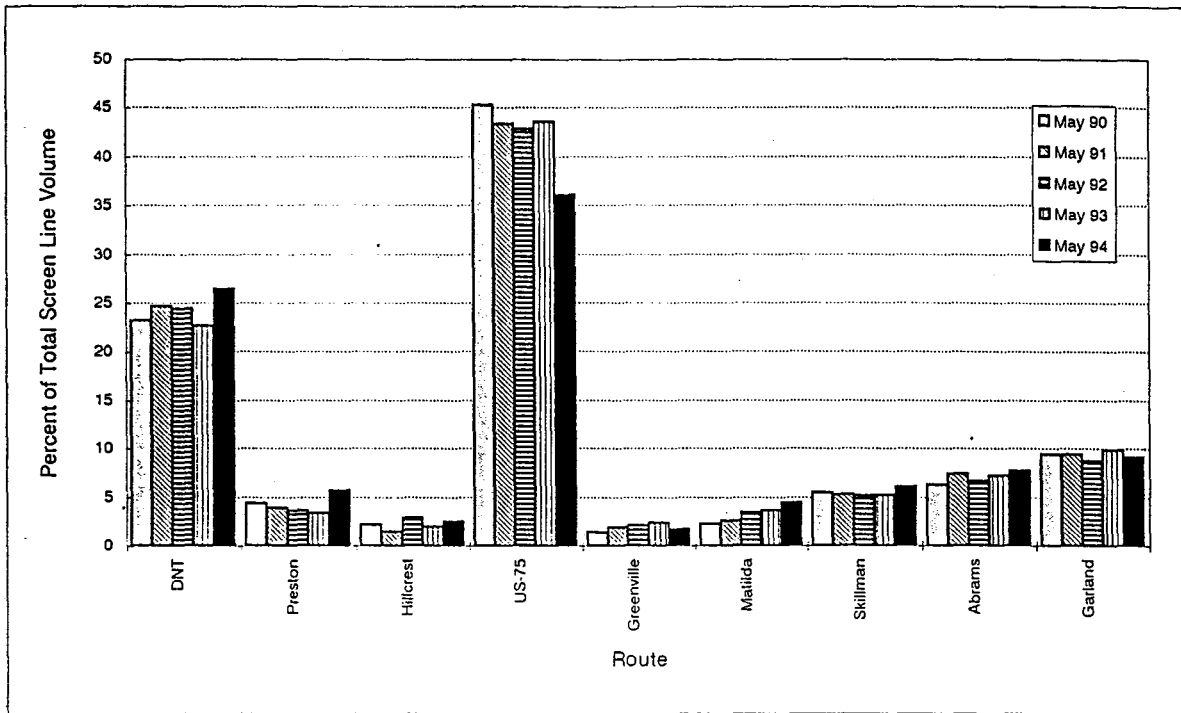


a) Northbound

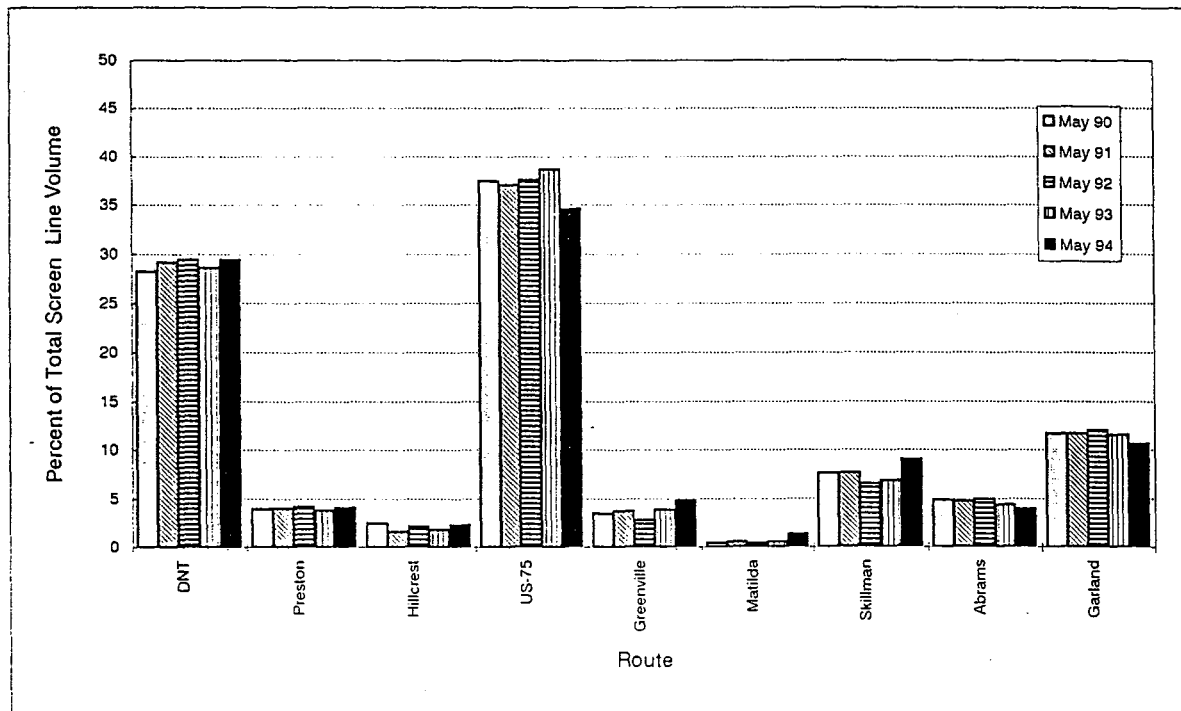


b) Southbound

FIGURE B.3. Percent of Total Screen Line Volume by Route:
Oak Lawn/Lemmon/Peak - 24 Hour Period (May Studies)

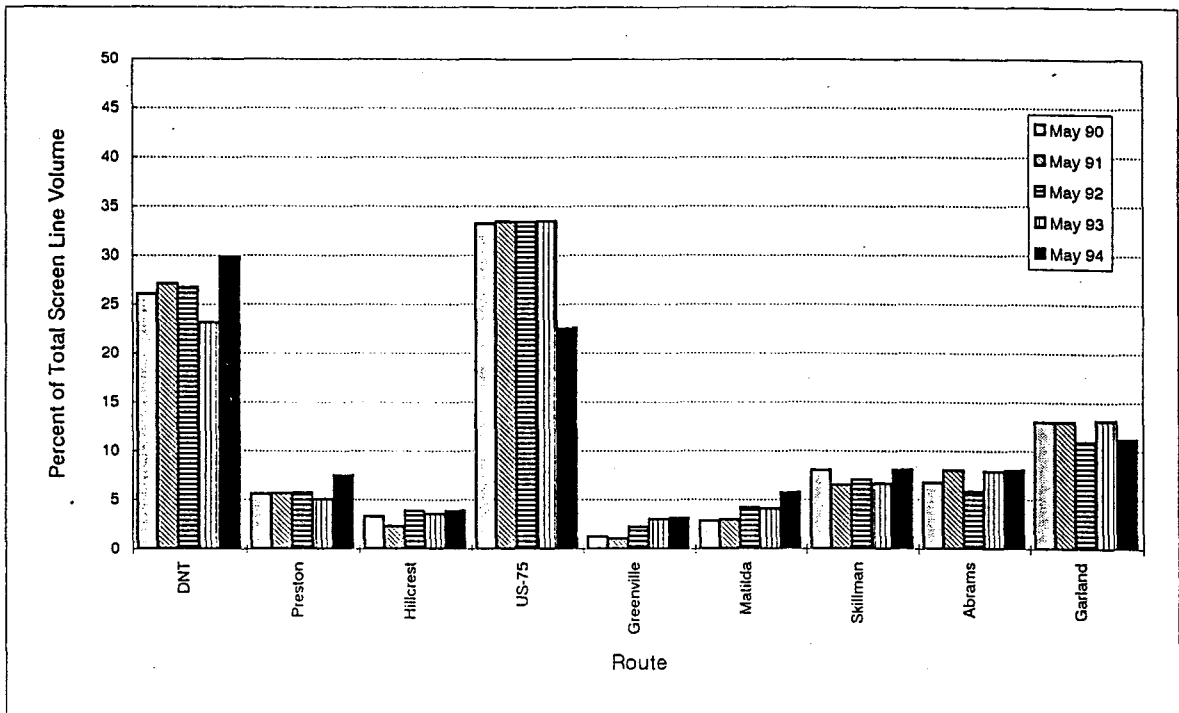


a) Northbound

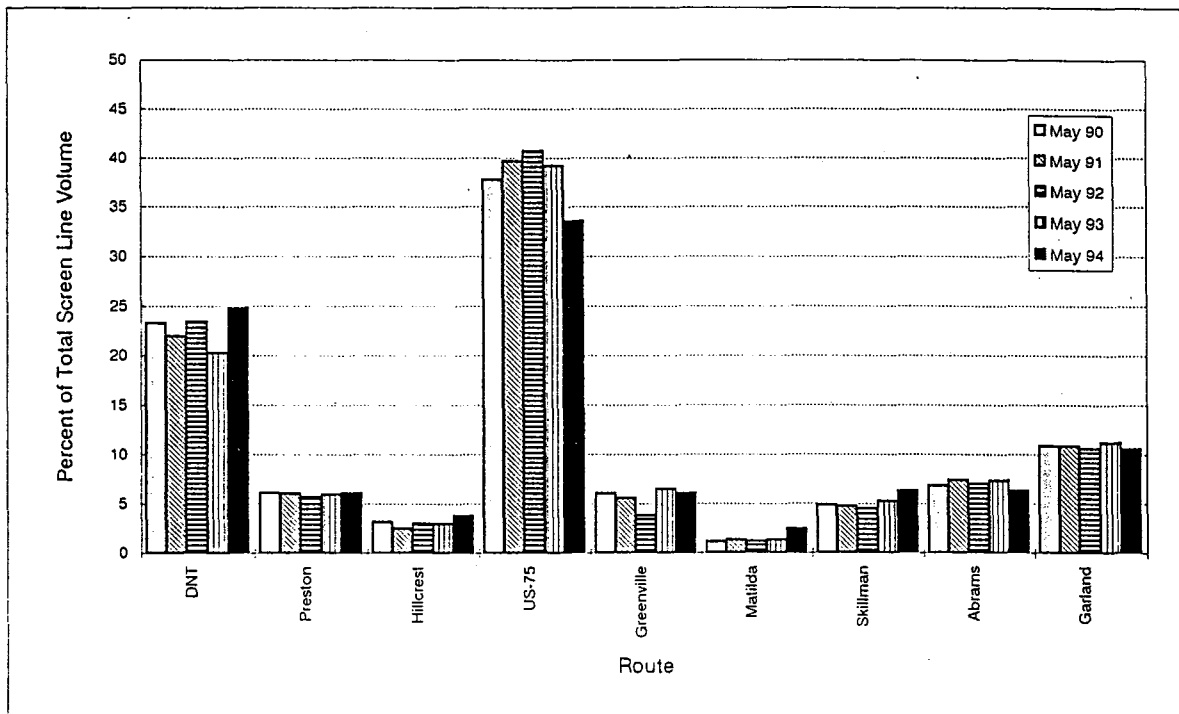


b) Southbound

FIGURE B.4. Percent of Total Screen Line Volume by Route:
Mockingbird/Buckner - A.M. Peak Period (May Studies)

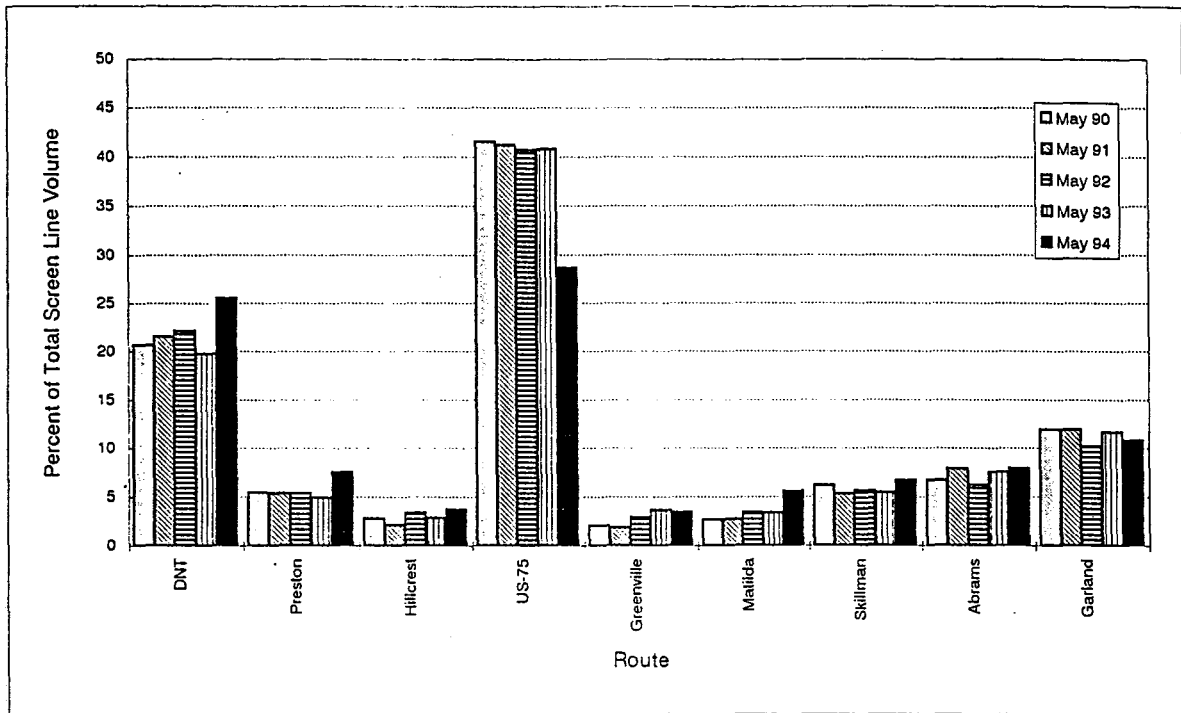


a) Northbound

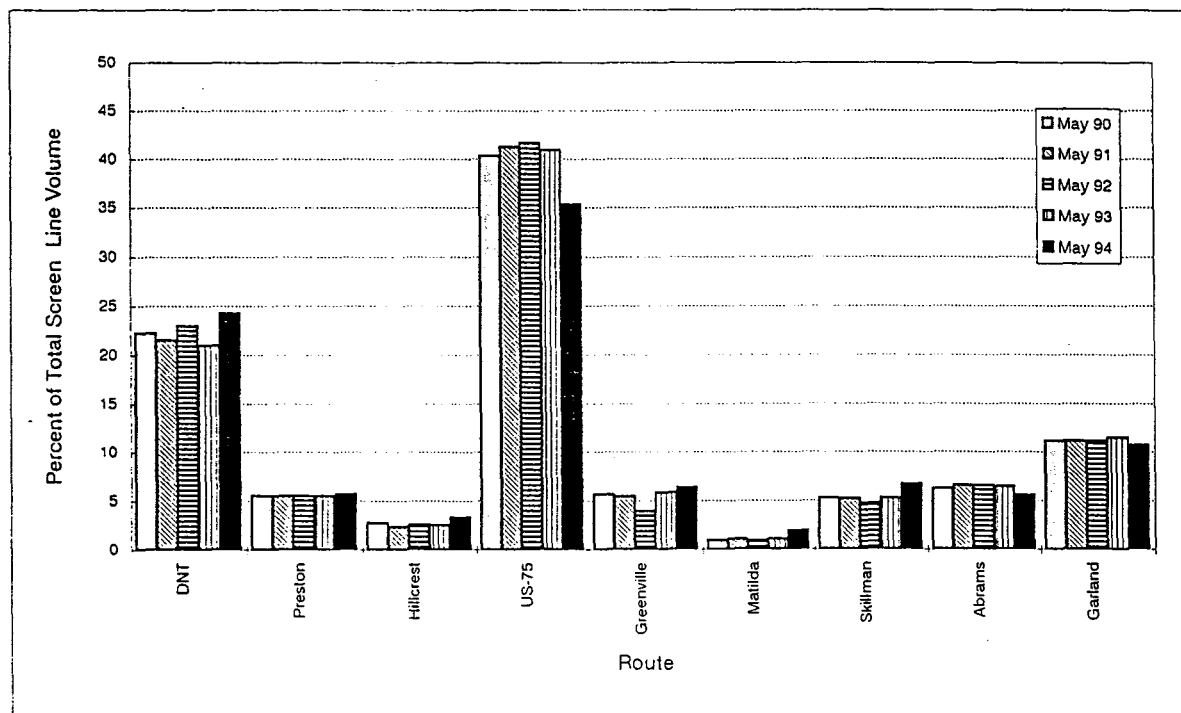


b) Southbound

FIGURE B.5. Percent of Total Screen Line Volume by Route:
Mockingbird/Buckner - P.M. Peak Period (May Studies)

