U.S. 183 Phase II Traffic Study

Prepared For:

CITY OF CEDAR PARK

Cedar Park City Hall
600 North Bell Blvd.
Cedar Park, Texas 78613

Prepared By:

ALLIANCE-TEXAS ENGINEERING CO.

100 East Anderson Lane
Suite 300
Austin, Texas 78752

In Association With:

GRAM TRAFFIC COUNTING

12406 Uttimer Lane
Austin, Texas 78753

STATE OF TEXAS
JAMES MICHAEL HEATH
78133
REGISTERED
PROFESSIONAL ENGINEER
8/10/00

August 9, 2000

ACKNOWLEDGMENTS

The US 183 Phase II Study Team wishes to acknowledge the contributions of Mr. Duane Smith with the City of Cedar Park. His support and assistance were instrumental in the successful completion of this project. We would like to also acknowledge the assistance of Mr. Chuck Ansley, with the Texas Department of Transportation, for his assistance in retrieving the signal timing plans for US 183 through Cedar Park. Additional acknowledgment should be given to the citizens of Cedar Park for their valued input and recognition should also be given to the Cedar Park City Council for their input and support of pro-active planning efforts important to the growth of Cedar Park:

Mayor, Bob Young
City Council Members
- *Jim Ernst - Place 1*
- *Lowell Moore - Place 2*
- *Bob Lemon - Place 3*
- *Janet Bartles - Place 4*
- *Phil Duprey - Place 5*
- *Cobby Caputo - Place 6, Mayor Pro-Tem*

Donald Birkner, City Manager
Jane McAdams, Director of Planning
Duane Smith
David Hutton, Senior Planner
Sam Roberts, Director of Public Works
Bobby Russell, Fire Chief
Henry Fluck, Police Chief
George Denny, Former Mayor

TABLE OF CONTENTS

Acknowledgments	i
Table of Contents	ii
List of Figures	iii
List of Tables	iv
Executive Summary	v
Project Overview	1
Study Methodology	3
Data Collection	4
Analysis and Findings	24
Recommendations	27
References	36
Appendix	37

LIST OF FIGURES

Figure 1: Project Limits Map 2
Figure 2: Existing/Optimized LOS: US 183 @ New Hope 6
Figure 3: Existing/Optimized LOS: US 183 @ FM 1431 7
Figure 4: Existing/Optimized LOS: US 183 @ Discovery 8
Figure 5: Existing/Optimized LOS: US 183 @ Cedar Park Drive 9
Figure 6: Existing/Optimized LOS: US 183 @ Park Street 10
Figure 7: Existing/Optimized LOS: US 183 @ Buttercup Creek 11
Figure 8: Existing/Optimized LOS: US 183 @ Cypress Creek 12
Figure 9: Existing Typical Cross Section from Kent to New Hope 13
Figure 10: Proposed Typical Cross Section for Raised Median 13
Figure 11: Turning Movement Count Locations 14
Figure 12: Improvement LOS: US 183 @ New Hope 15
Figure 13: Improvement LOS: US 183 @ FM 1431 16
Figure 14: Improvement LOS: US 183 @ Park Street 17
Figure 15: Improvement LOS: US 183 @ Cypress Creek 18
Figure 16: Recommended Driveway Closure: Commercial Parkway 19
Figure 17: Recommended Driveway Closure: Buttercup Creek 20
Figure 18: Recommended Driveway Closure: Park Street 21
Figure 19: Recommended Driveway Closure: North of FM 1431 22
Figure 20: Recommended Driveway Closure: South of Discovery 23
Figure 21: Recommended Geometric Improvements: New Hope 29
Figure 22: Recommended Geometric Improvements: FM 1431 30
Figure 23: Recommended Geometric Improvements: Discovery 31
Figure 24: Recommended Geometric Improvements: Park Street 32
Figure 25: Recommended Geometric Improvements: Buttercup Creek 33

LIST OF TABLES

Table 1: Accident Summary by Year and Intersection 5
Table 2: LOS Criteria for Roadway Arterials 26
Table 3: LOS Criteria for Signalized Intersections 27
Table 4: LOS Criteria for Two-Way Stop Controlled Intersections 27
Table 5:Driveway Consolidations 29
Table 5:Recommended Improvements 35

EXECUTIVE SUMMARY

Introduction

Responding to citizen concerns, the City of Cedar Park retained Alliance-Texas Engineering Company in association with GRAM Traffic Counting to study and develop transportation solutions for US 183 (Bell Boulevard). The project is located in the heart of Cedar Park from New Hope Road to Kent Street. **Figure 1** shows the location of the study.

This project presents a number of unique challenges that were acknowledged in order to develop viable transportation solutions. These challenges include: a wide range of land uses along Bell Boulevard (businesses, churches and civic/government uses); a high accident volume; and a large number of driveways and intersections along US 183. The objectives of the US 183 Phase II Transportation Study are: improve the operation of US 183, to ensure the safety of motorists and pedestrians, and minimize the impacts of implementing identified transportation improvements on existing businesses, residents, and community organizations located along this road. Due to the broad range of people potentially impacted by transportation improvements resulting from this project, consideration of the varied users is an important element of this project

The objectives of this transportation study include: improving the performance of US 183, ensuring the safety of motorists and pedestrians, and minimizing the impacts of implementing identified transportation improvements on existing businesses, residents, and community organizations located along this road. This study inventories the current operational characteristics, and safety along US 183 and recommends options for the improvement of these separate and competing uses. To the extent possible, each of these uses must coexist in a mutually conducive manner along US 183. This objective is limited by the geometric constraints of the roadway.

The basic function of a roadway and its components is to move people. Therefore, the recommendations in this report serve to increase the ability of US 183 to move people while maintaining a balance between transportation and safety enhancements and economic development along the corridor. This study also considers the future operations of US 183 by analyzing the increased traffic volumes on the roadway network and developing recommendations to best accommodate these projected traffic volumes.

Meetings were held with City staff to discuss the study and potential recommendations that may result from this study. A Kick-Off meeting was held at the City Hall to solicit input. A public meeting was held at the City of Cedar Park offices in order to solicit input into preliminary recommendations. The input received from the City of Cedar Park staff and the public has been incorporated into the final recommendations developed for the US 183 Phase II Study.

Study Methodology

The US 183 Phase II Study utilized a four step approach, which consists of data collection, analysis, determination of findings, and development of recommendations. Data collection focused on existing conditions and future year traffic projections. Data collection efforts were tailored to provide a technical analysis of the US 183 (Bell Boulevard) corridor. These efforts focused on roadway width, number of lanes, signal timing, vehicle counts and projections, accident data, access management, parking and the land uses along US 183. The following provides an overview of the data collected, analyses performed, findings, and recommendations.

Data Collection

The first step to studying the operation of US 183 is collecting data that provides insight into current roadway operating characteristics. Obtaining relevant, timely data is the first step to being able to develop viable transportation solutions. Data collection permits an understanding of the operational characteristics of the roadway and affords insight as to how the transportation system is being used. Data collected as a part of this project includes:

- Roadway geometries,
- AM and PM peak traffic volume counts*,
- Signal timings,
- Accident data for 1998,
- 24 hour automatic driveway counts,
- Aerial photographs, and
- Observations of existing transportation operations.