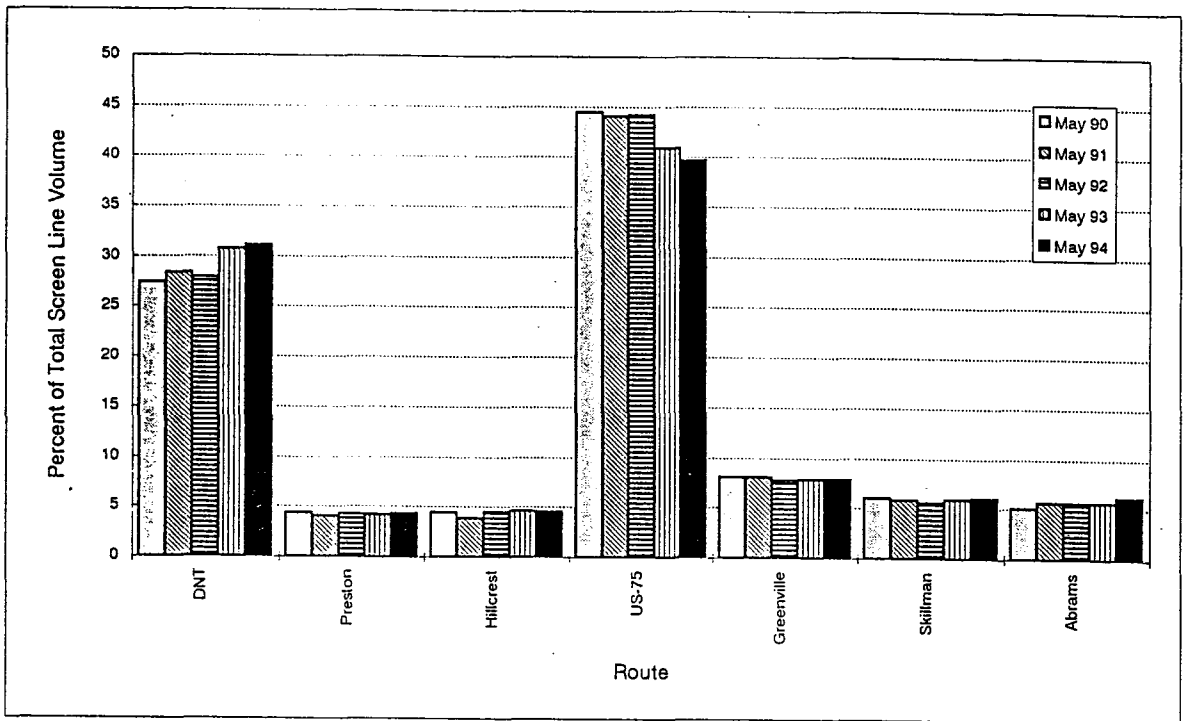


a) Northbound

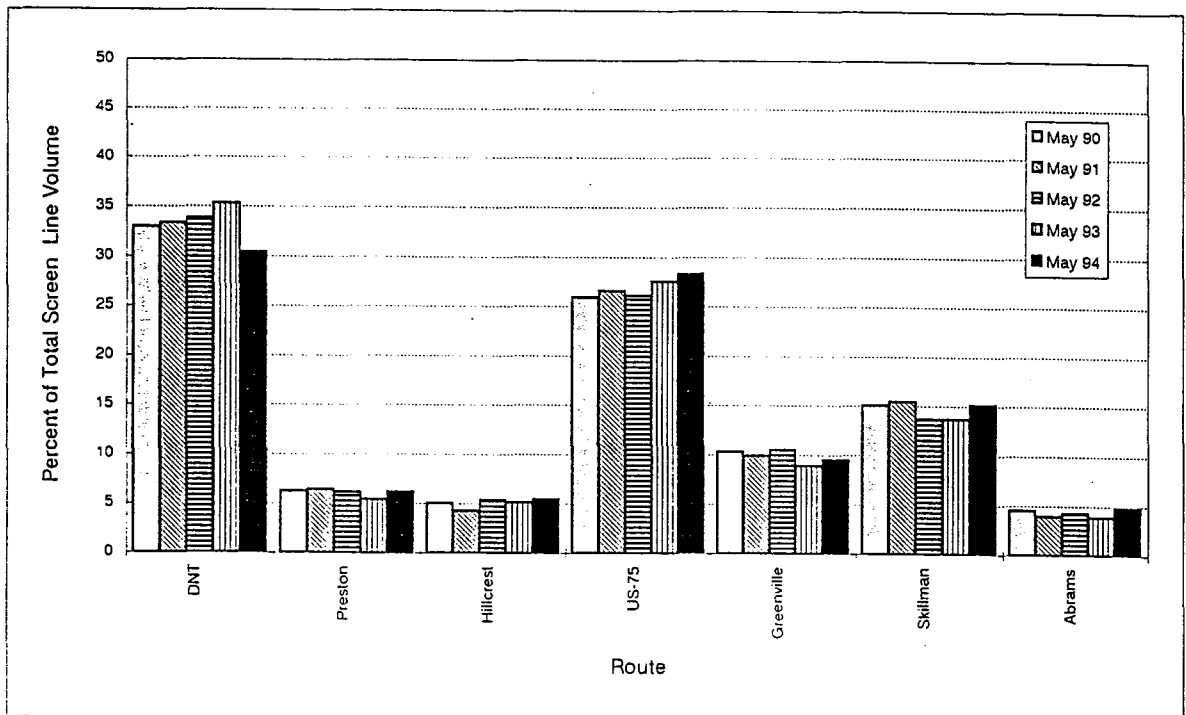


b) Southbound

FIGURE B.6. Percent of Total Screen Line Volume by Route:
Mockingbird/Buckner - 24 Hour Period (May Studies)

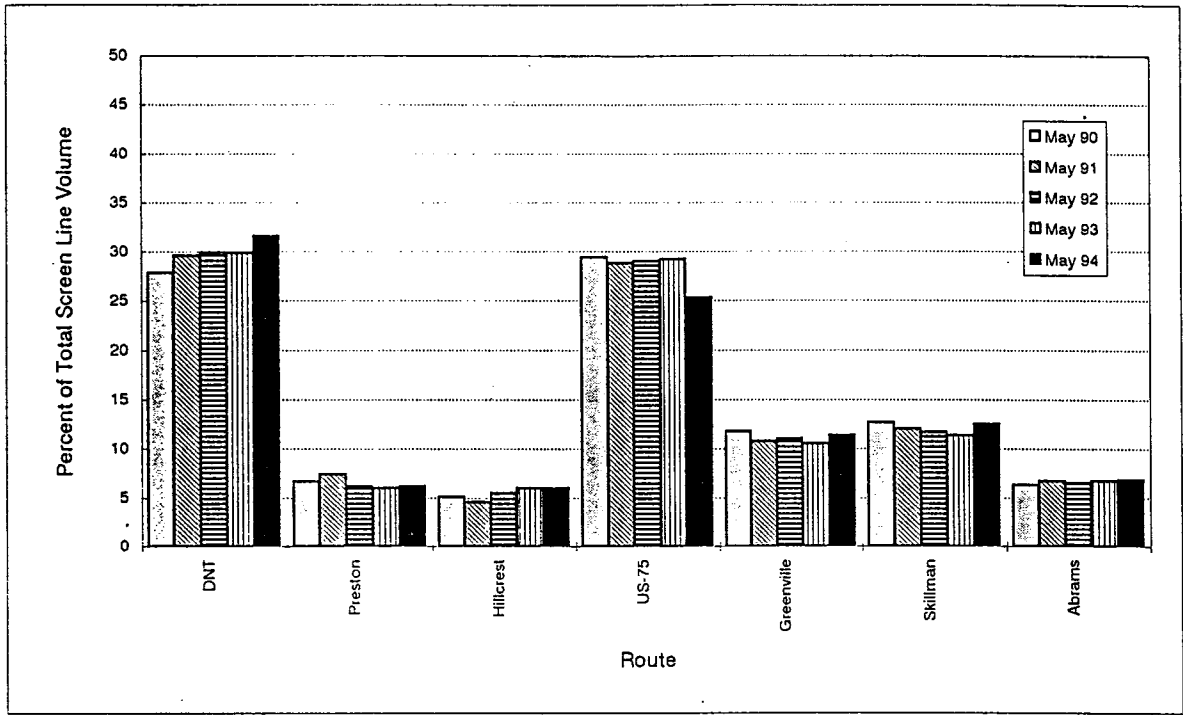


a) Northbound

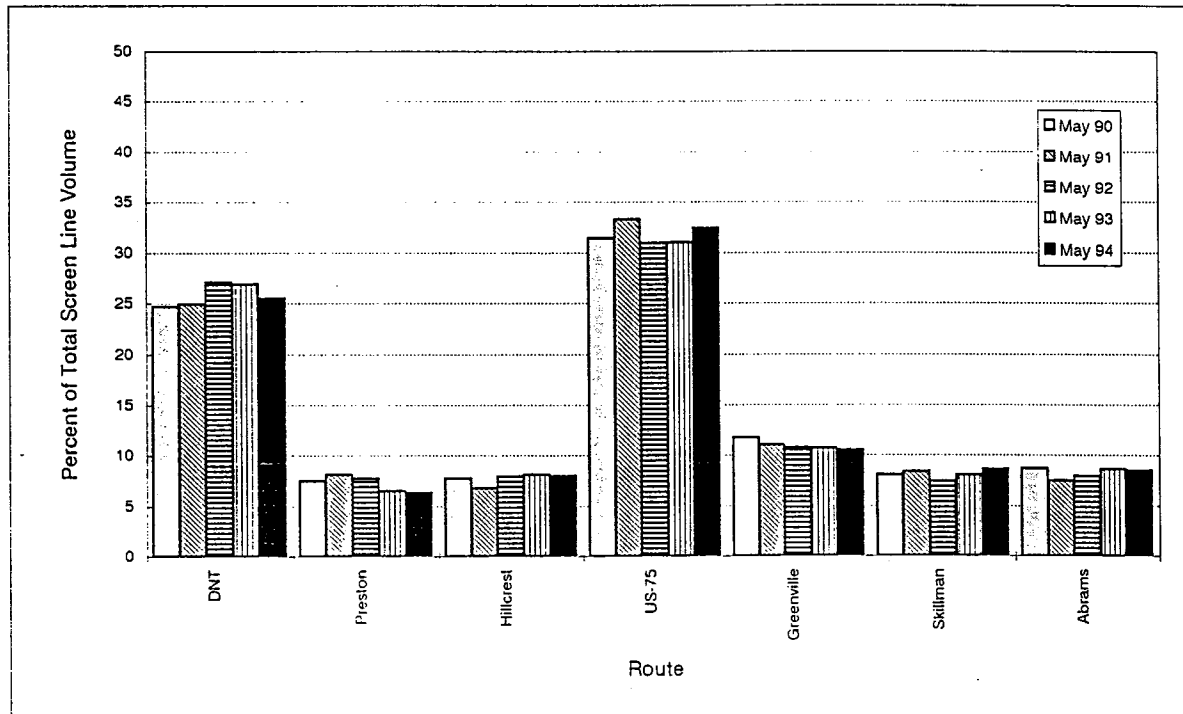


b) Southbound

FIGURE B.7. Percent of Total Screen Line Volume by Route:
Loop 12 - A.M. Peak Period (May Studies)

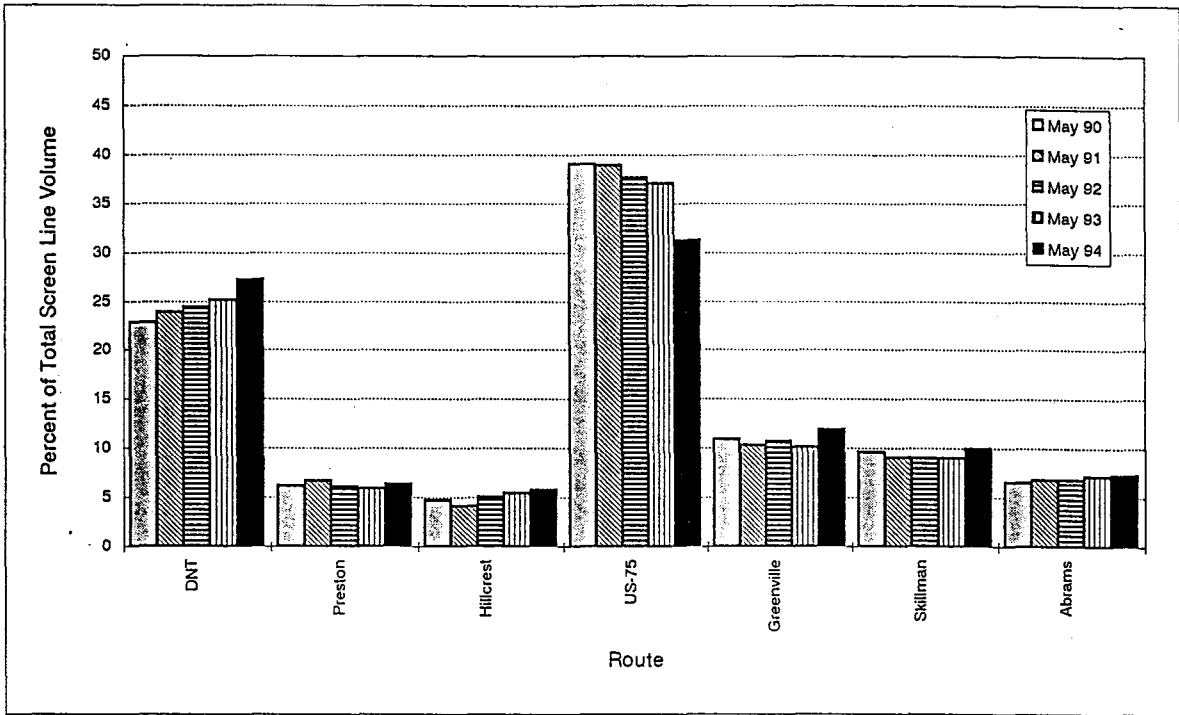


a) Northbound

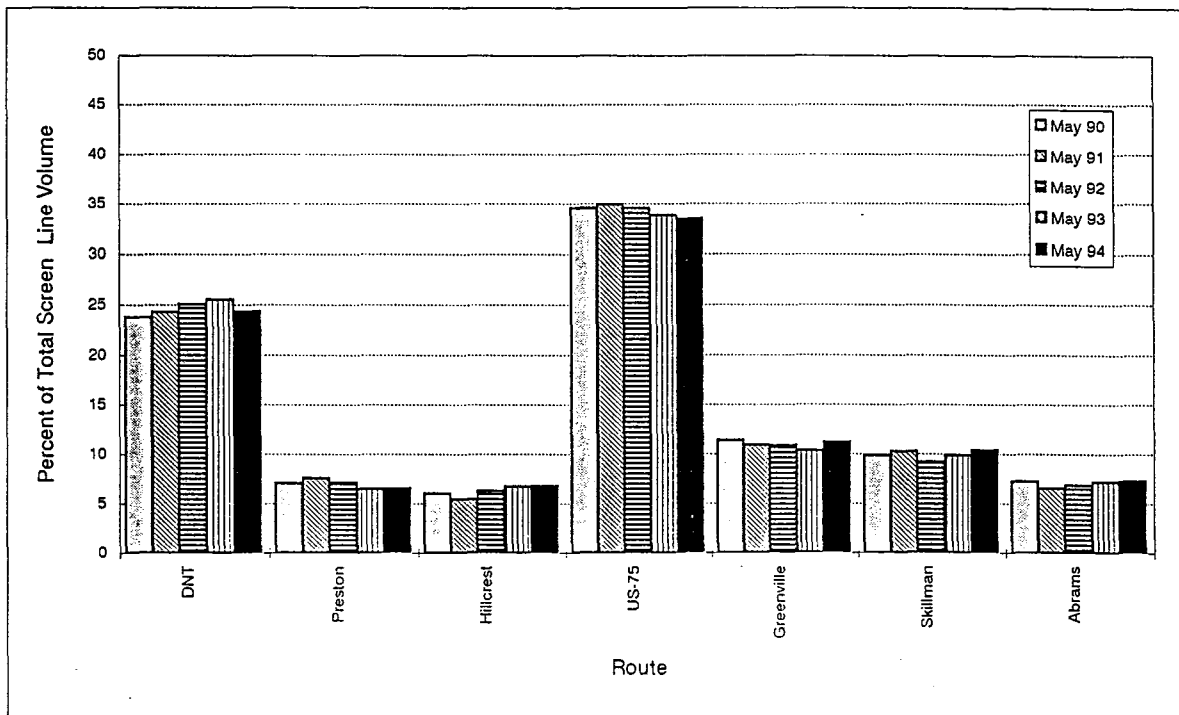


b) Southbound

FIGURE B.8. Percent of Total Screen Line Volume by Route:
Loop 12 - P.M. Peak Period (May Studies)

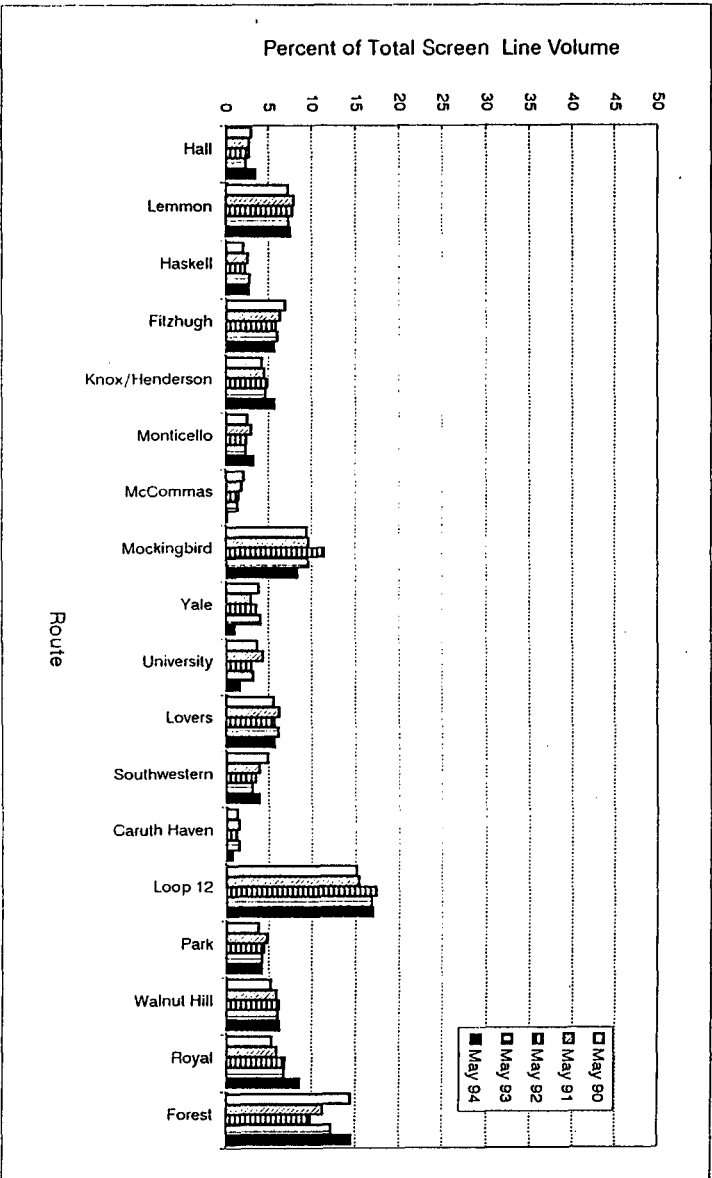
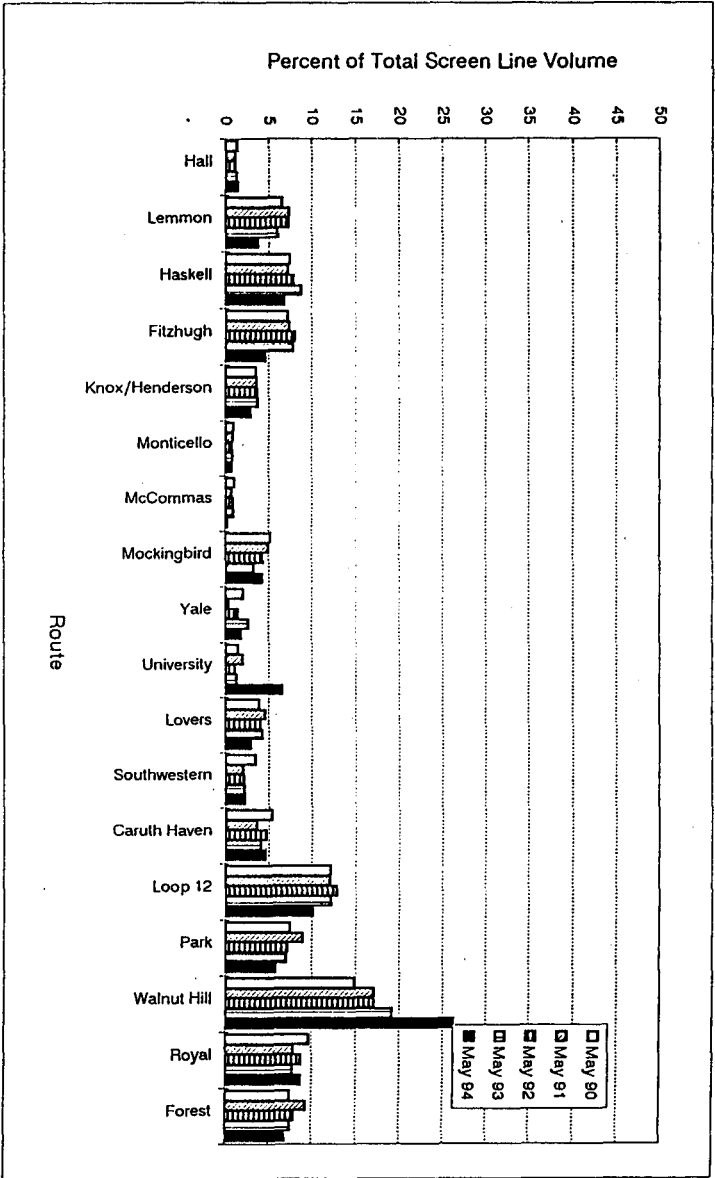


a) Northbound

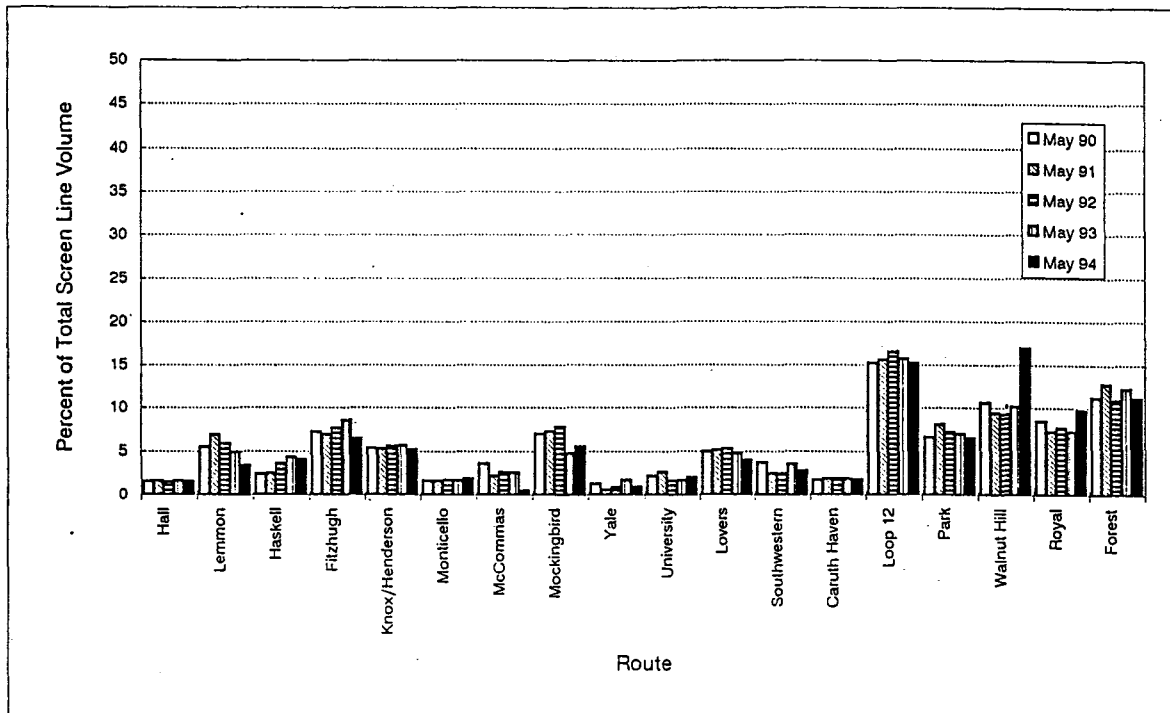


b) Southbound

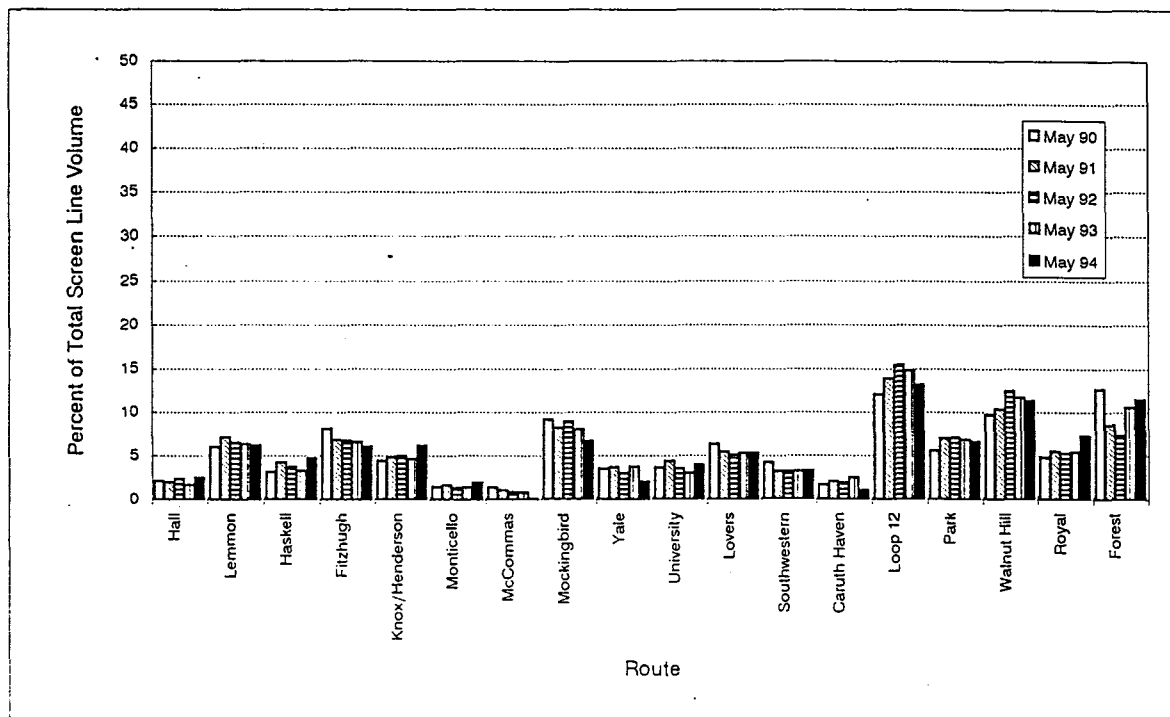
**FIGURE B.9. Percent of Total Screen Line Volume by Route:
Loop 12 - 24 Hour Period (May Studies)**