* It should be noted that counts were performed during average weekday conditions. Comparing the weekday counts to recent weekend counts, the peak hour weekend counts were greater than the peak hour weekday counts. Since the time and magnitude of the weekend peaks differ from the weekday peaks, a more in-depth analysis of weekend conditions is recommended.

Analysis and Findings

Analyses performed for this study include: compiling AM & PM peak hour turning moving counts, observation of the study area, performing a signal timing optimization (Synchro), executing traffic simulation models (CORSIM), and evaluating accident data.

Figures 2 - 8 show intersection diagrams of the AM and PM peak hour turning movement counts conducted along US 183. This turning movement data was combined with the roadway geometric data and signal timings for input into traffic simulation models. These simulation models were executed and calibrated to simulate existing conditions.

An accident analysis was performed using the 1998 accident data for US 183. This analysis showed that there were over 400 accidents on US 183 for that year, which negatively impact roadway capacity. The accidents were compiled by intersection to determine how, if possible, to mitigate the number of accidents. The specific mitigation techniques were a result of previous accident studies that determined the effectiveness of each technique on specific types of accidents.

Recommendations

The recommendations formulated from the analysis and completion of the US 183 Phase II Study are presented below:

1. Implement the optimized signal timings which coordinate the signals along US 183. These signal timings are presented in the **Appendix**. As a part of this implementation, the signals should be interconnected so that the coordination of the signals will be maintained without an ongoing synchronization program.

2. The congestion resulting from the high number of accidents occurring along US 183 has a severe effect on the capacity of this roadway. To promote the effective progression of vehicles through the corridor the signals should be incorporated in an incident management system.

3. Due to the high number of right angle accidents, it is recommended that a raised curb median be constructed at the following locations to reduce the unsafe conflict points along US 183:

    A. North of FM 1431 Approximately 450 feet (Figure 22)
    B. Between FM 1431 and Discovery Boulevard (Figure 22)
    C. South of Discovery Boulevard Approximately 1,200 feet (Figure 23)
    D. South of Buttercup Creek Approximately 450 feet (Figure 25)

4. Eastbound and Westbound right turn lanes should be added at the intersection of Park and US 183, and New Hope and US 183. This will decrease side street delays resulting from right turning vehicles being trapped behind left turning or through vehicles.

5. To improve the operation of the intersection of US 183 and FM 1431, additional southbound and westbound left turning bays are recommended.

6. Construction of an acceleration lane for westbound vehicles on FM 1431 turning northbound on to US 183 will help to decrease the number of rear-end accidents. A driveway on US 183 north of FM 1431 will have to be closed for this to happen, an effort that will also help to reduce the number of accidents at this location.

7. An extension of the eastbound FM 1431 right turn bay to southbound US 183 will accommodate those vehicles turning right and reduce the resulting impacts on the through lanes. This improvement will make the right turn on red movement more accessible.

8. Specific driveway consolidations are recommended for various safety, operational, and design reasons. These driveway closures are shown in **Figures 16-20**.

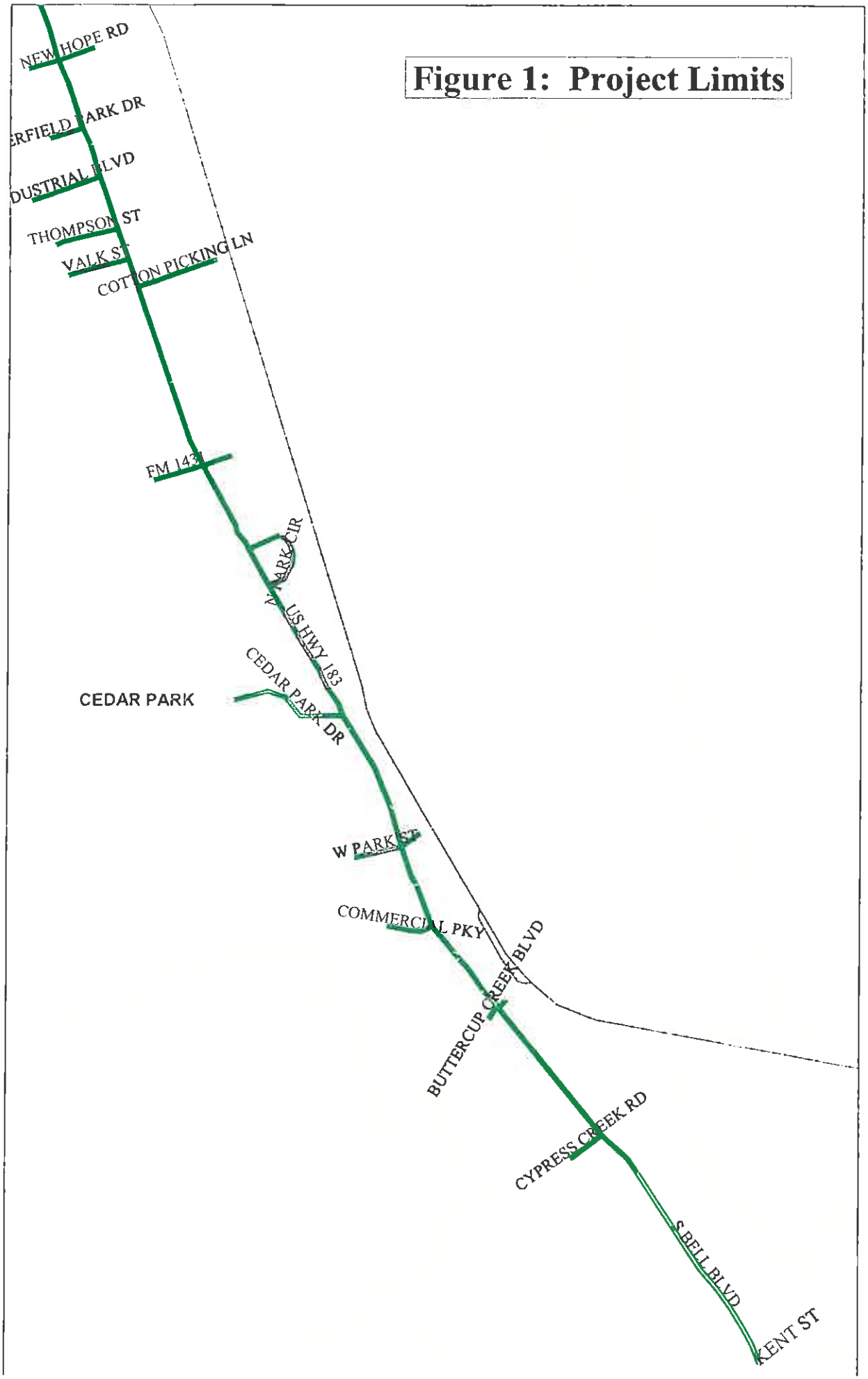
PROJECT OVERVIEW

Responding to citizen concerns, the City of Cedar Park retained Alliance-Texas Engineering Company in association with GRAM Traffic Counting to study and develop transportation solutions for US 183 (Bell Boulevard). The project is located in the heart of Cedar Park from New Hope Road to Kent Street. **Figure 1** shows the location of the study.