**FIGURE B.10. Percent of Total Screen Line Volume by Route:
US-75 - A.M. Peak Period (May Studies)**

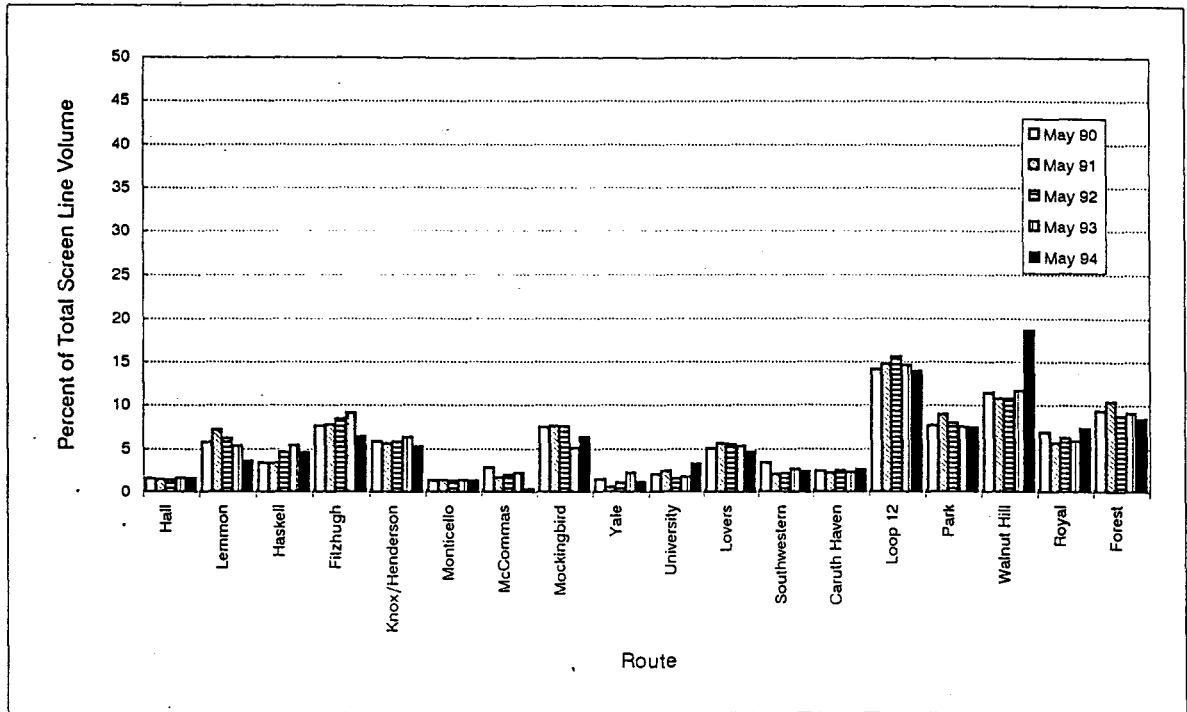


a) Eastbound

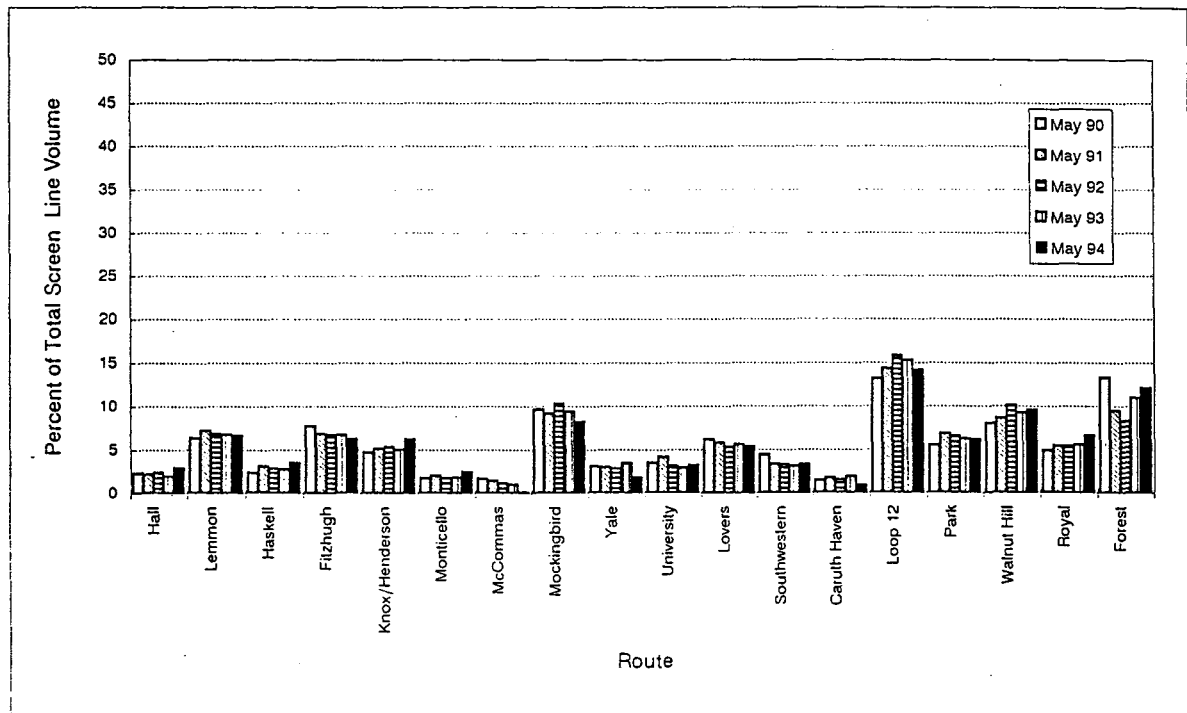


b) Westbound

FIGURE B.11. Percent of Total Screen Line Volume by Route:
US-75 - P.M. Peak Period (May Studies)



a) Eastbound



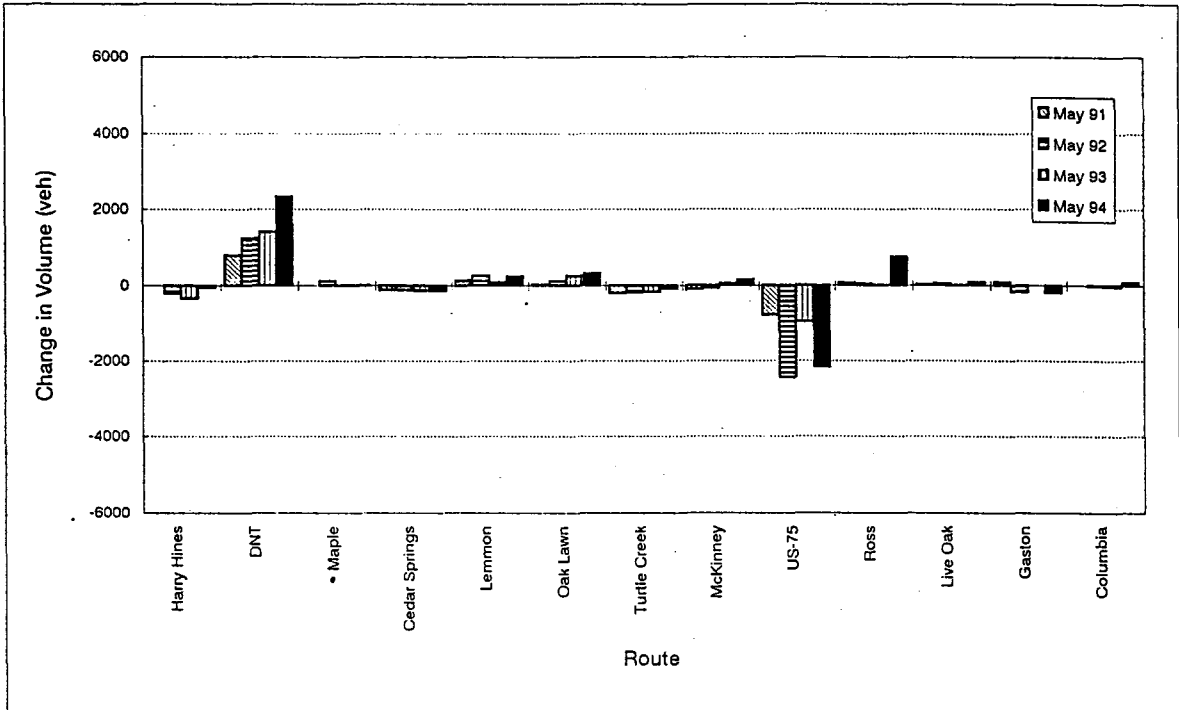
b) Westbound

**FIGURE B.12. Percent of Total Screen Line Volume by Route:
US-75 - 24 Hour Period (May Studies)**

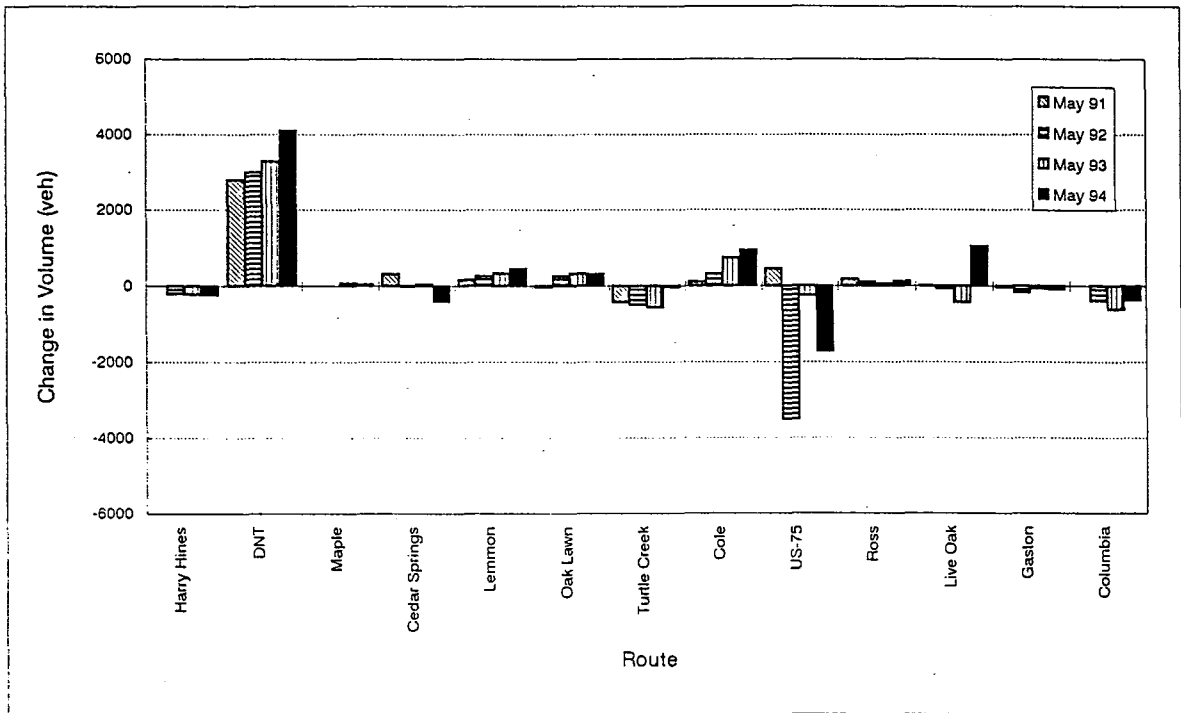
APPENDIX C

TRAFFIC VOLUME CHANGES (MAY STUDIES)



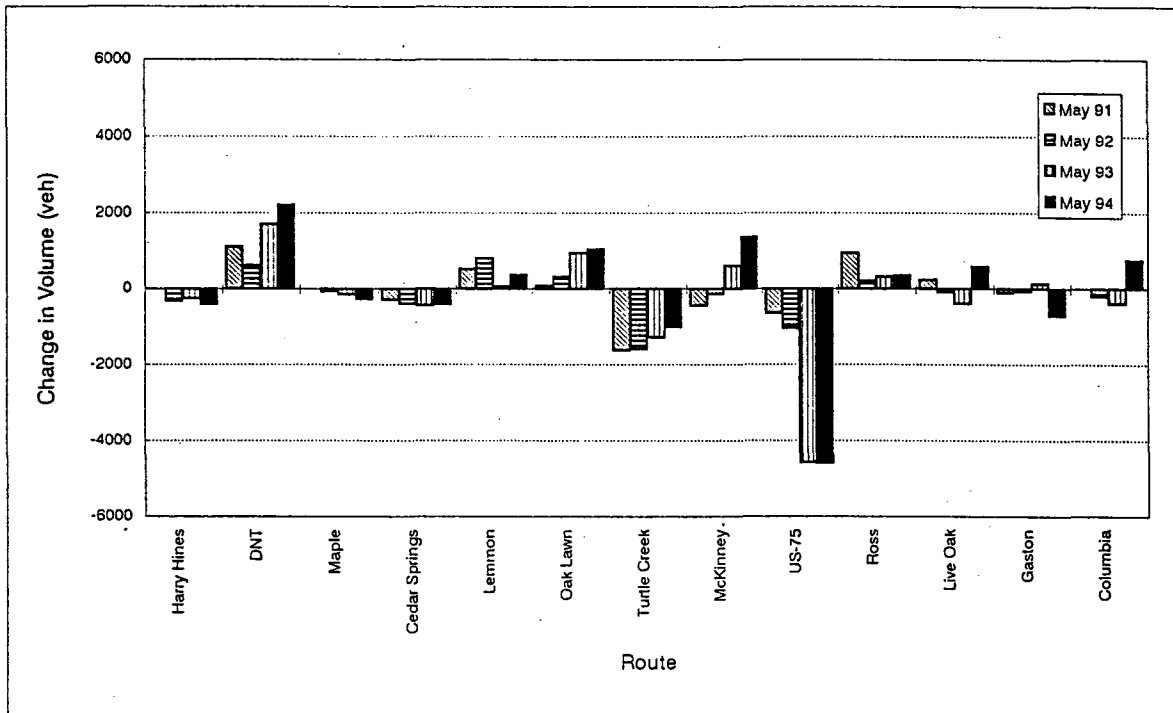


a) Northbound

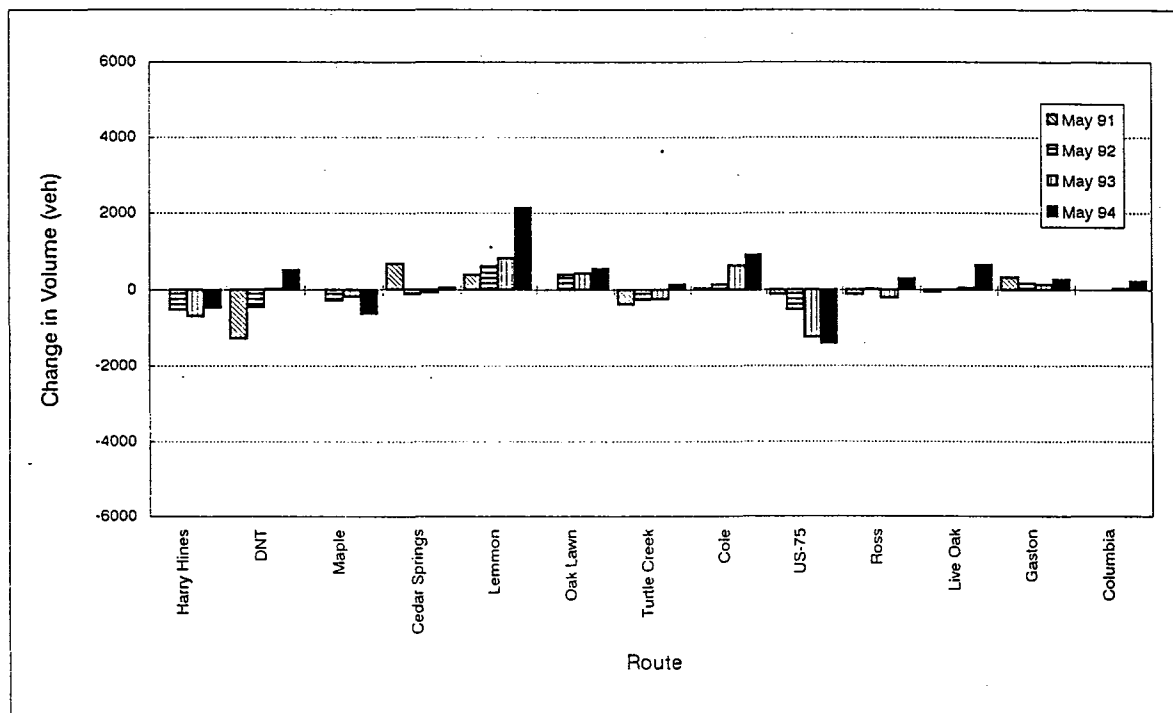


b) Southbound

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

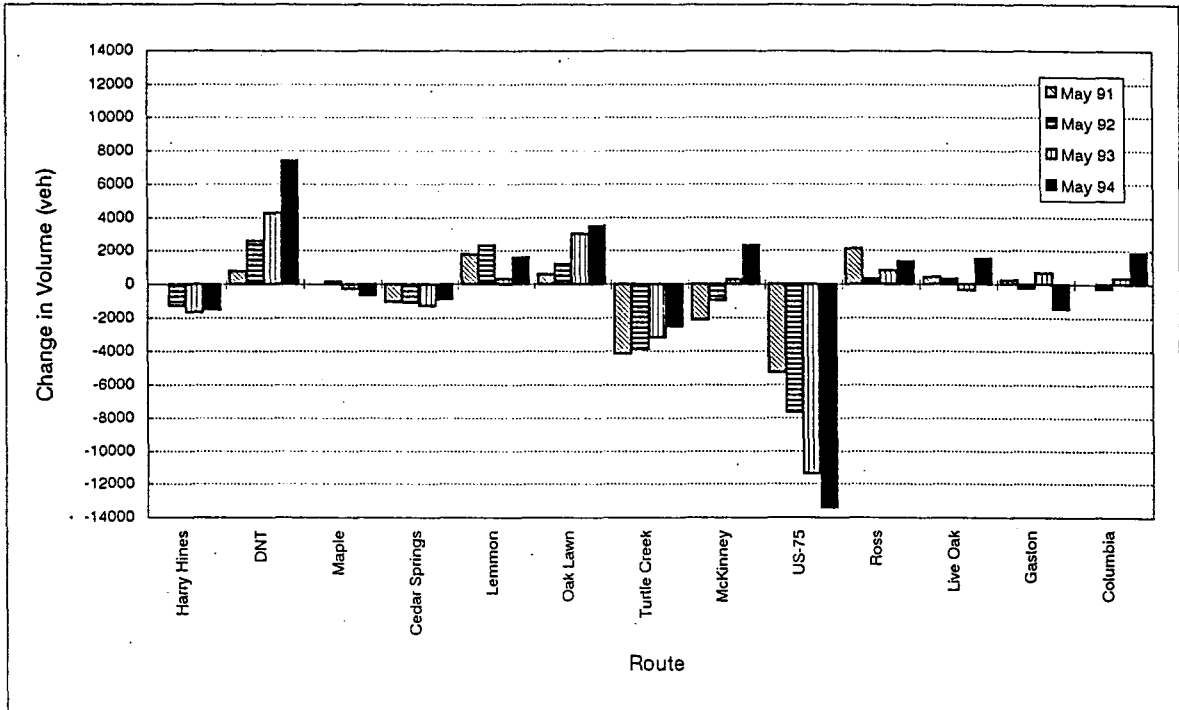


a) Northbound

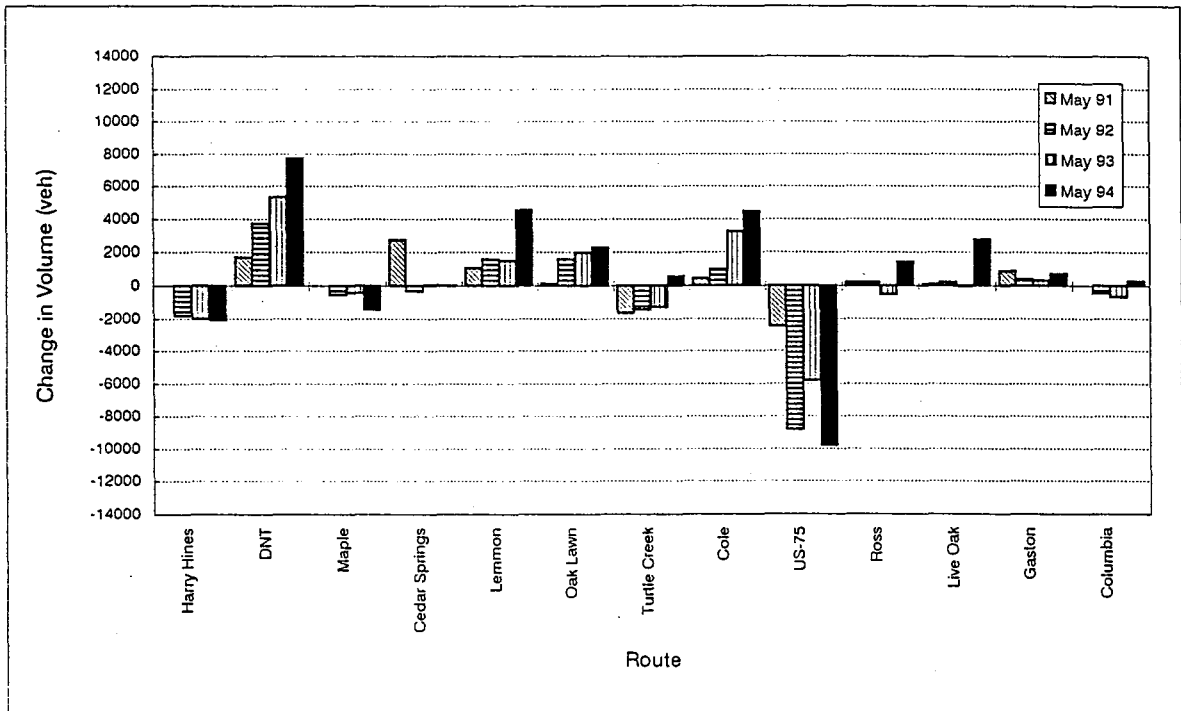


b) Southbound

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

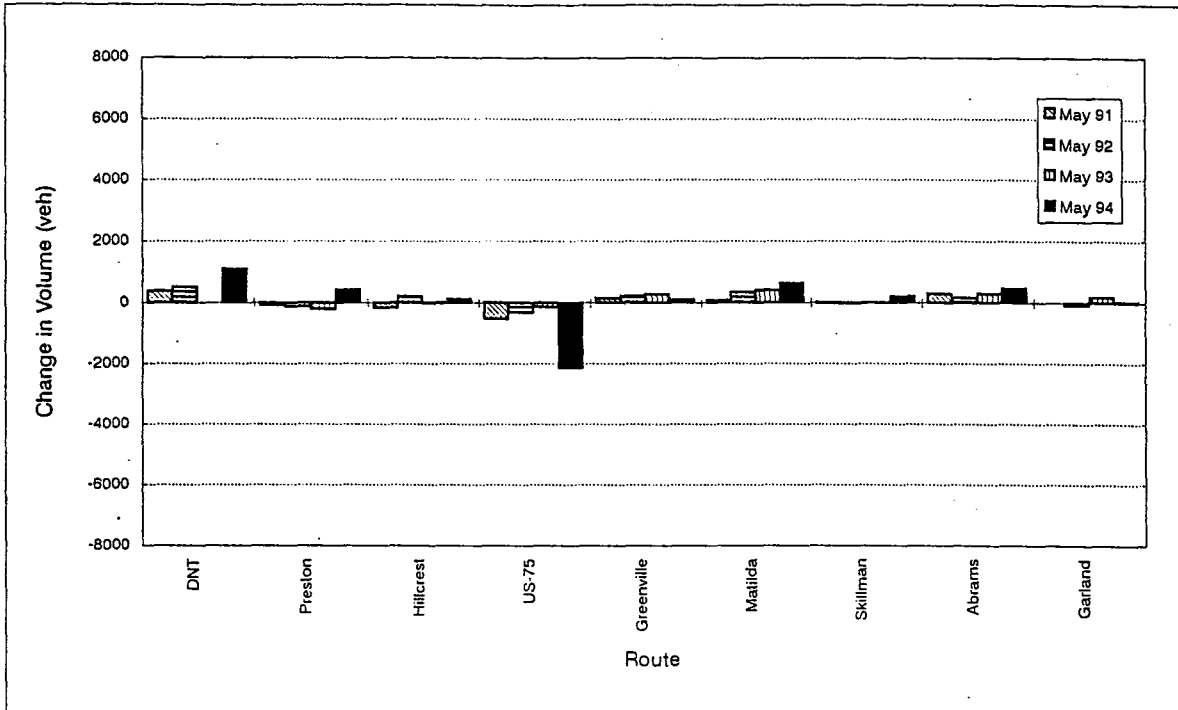


a) Northbound

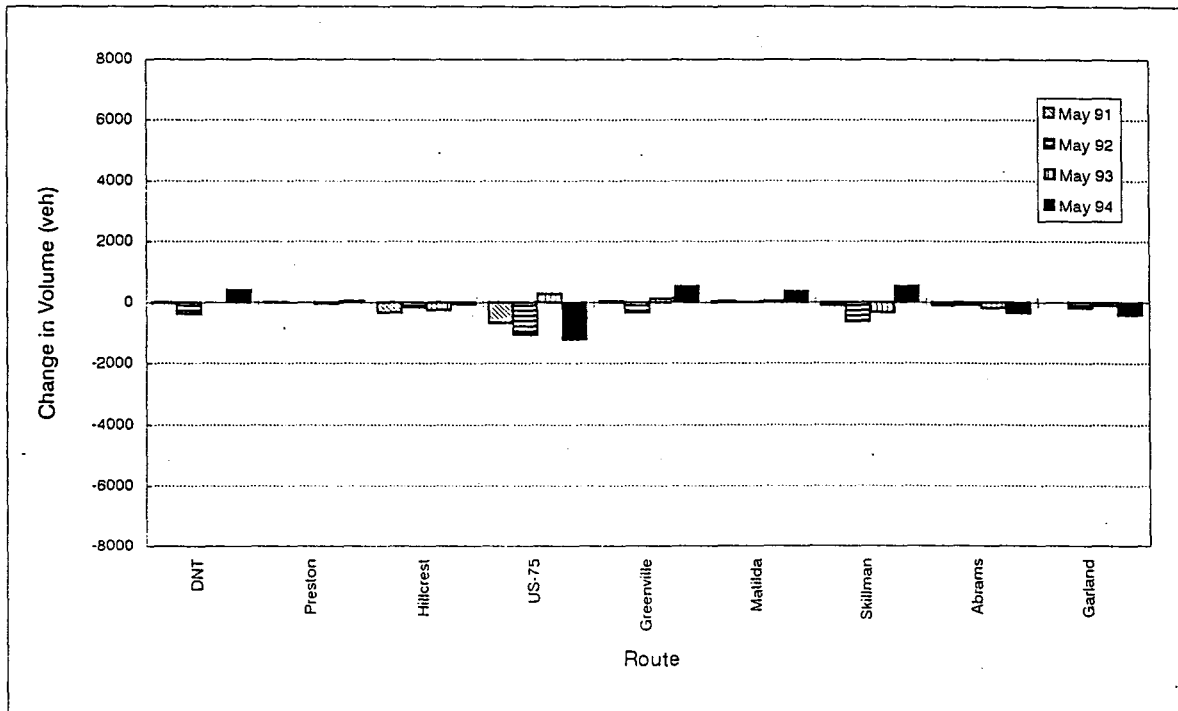


b) Southbound

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

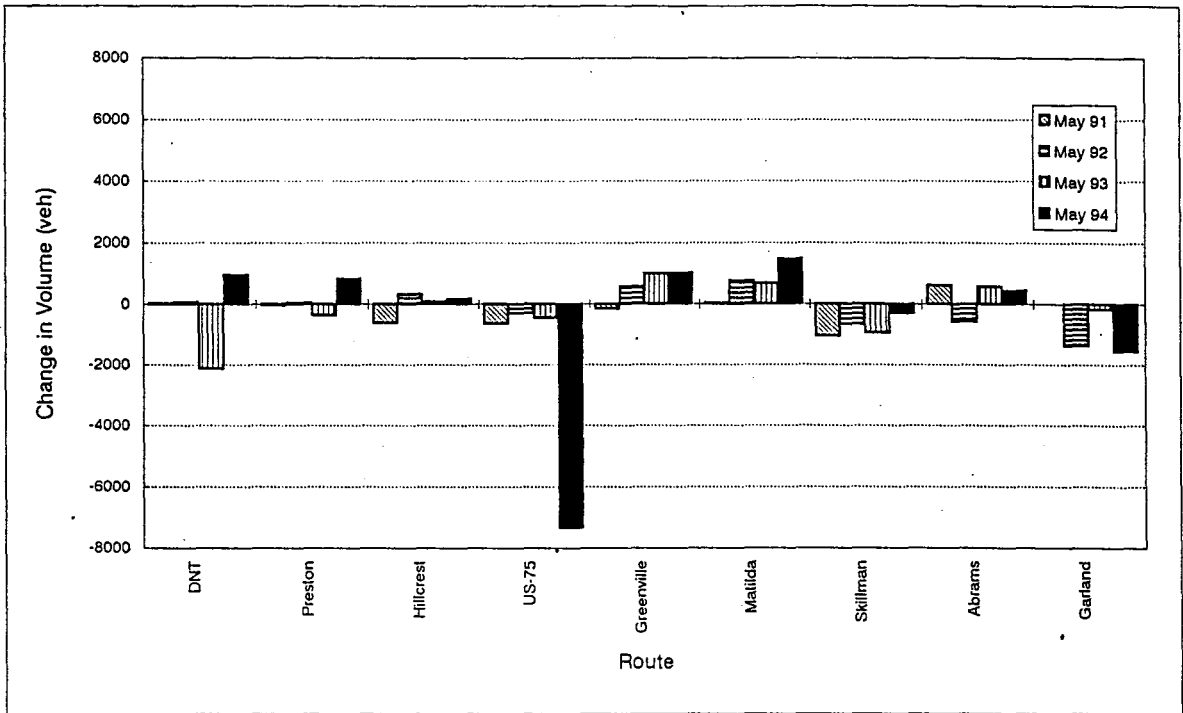