This project presents a number of unique challenges that were acknowledged in order to develop viable transportation solutions. These challenges include: a wide range of land uses along Bell Boulevard (businesses, churches and civic/government uses); a high accident volume; and a large number of driveways and intersections along US 183. The objectives of the US 183 Phase II Transportation Study are: improve the operation of US 183, to ensure the safety of motorists and pedestrians, and minimize the impacts of implementing identified transportation improvements on existing businesses, residents, and community organizations located along this road. Due to the broad range of people potentially impacted by transportation improvements resulting from this project, consideration of the varied users is an important element of this project.

Meetings were held with City staff to discuss the study and potential recommendations that may result from this study. A Kick-Off meeting was held at the City Hall to solicit input. A public meeting was held at the City of Cedar Park offices in order to solicit input into preliminary recommendations. The input received from the City of Cedar Park staff and the public has been incorporated into the final recommendations developed for the US 183 Phase II Study.

Figure 1: Project Limits



STUDY METHODOLOGY

The following describes the study methodology employed for the US 183 Phase II Study. The US 183 Phase II Study uses a four step approach. This four step approach consists of data collection, analysis, determination of findings, and development of recommendations.

Data collection focused on existing conditions. Data collection efforts were tailored to provide technical analysis of the US 183 corridor. These efforts focused on roadway width, number of lanes, signal timing, vehicle counts and projections, accident data, and the land uses along US 183.

Collected data were input into a series of traffic operation simulation models and travel demand models. The transportation models used for this study include: TRANSCAD, Synchro 3.0, and CORSIM. The simulation models were used to determine the impacts of proposed improvements on the roadway network. Additional analysis included: evaluating 24-hour count data and evaluating accident data.

The results of these efforts were used to develop a set of findings. These findings incorporate conclusions and professional observations derived from the analysis performed. These findings are used to develop recommendations which can be implemented, and conform to the stated objectives of this study. These intermediate solutions are analyzed and/or their impacts are recognized, and a series of recommendations are formulated.

Recommendations are developed based on the physical attributes of the project, results of the analysis, and project findings. The recommendations developed for this study consider all of the uses of this roadway individually, improving the separate and distinct functions of US 183. These recommendations were developed to help improve traffic operations along US 183, improve safety of motorists and pedestrians, and minimize the impacts on adjacent businesses, residents, and community organizations.

DATA COLLECTION

Obtaining relevant, timely data is the first step to being able to develop viable transportation solutions. Data collection allows us to understand the operational characteristics of the roadway and gain insights as to how the transportation system is being used. The following data were collected as a part of this study:

- Roadway geometries,
- Accident data,
- Traffic signal timings,
- AM & PM peak hour traffic counts,
- 24 hour automatic traffic counts,
- Traffic count maps, and
- Field observation of identified problem areas.

Roadway Inventory

The existing cross section of US 183 is comprised of a five lane section from New Hope Road to Kent. The existing cross section is represented in **Figure 9**. The City of Cedar Park's Thoroughfare Plan denotes US 183(Bell Boulevard) as a Major Arterial throughout the length of the project. Intersection diagrams are shown with turning movement volumes in **Figures 2-8**.

Land Uses

The land uses along US 183 were surveyed as part of the US 183 Phase I report. The land uses are included as part of that report. The majority of the land uses were retail with office, service, city offices, and churches sharing space along the road.

Accident Data

Accident data were obtained from the City of Cedar Park for 1998. This data was classified by type of accident and location. The accidents for each high accident intersection were plotted and are presented in the Appendix. **Table 1**, presented below, summarizes the accidents by intersection and severity. This table presents the location, number of accidents, estimated cost of the damage, number of injuries, and number of possible injuries.

Table 1: Accident Summary

Intersection	Accidents	Estimated Damage	Injuries	Possible Injuries
Blockhouse Dr.	6	$16,200	0	3
Buttercup Creek	44	$123,800	4	9
Cedar Park	24	$82,800	8	10
Central	4	$16,000	1	3
Commercial Pkwy.	3	$8,100	2	0
Cypress Creek Rd	48	$163,700	12	14
Deerfield Park	5	$15,500	1	2
Discovery	34	$106,000	3	15
FM 1431	98	$296,600	10	36
Industrial	8	$31,400	0	12
Kent	9	$27,300	0	3
Lakeline Blvd.	12	$35,400	3	5
Monaco Dr.	7	$21,100	0	1
N. Park Circle	11	$34,700	4	1
New Hope	31	$110,500	11	4
Park St	43	$114,100	2	11
Riviera Dr.	18	$63,600	1	12
Total	**405**	**$1,266,800**	**62**	**141**

Signal Timing

Existing signal timing and phasing were provided by the Texas Department of Transportation. The signal timing and signal phasing were input into the simulation models to determine the operational impacts of the existing timings. Optimized signal timings were developed for current and future years and are presented in the **Appendix**.

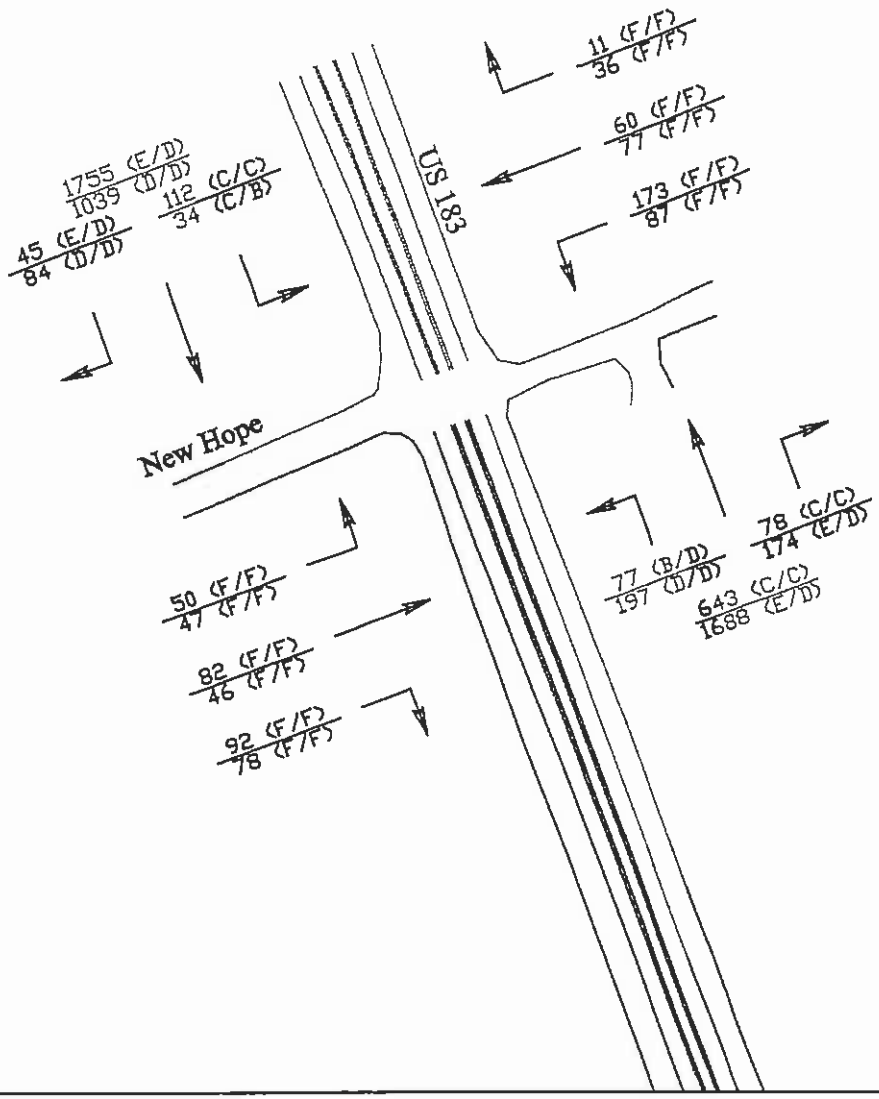
Pedestrian and Bicycle Activity

There was relatively little pedestrian and bicycle activity observed along US 183. The vehicular accident data did not indicate any major pedestrian/vehicular conflict areas that were unsafe, although the high volume of traffic along US 183 suggests that bicycles be rerouted from this facility.