a) Northbound

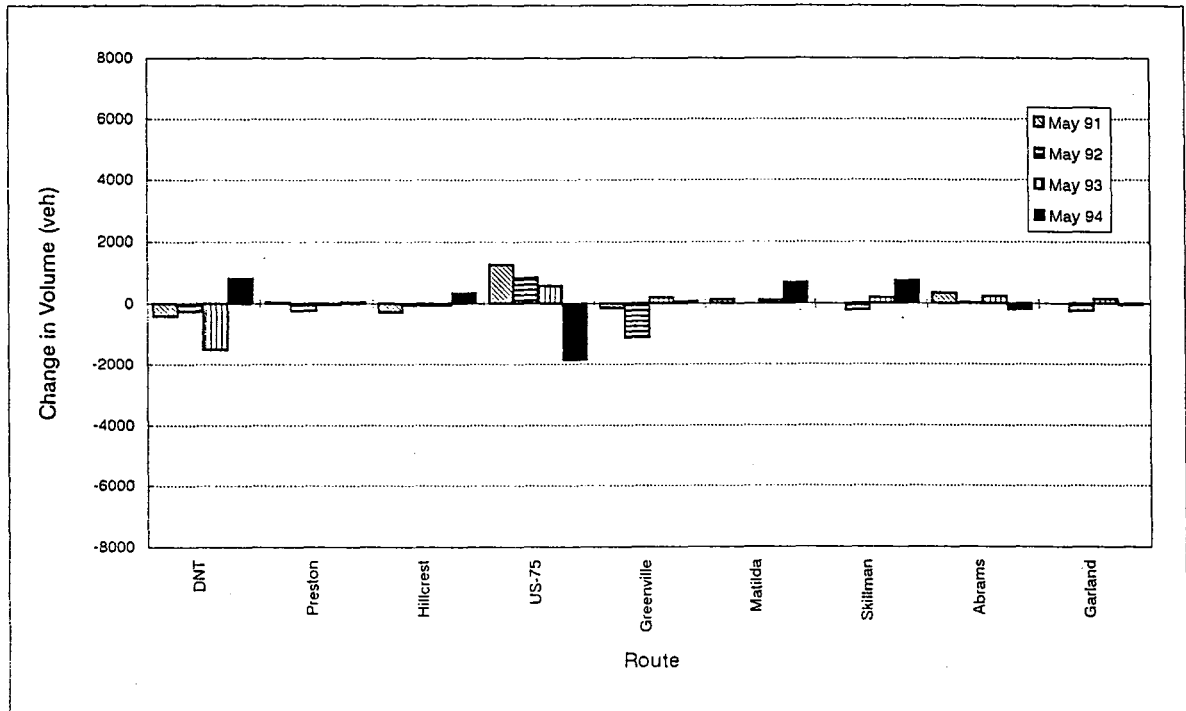


b) Southbound

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

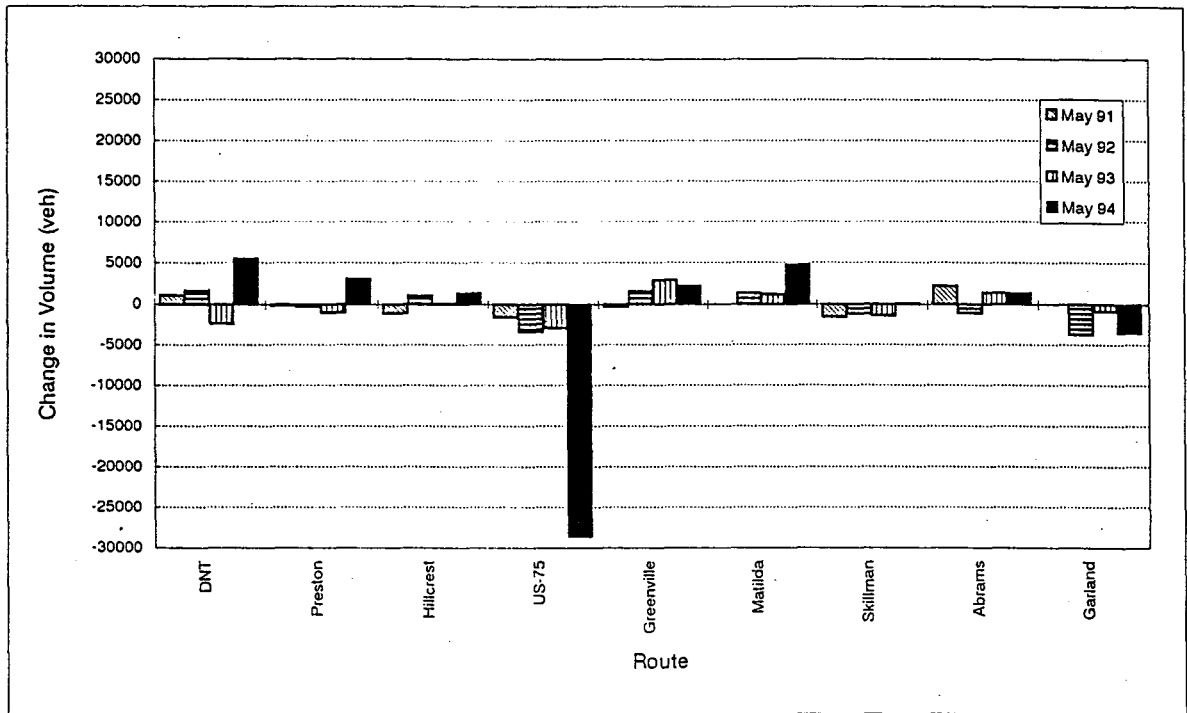


a) Northbound

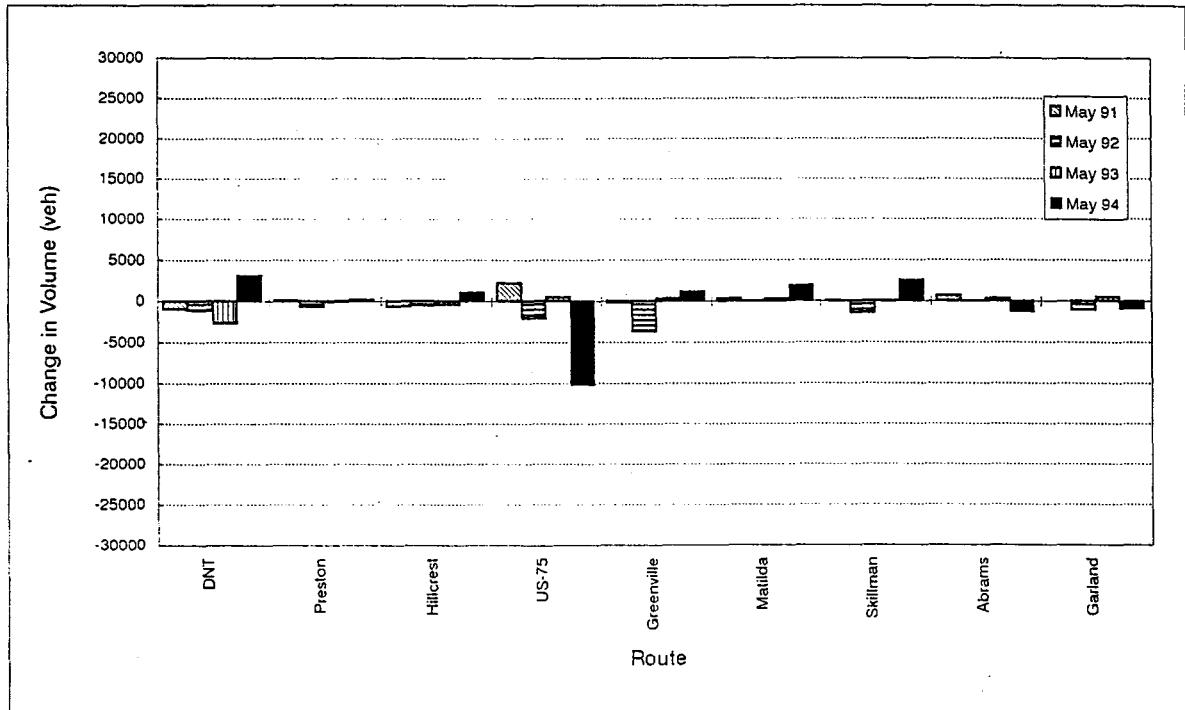


b) Southbound

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

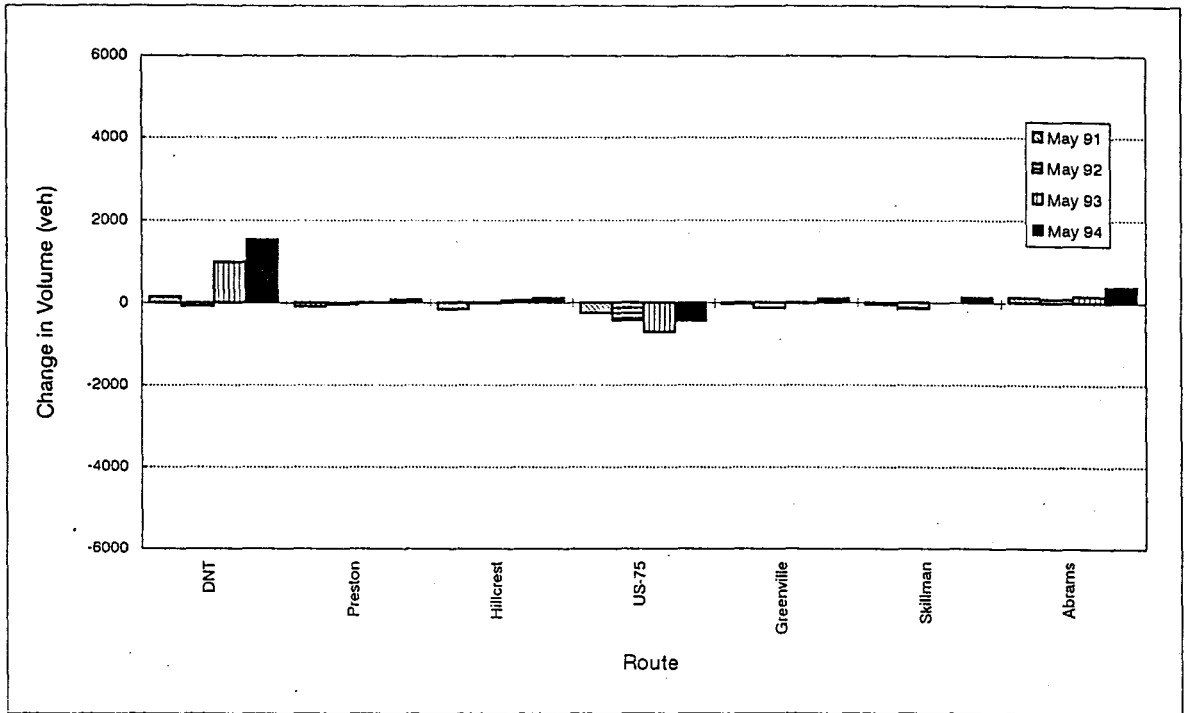


a) Northbound

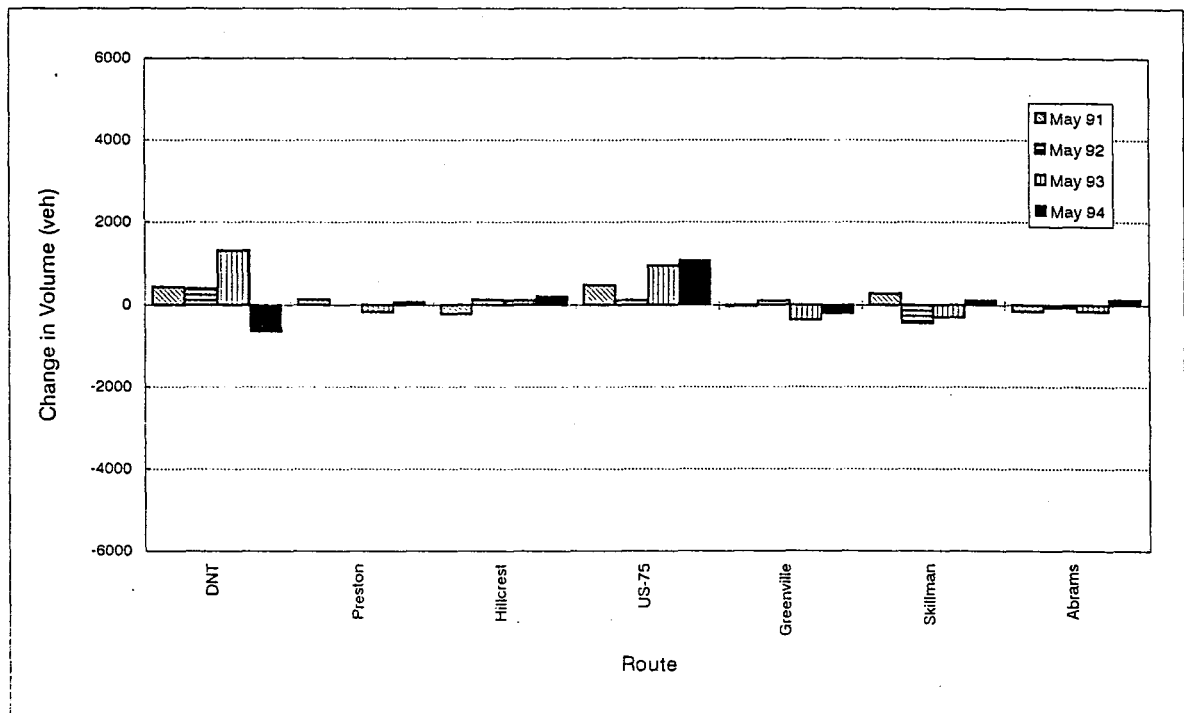


b) Southbound

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

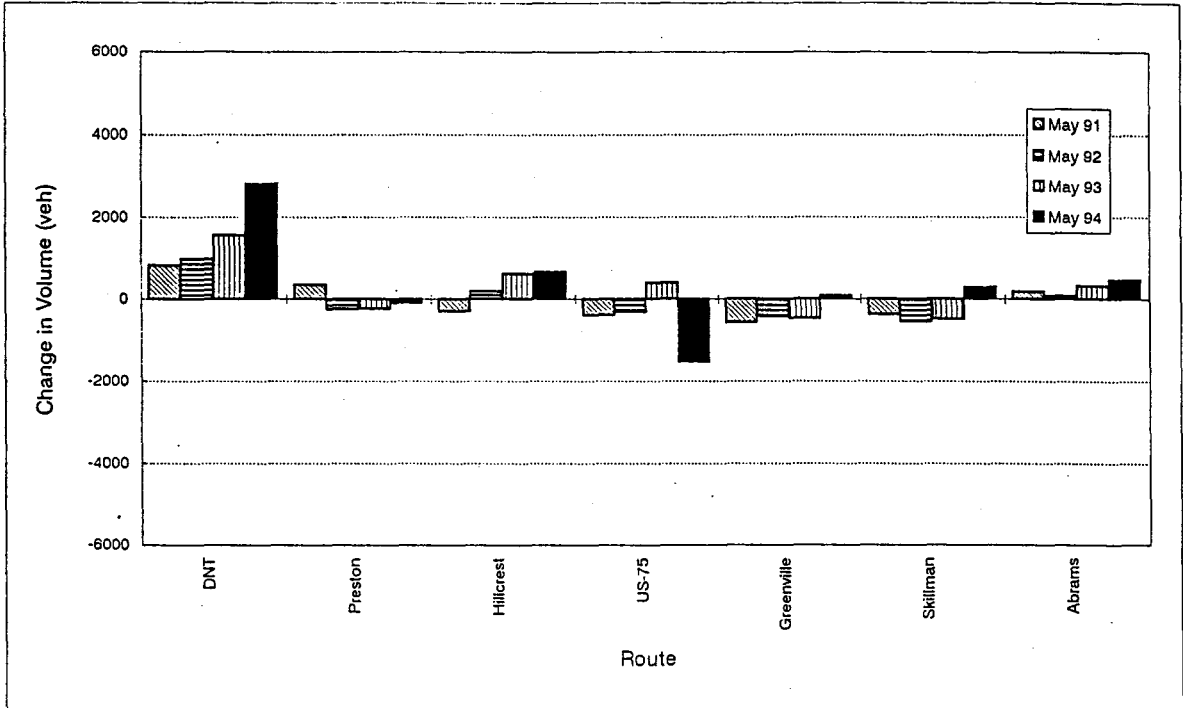


a) Northbound

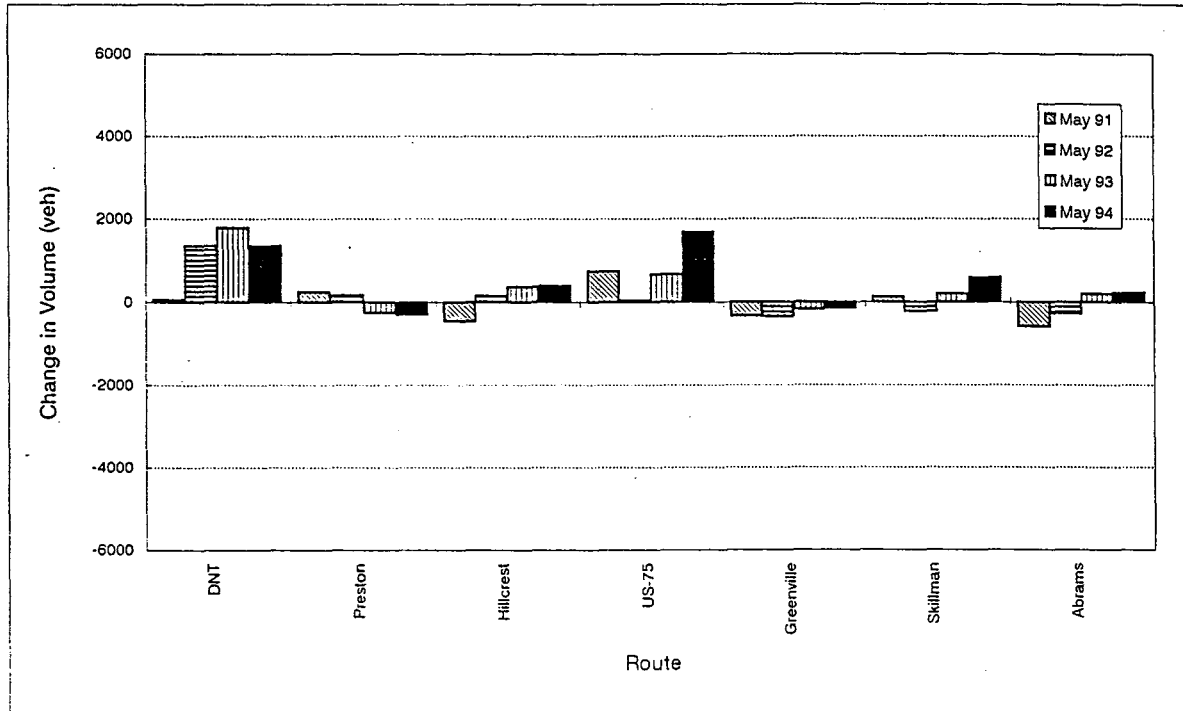


b) Southbound

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

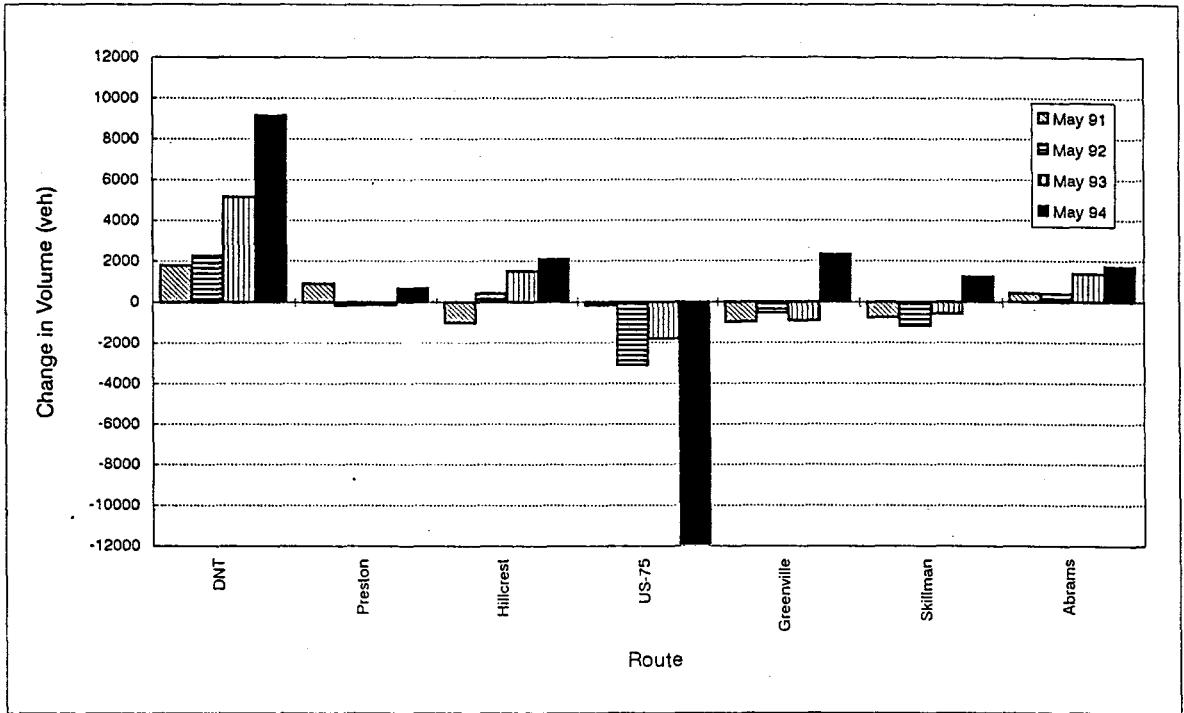


a) Northbound

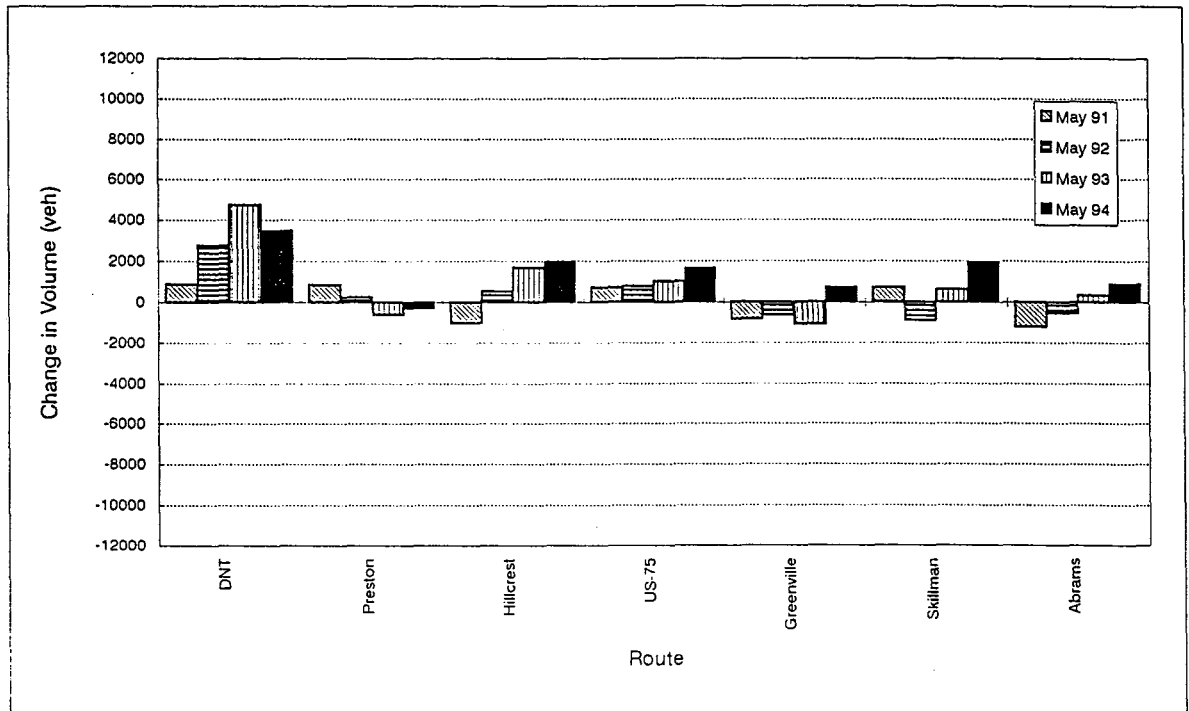


b) Southbound

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

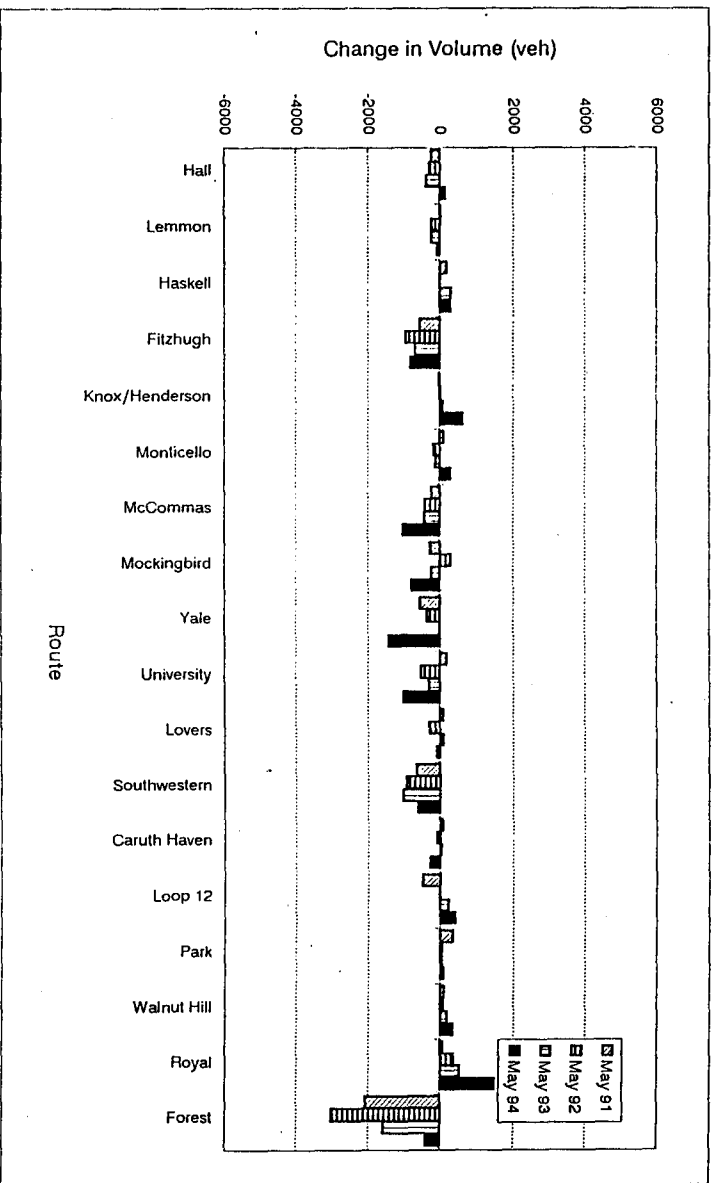
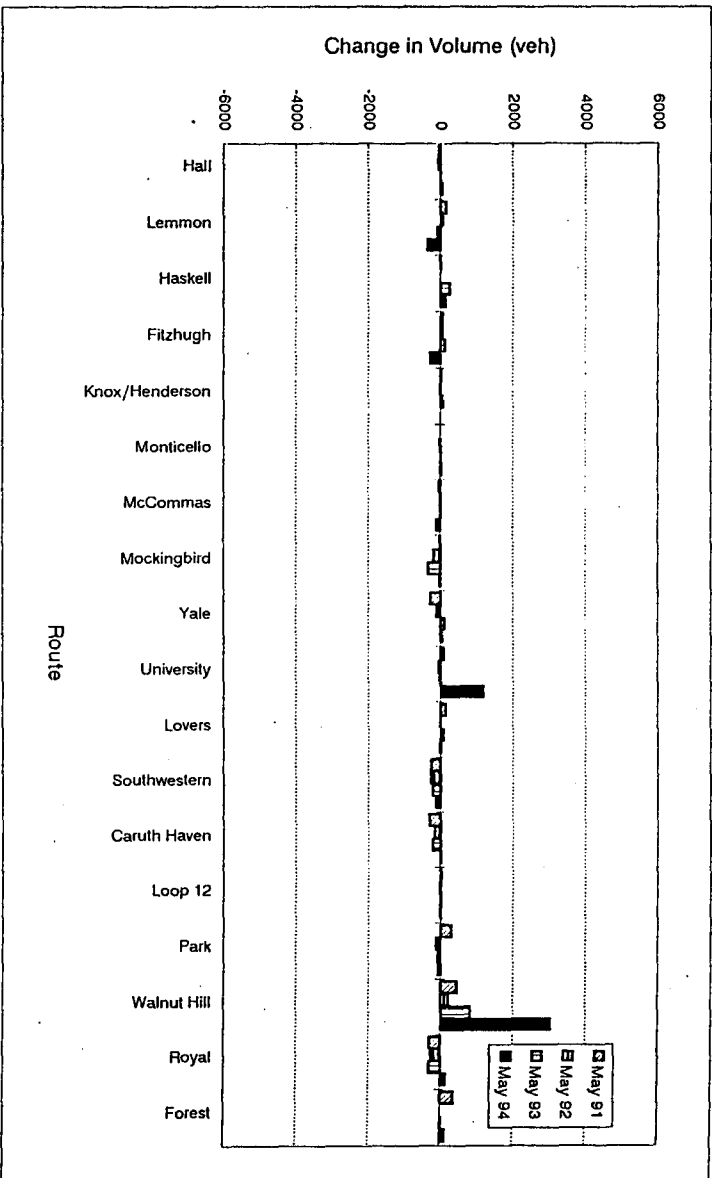


a) Northbound

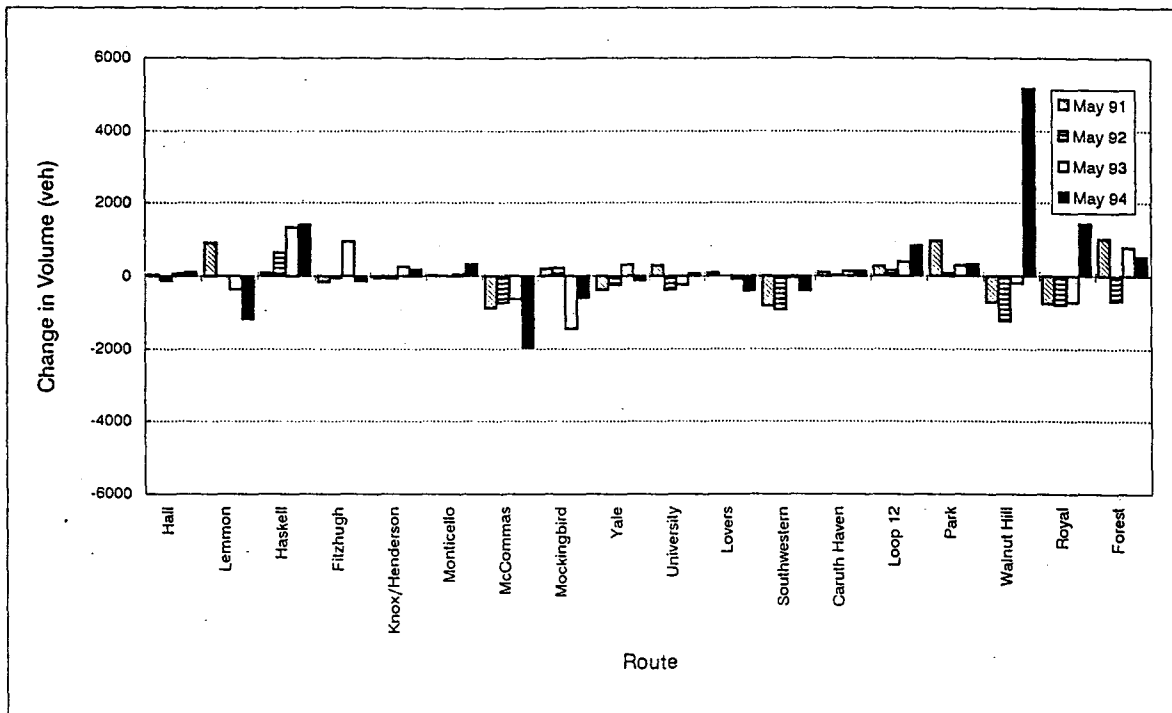


b) Southbound

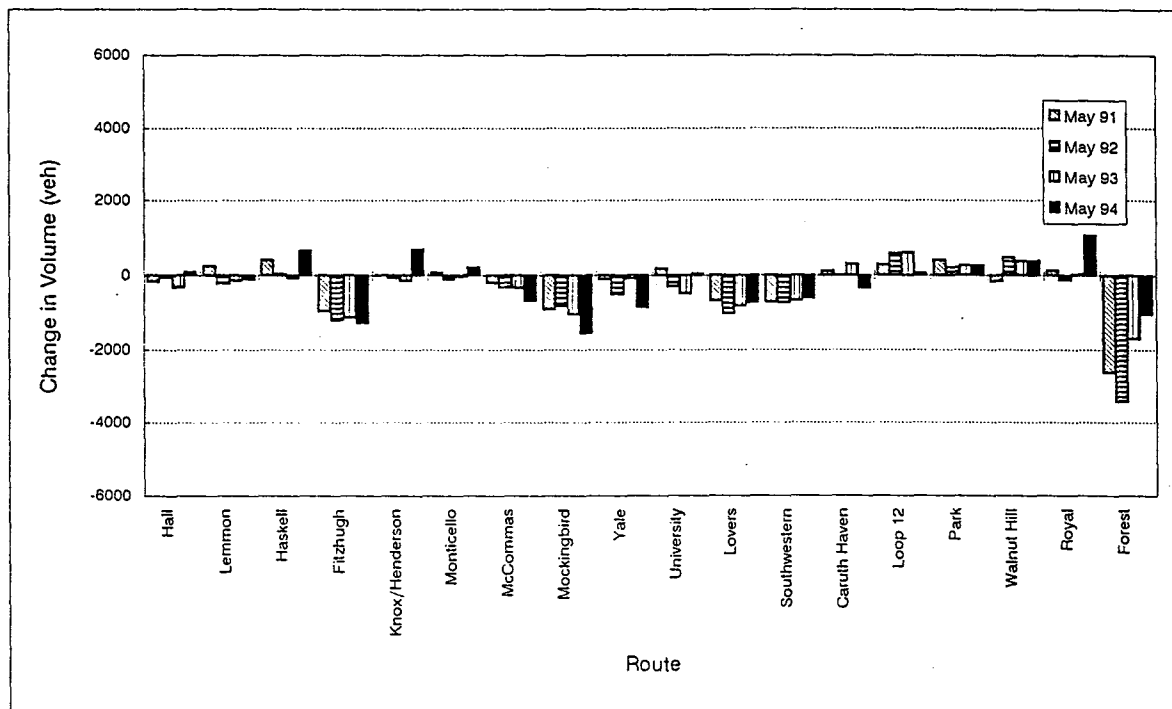
FIGURE C.9. Change in Volume by Route as Compared to May 1990:
Loop 12 Screen Line - 24 Hour Period