AM and PM Peak Hour Turning Movement Counts

The project team conducted AM and PM peak hour turning movement counts at fifteen locations along US 183. AM peak hour traffic counts were collected from 7:00 AM to 9:00 AM, and PM peak hour traffic counts were conducted from 4:00 PM to 6:00 PM. Turning movement counts were conducted in conjunction with other projects occurring in the corridor, including the Traffic Study for the Cedar Park Downtown Development Plan and the Lakeline Boulevard Traffic Study. Count locations are shown on **Figure 11.**

Existing peak hour turning movement counts and the existing intersection configurations are provided in **Figures 2 - 8**. This data was input directly into the traffic simulation models. This information defined the roadway network and the number of vehicles using the facility during the peak hours.



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

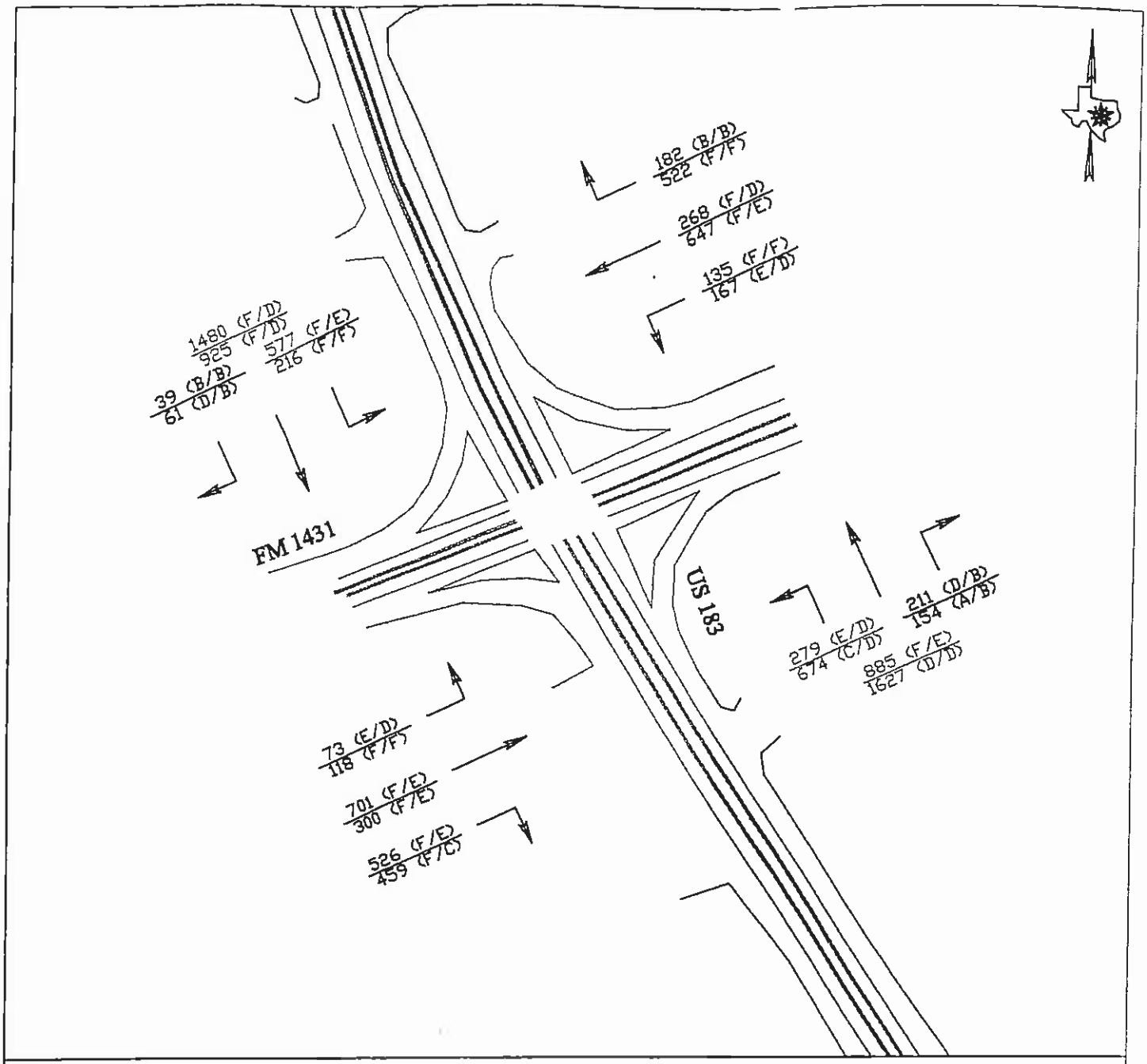
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	E	AM PEAK
	F	PM PEAK
OPTIMIZED LOS:	D	AM PEAK
	D	PM PEAK