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

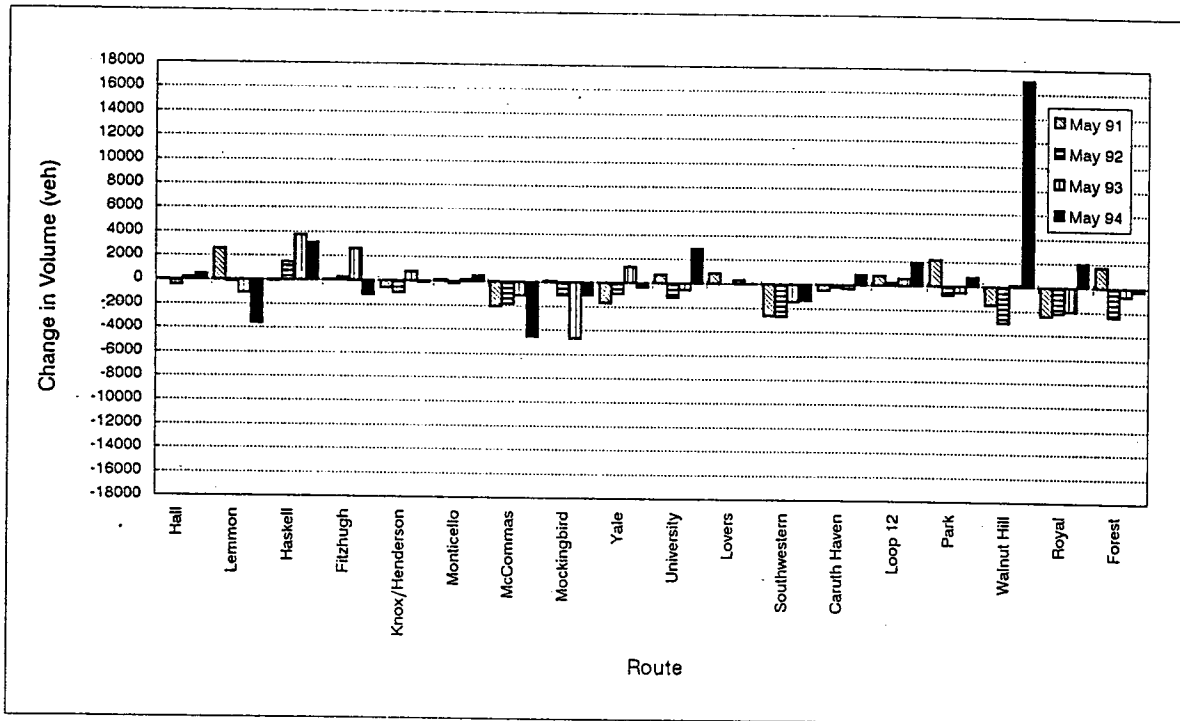


a) Eastbound

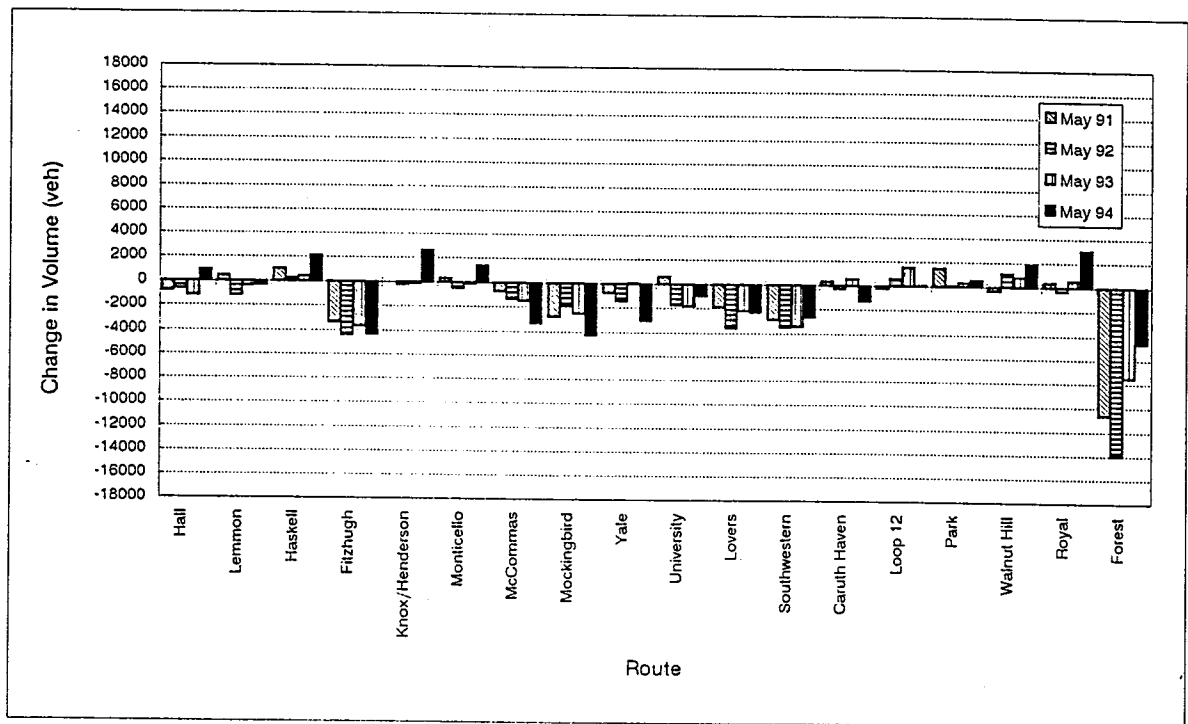


b) Westbound

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 1994 TRAVEL TIMES

TABLE D.1. Peak Period, Peak Direction Total Travel Time on North-South Routes (May 1994)

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	10.90	23.38	20.55	9.68	20.65	18.13	19.73	19.60	18.07
	6:30	11.48	27.25	20.95	10.08	27.02	19.87	18.92	20.60	19.17
	7:00	10.95	23.83	24.27	11.08	19.93	21.18	15.95	24.30	20.67
	7:30	12.60	31.55	27.87	13.73	22.25	21.38	19.58	31.25	25.13
	8:00	16.28	30.72	31.12	14.95	24.52	20.77	18.17	27.25	22.82
	8:30	13.88	28.12	29.12	14.97	25.07	22.00	17.45	23.52	20.77
	9:00	11.27	23.87	23.35	12.10	24.23	17.98	17.23	21.32	19.98
P.M. Peak Period North-bound	3:00	14.33	26.60	28.40	23.32	20.40	28.35	20.33	23.63	21.03
	3:30	13.23	28.93	29.00	14.71	23.83	28.15	20.95	29.48	24.63
	4:00	13.67	28.67	30.83	13.41	25.77	26.42	20.20	20.92	21.40
	4:30	12.80	27.83	26.57	17.08	24.03	23.33	18.05	25.08	22.95
	5:00	14.53	35.80	32.47	25.55	38.83	27.40	21.57	21.40	20.52
	5:30	15.72	50.43	29.25	26.71	37.93	29.52	22.07	25.65	25.12
	6:00	13.63	36.15	28.10	21.71	32.22	26.00	21.22	21.87	19.42
	6:30	12.10	NA	26.75	15.49	37.90	23.47	19.20	22.50	20.23
	7:00	12.85	NA	25.92	13.38	29.33	22.90	21.52	18.78	18.88

D-3

TABLE D-2. Peak Period, Off-Peak Direction Total Travel Time on North-South Routes (May 1994)

Run Beginning		Travel Time (min)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period North- bound	6:00	12.35	24.87	26.58	9.59	21.78	19.87	16.97	20.33	19.98
	6:30	12.48	25.65	24.12	10.16	25.47	18.68	20.45	20.97	20.88
	7:00	12.73	28.05	28.73	11.13	22.65	22.33	20.48	22.67	20.32
	7:30	13.22	27.35	28.13	17.54	26.52	24.67	19.70	26.93	22.88
	8:00	15.33	27.27	28.82	21.45	24.77	23.20	22.18	25.83	23.73
	8:30	12.57	27.55	26.57	18.67	26.48	25.57	19.22	23.82	19.72
	9:00	13.35	23.82	22.15	17.06	20.05	22.70	17.88	20.77	20.12
P.M. Peak Period South- bound	3:00	12.93	NA	27.43	13.24	28.58	22.62	18.17	27.05	23.73
	3:30	13.00	27.80	30.02	10.01	22.22	22.05	21.47	24.70	22.93
	4:00	12.53	27.33	27.57	10.06	23.22	25.47	20.57	28.17	19.93
	4:30	13.40	29.52	29.67	9.85	30.85	22.95	21.32	19.93	21.20
	5:00	11.43	30.12	25.58	10.63	27.72	27.60	20.43	23.45	20.88
	5:30	14.12	36.28	28.35	11.99	27.93	25.95	20.82	20.12	20.88
	6:00	11.45	NA	26.22	11.02	27.77	25.05	20.95	25.00	24.03
	6:30	12.30	NA	26.35	10.12	21.80	22.45	18.30	22.88	20.80
	7:00	12.08	NA	25.10	10.02	21.50	19.58	15.60	31.05	29.02

TABLE D.3. Peak Period Total Travel Time on East-West Routes (May 1994)

Run Beginning		Travel Time (min)							
		Eastbound				Westbound			
		Lemmon	Mockingbird	Loop 12	Royal	Lemmon	Mockingbird	Loop 12	Royal
A.M. Peak Period	6:00	11.20	11.67	9.57	14.40	10.05	11.62	9.08	14.50
	6:30	10.05	9.65	9.20	14.05	9.57	12.75	10.00	13.77
	7:00	11.58	11.45	NA	14.62	10.37	17.45	11.93	15.28
	7:30	13.07	13.65	14.27	16.47	11.90	19.30	17.92	21.25
	8:00	11.77	19.58	11.93	16.08	10.75	18.80	11.83	16.28
	8:30	12.82	16.63	13.05	15.90	10.13	18.18	9.33	15.00
	9:00	12.73	14.42	11.53	13.48	12.35	12.97	10.70	16.07
P.M. Peak Period	3:00	11.77	17.98	11.85	14.93	11.73	15.08	10.37	15.48
	3:30	10.57	18.08	14.17	14.95	10.23	17.67	11.88	15.50
	4:00	13.18	24.12	12.87	18.53	11.67	17.50	10.27	15.50
	4:30	13.65	15.30	13.32	18.88	12.33	18.47	13.40	13.87
	5:00	23.93	21.27	15.43	17.52	12.17	17.60	12.95	16.43
	5:30	15.45	19.20	18.88	23.83	15.90	22.18	12.82	20.63
	6:00	13.47	17.32	19.40	18.78	11.55	15.78	12.50	14.17
	6:30	13.40	16.35	16.20	13.90	12.62	13.88	10.93	12.42
	7:00	9.48	20.58	12.25	14.88	9.83	13.68	9.03	13.05

TABLE D.4. Off-Peak Period Total Travel Time on US-75 (May 1994)

Run Beginning	Travel Time (min)	
	Northbound	Southbound
10:00 A.M.	19.02	13.10
10:30	18.60	12.06
11:00	17.88	13.80
11:30	22.43	12.64
12:00 P.M.	23.09	12.67
12:30	24.52	12.05
1:00	21.61	14.40
1:30	24.27	13.81

APPENDIX E

MAY 1994 AVERAGE TRAVEL SPEEDS



TABLE E.1. Peak Period, Peak Direction Average Travel Speed on North-South Routes (May 1994)

Run Beginning		Travel Speed (km/h)									
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland	
A.M. Peak Period	6:00	88	40	46	93	43	50	47	51	55	
	6:30	83	34	45	89	33	45	49	48	51	
	7:00	87	39	39	82	45	43	58	41	48	
	7:30	76	30	34	71	40	42	48	32	39	
	South-bound	8:00	59	30	30	65	36	43	51	37	43
		8:30	69	33	33	63	35	41	53	42	47
		9:00	85	39	41	78	37	50	54	47	52
P.M. Peak Period	3:00	67	35	33	50	44	32	46	41	46	
	3:30	73	32	32	64	37	33	45	33	39	
	4:00	70	33	30	69	35	35	46	46	45	
	4:30	75	33	35	55	37	39	52	39	42	
	North-bound	5:00	66	26	29	36	23	33	43	45	47
		5:30	61	18	32	34	23	31	42	38	38
		6:00	70	26	33	41	28	35	44	44	49
		6:30	79	NA	35	58	23	39	49	43	47
		7:00	75	NA	36	67	30	40	43	52	51

TABLE E.2. Peak Period, Off-Peak Direction Average Travel Speed on North-South Routes (May 1994)

Run Beginning		Travel Speed (km/h)								
		DNT	Preston	Hillcrest	US-75	US-75 Fr. Rd.	Greenville	Skillman	Abrams	Garland
A.M. Peak Period North-bound	6:00	78	37	35	94	41	46	55	48	48
	6:30	77	36	39	88	35	49	46	46	46
	7:00	75	33	33	81	39	41	46	43	47
	7:30	73	34	33	51	34	37	47	36	42
	8:00	63	34	33	42	36	40	42	37	40
	8:30	76	34	35	50	34	36	49	41	49
	9:00	72	39	42	53	44	40	52	47	48
P.M. Peak Period South-bound	3:00	74	NA	35	75	31	40	51	37	42
	3:30	74	34	32	89	40	41	43	40	43
	4:00	76	34	34	89	38	35	45	35	49
	4:30	71	32	32	91	29	39	44	50	47
	5:00	84	31	37	84	32	33	46	43	47
	5:30	68	26	33	74	32	35	45	50	47
	6:00	84	NA	36	81	32	36	44	40	41
	6:30	78	NA	36	89	41	40	51	44	47
	7:00	79	NA	38	89	41	46	60	32	34

TABLE E.3. Peak Period Average Travel Speed on East-West Routes (May 1994)

Run Beginning		Travel Speed (km/h)							
		Eastbound				Westbound			
		Lemmon	Mockingbird	Loop 12	Royal	Lemmon	Mockingbird	Loop 12	Royal
A.M. Peak Period	6:00	32	38	54	46	37	38	57	46
	6:30	36	46	56	47	39	35	52	48
	7:00	31	39	NA	45	36	25	43	43
	7:30	28	32	36	40	32	23	29	31
	8:00	31	23	43	41	35	24	44	41
	8:30	28	27	40	41	37	24	55	44
	9:00	29	31	45	49	30	34	48	41
P.M. Peak Period	3:00	31	25	44	44	32	29	50	43
	3:30	34	24	36	44	37	25	44	43
	4:00	28	18	40	36	32	25	50	43
	4:30	27	29	39	35	30	24	39	48
	5:00	15	21	33	38	31	25	40	40
	5:30	24	23	27	28	24	20	40	32
	6:00	27	26	27	35	33	28	41	47
	6:30	27	27	32	47	30	32	47	53
	7:00	38	21	42	44	38	32	57	51

TABLE E.4. Off-Peak Period Average Travel Speed on US-75 (May 1994)

Run Beginning	Travel Speed (km/h)	
	Northbound	Southbound
10:00 A.M.	57	71
10:30	56	80
11:00	58	74
11:30	49	77
12:00 P.M.	51	77
12:30	47	81
1:00	53	75
1:30	48	73