FIGURE 2

US 183 (BELL BLVD.) & NEW HOPE ROAD

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

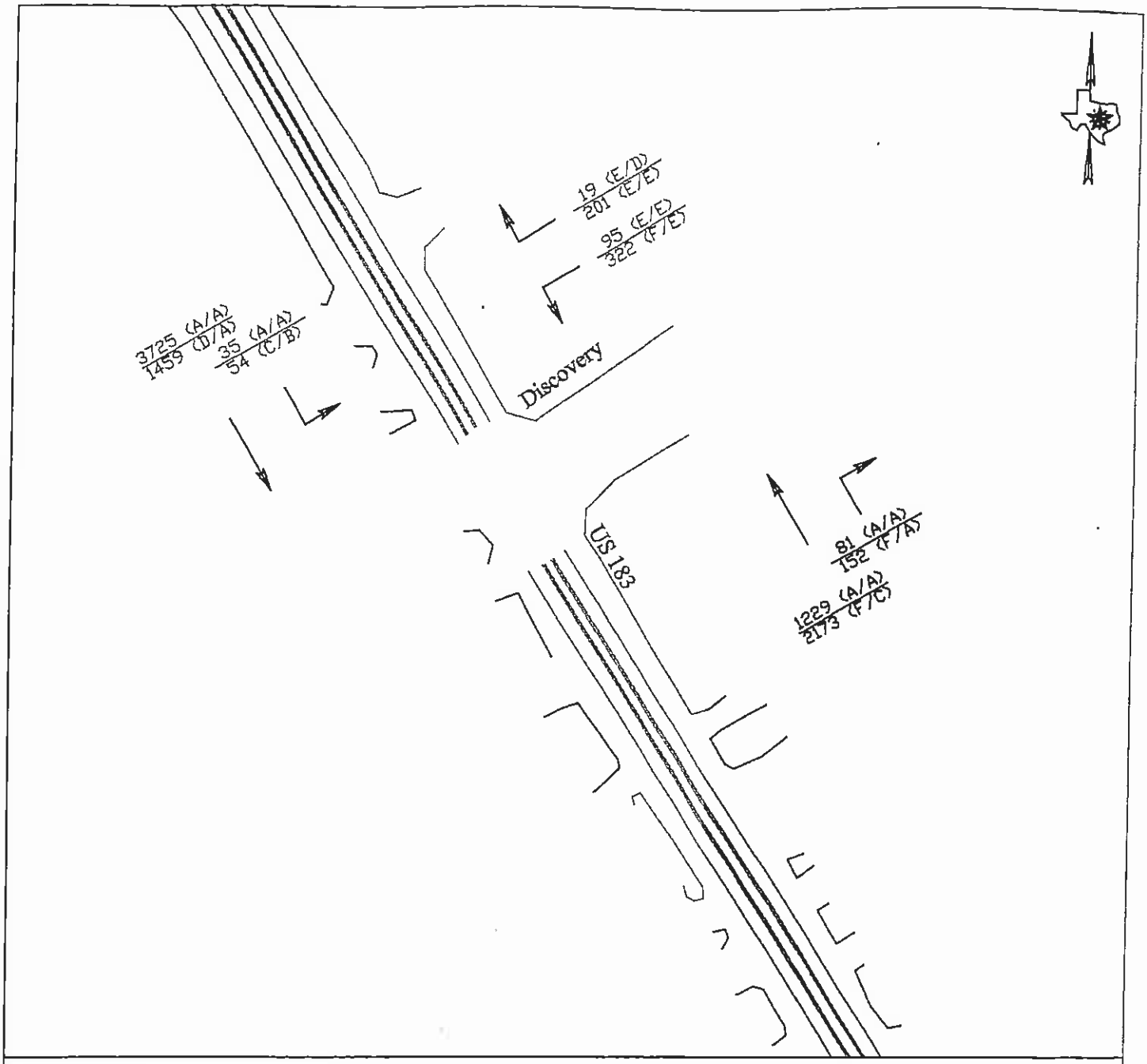
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	F	AM PEAK
	F	PM PEAK
OPTIMIZED LOS:	E	AM PEAK
	D	PM PEAK

FIGURE 3

US 183 (BELL BLVD.) & FM 1431

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

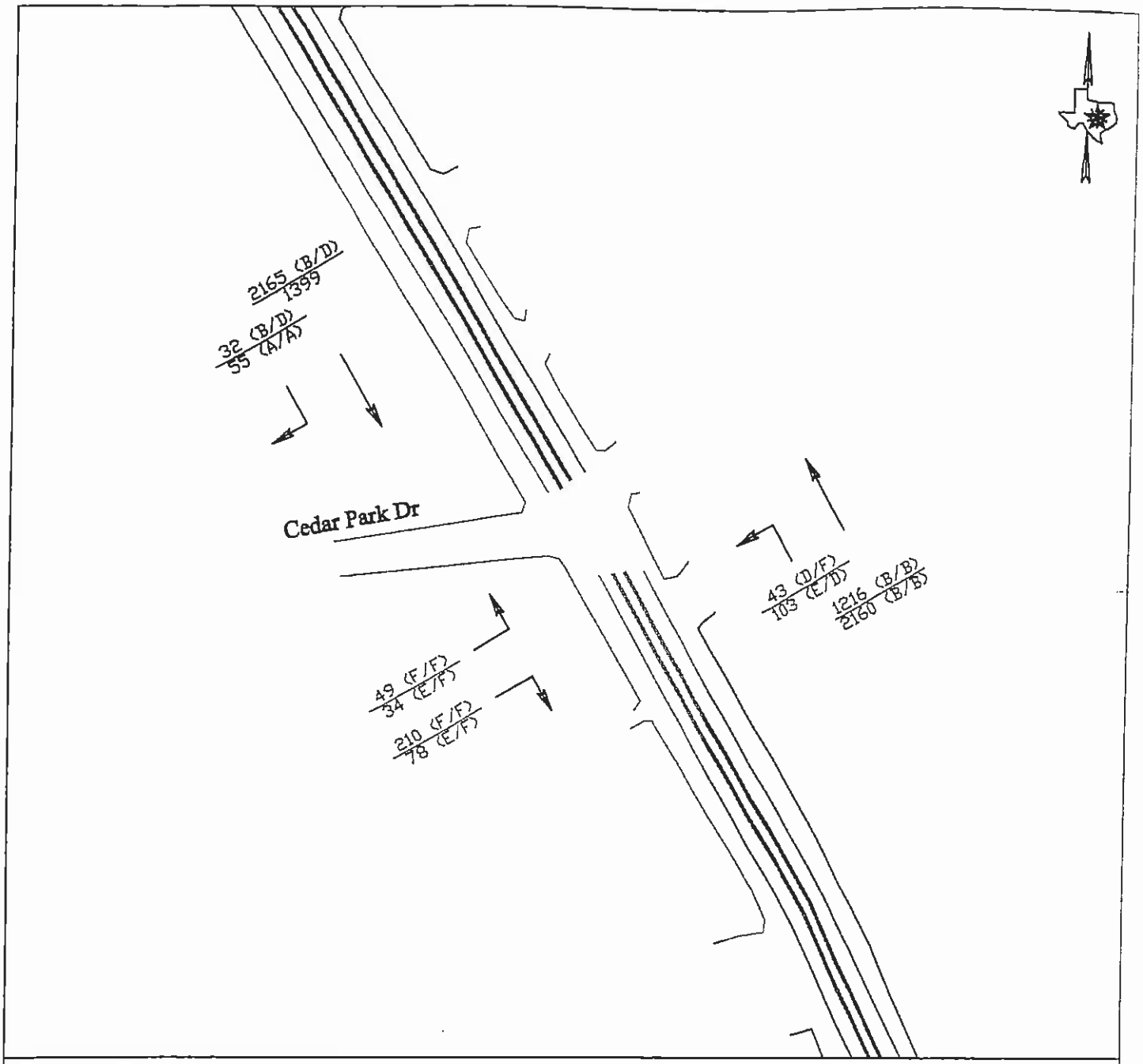
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	B	AM PEAK
	F	PM PEAK
OPTIMIZED LOS:	A	AM PEAK
	C	PM PEAK

FIGURE 4

US 183 (BELL BLVD.)
& DISCOVERY BOULEVARD

1999 INTERSECTION
LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

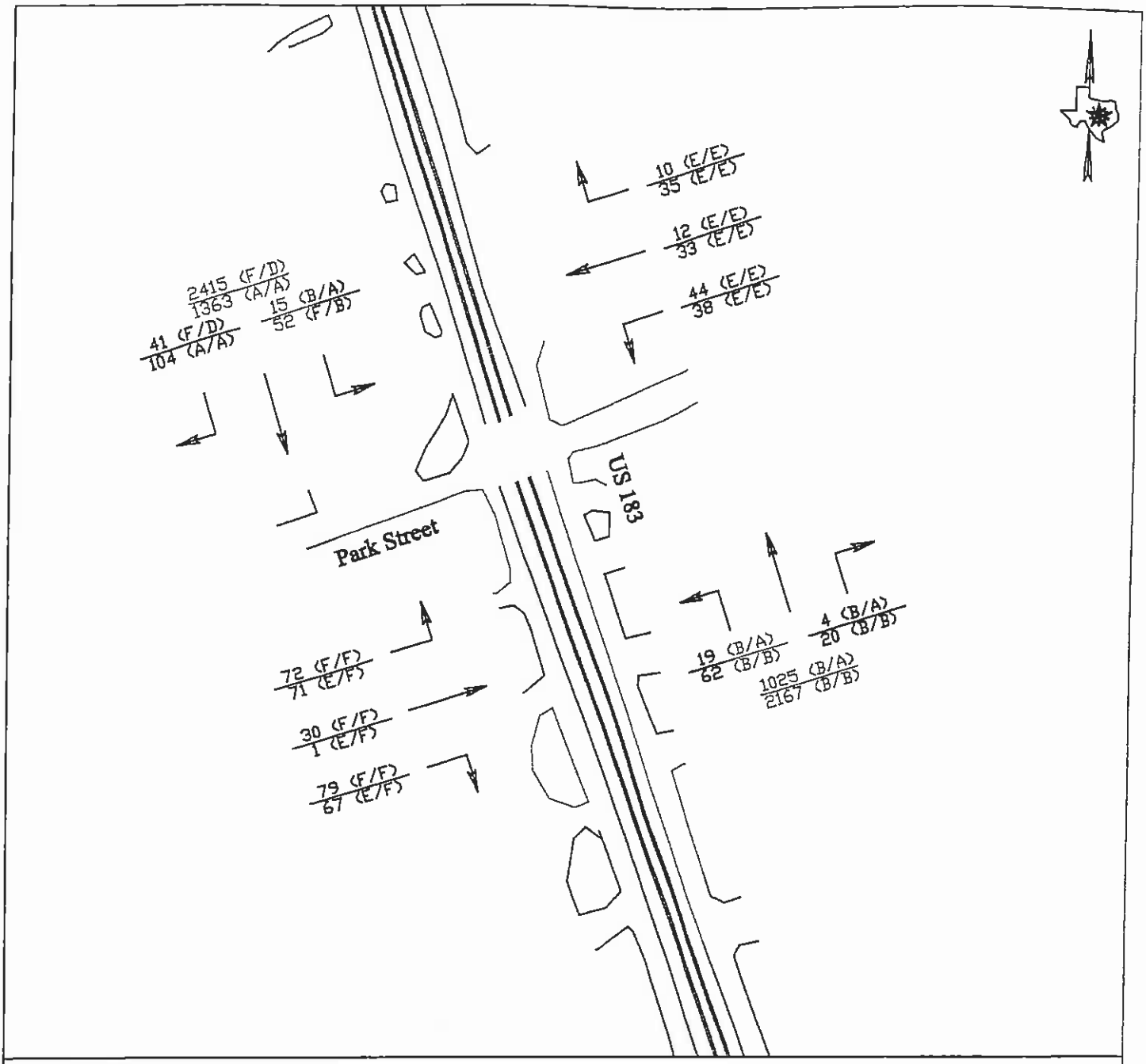
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	F	AM PEAK
	B	PM PEAK
OPTIMIZED LOS:	D	AM PEAK
	B	PM PEAK

FIGURE 5

US 183 (BELL BLVD.)
& CEDAR PARK DRIVE

1999 INTERSECTION
LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

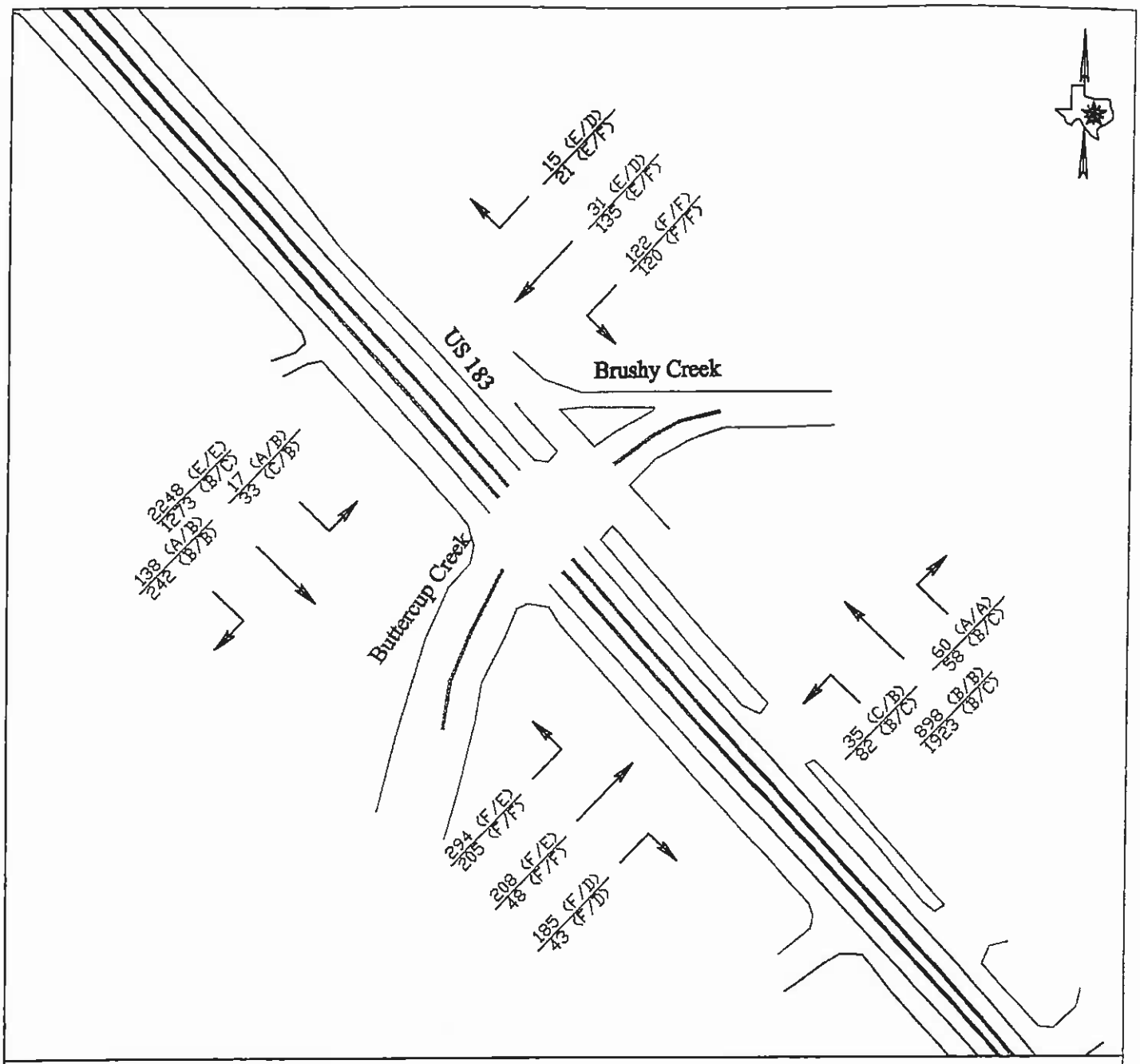
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	F	AM PEAK
	F	PM PEAK
OPTIMIZED LOS:	D	AM PEAK
	B	PM PEAK

FIGURE 6

US 183 (BELL BLVD.) & PARK STREET

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

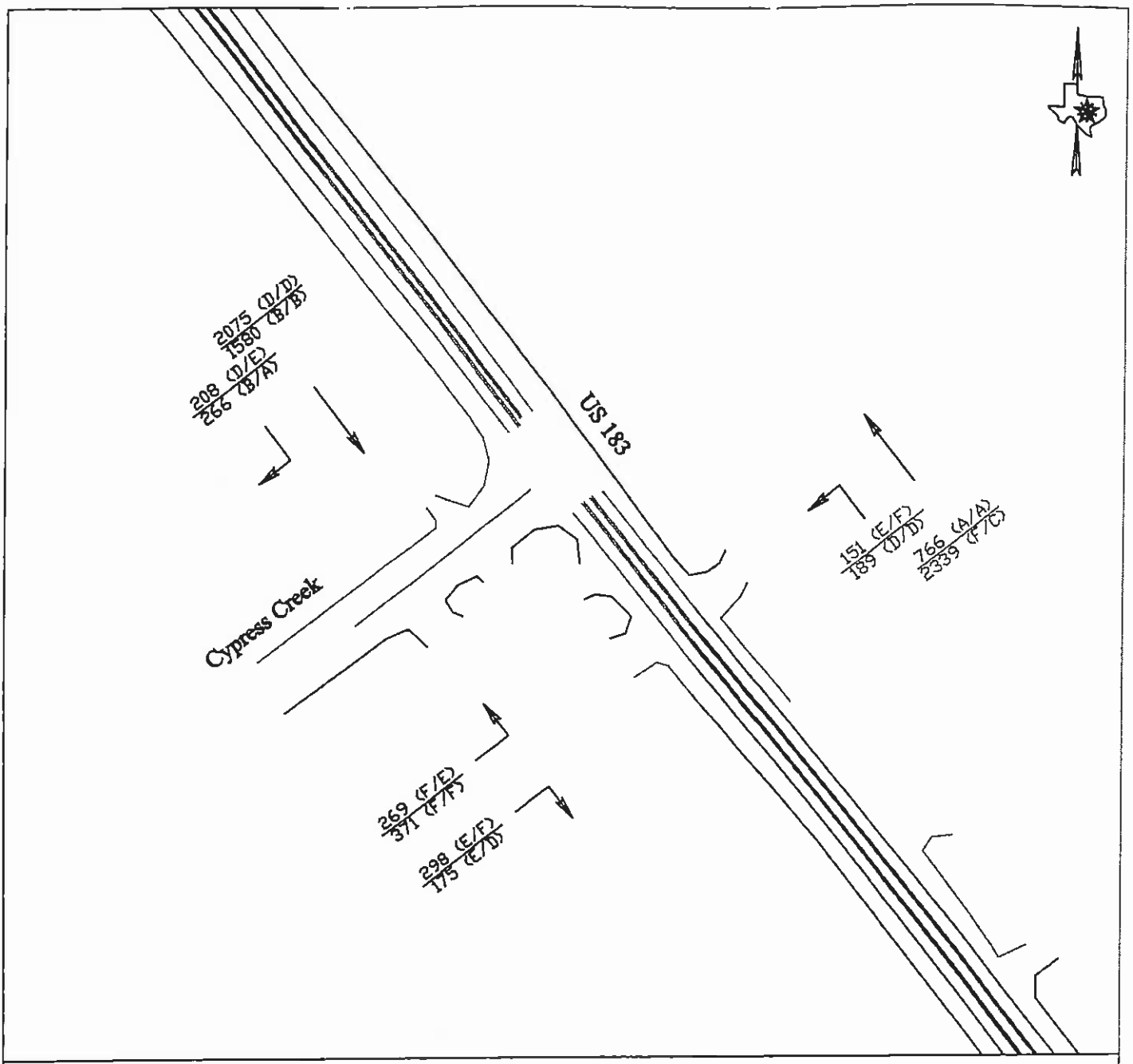
1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	E	AM PEAK
	C	PM PEAK
OPTIMIZED LOS:	D	AM PEAK
	C	PM PEAK

FIGURE 7

US 183 (BELL BLVD.) & BUTTERCUP CREEK

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

(X/X) - AM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

(Y/Y) - PM VOLUME (EXISTING LOS/OPTIMIZED* LOS)

*OPTIMIZED SIGNAL TIMINGS

1999 LEVEL OF SERVICE MEASURES

EXISTING LOS:	D	AM PEAK
	F	PM PEAK
OPTIMIZED LOS:	D	AM PEAK
	C	PM PEAK

FIGURE 8

US 183 (BELL BLVD.) & CYPRESS CREEK

1999 INTERSECTION LEVEL OF SERVICE

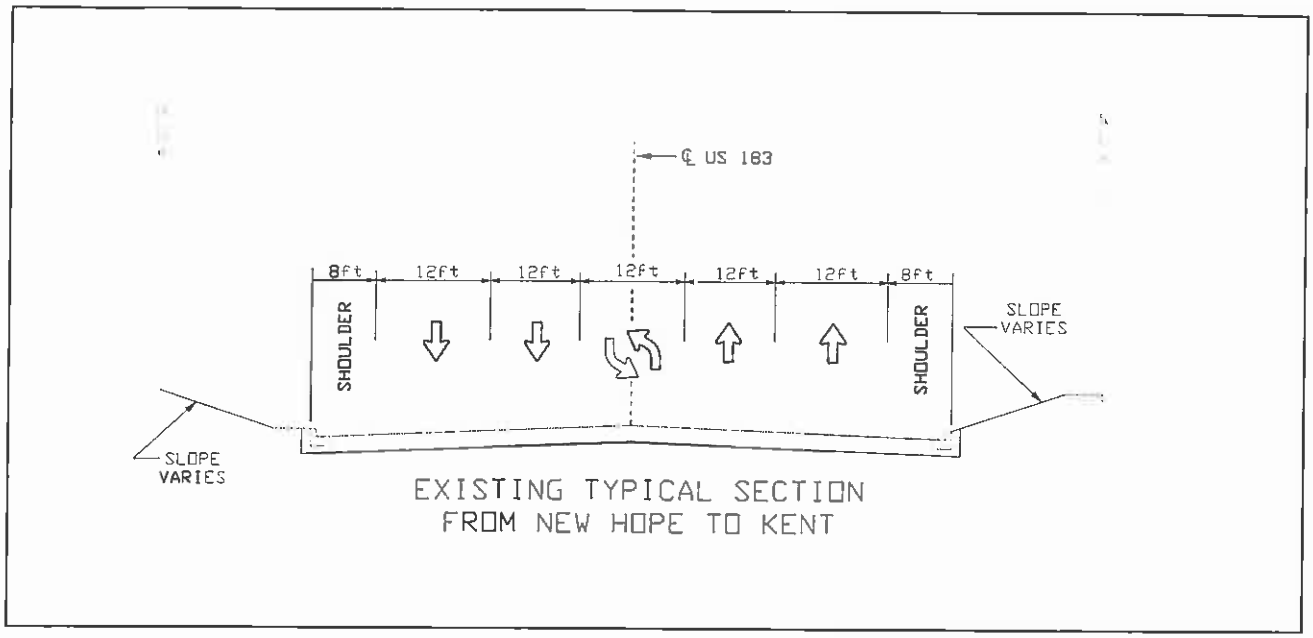


Figure 9

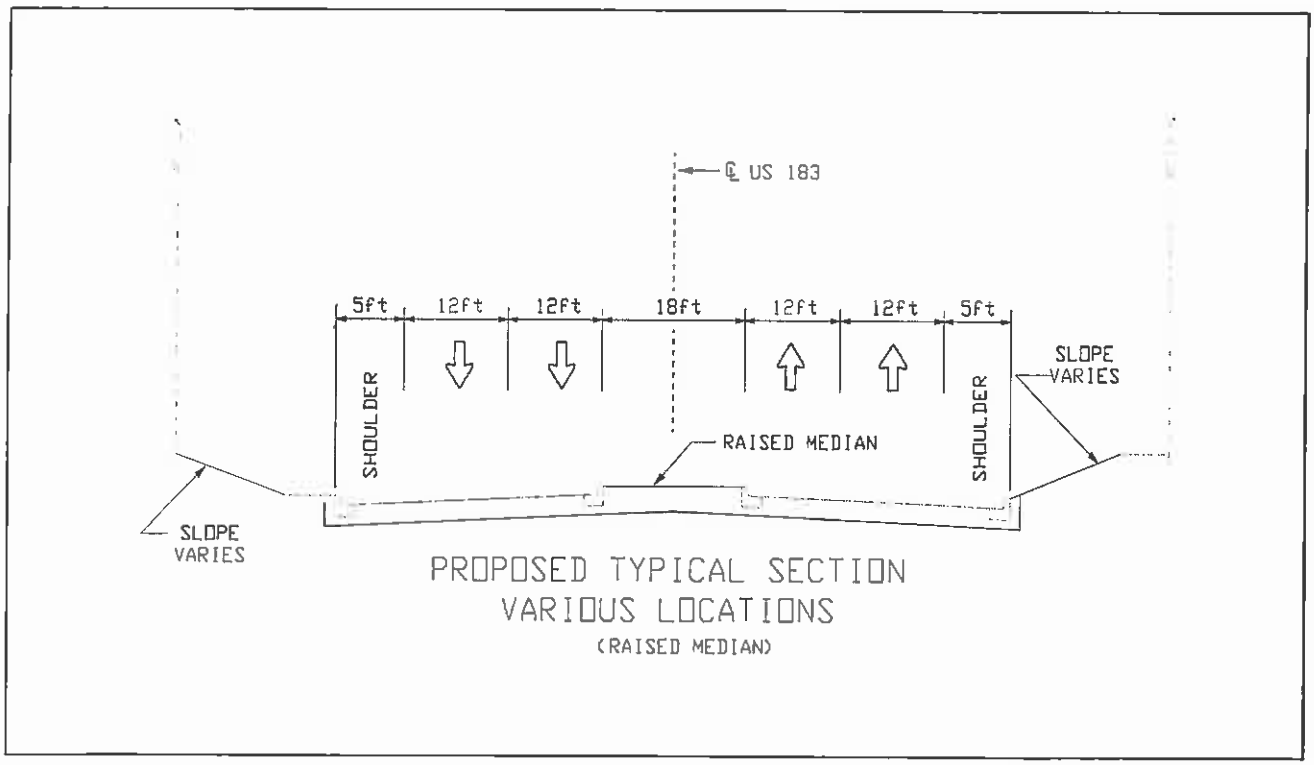


Figure 10

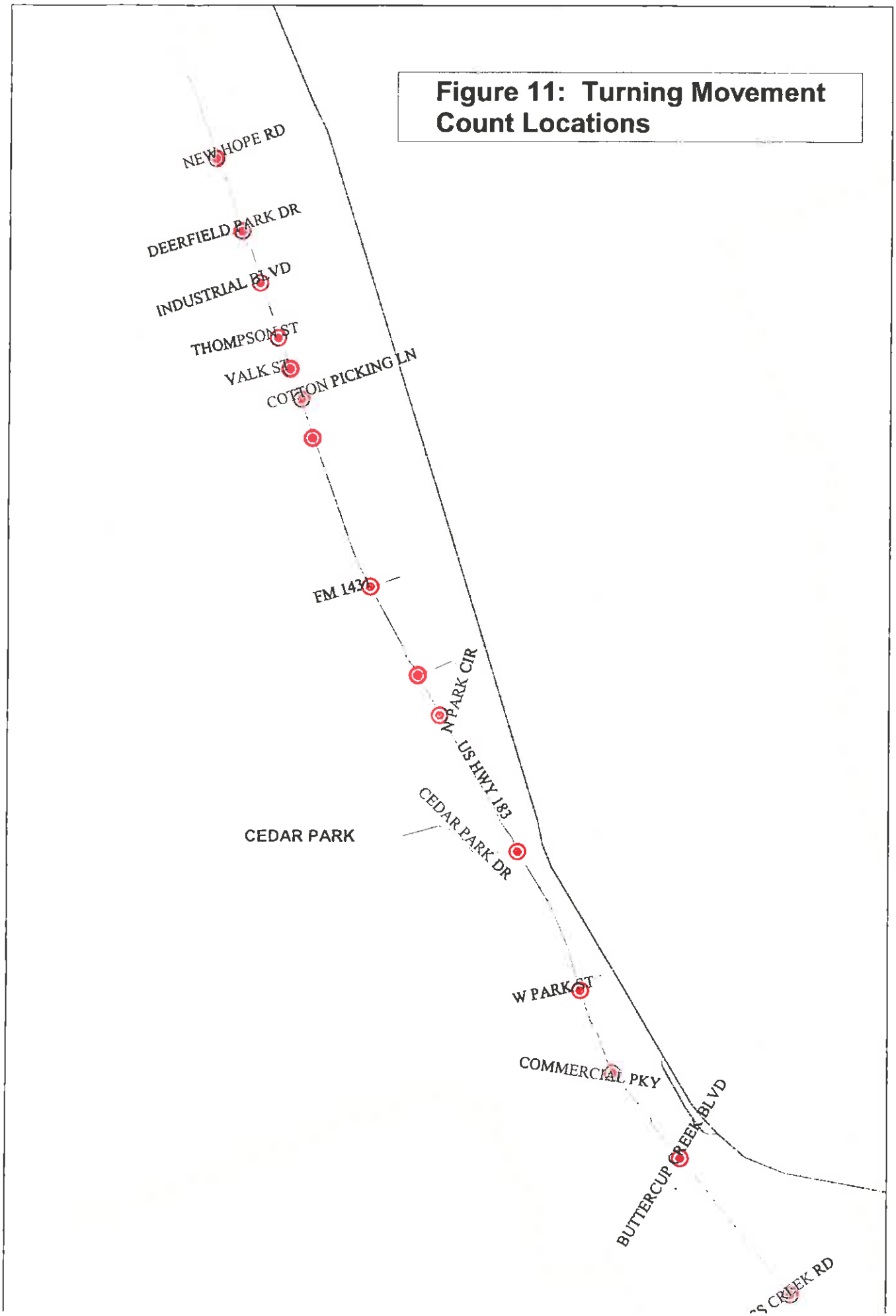
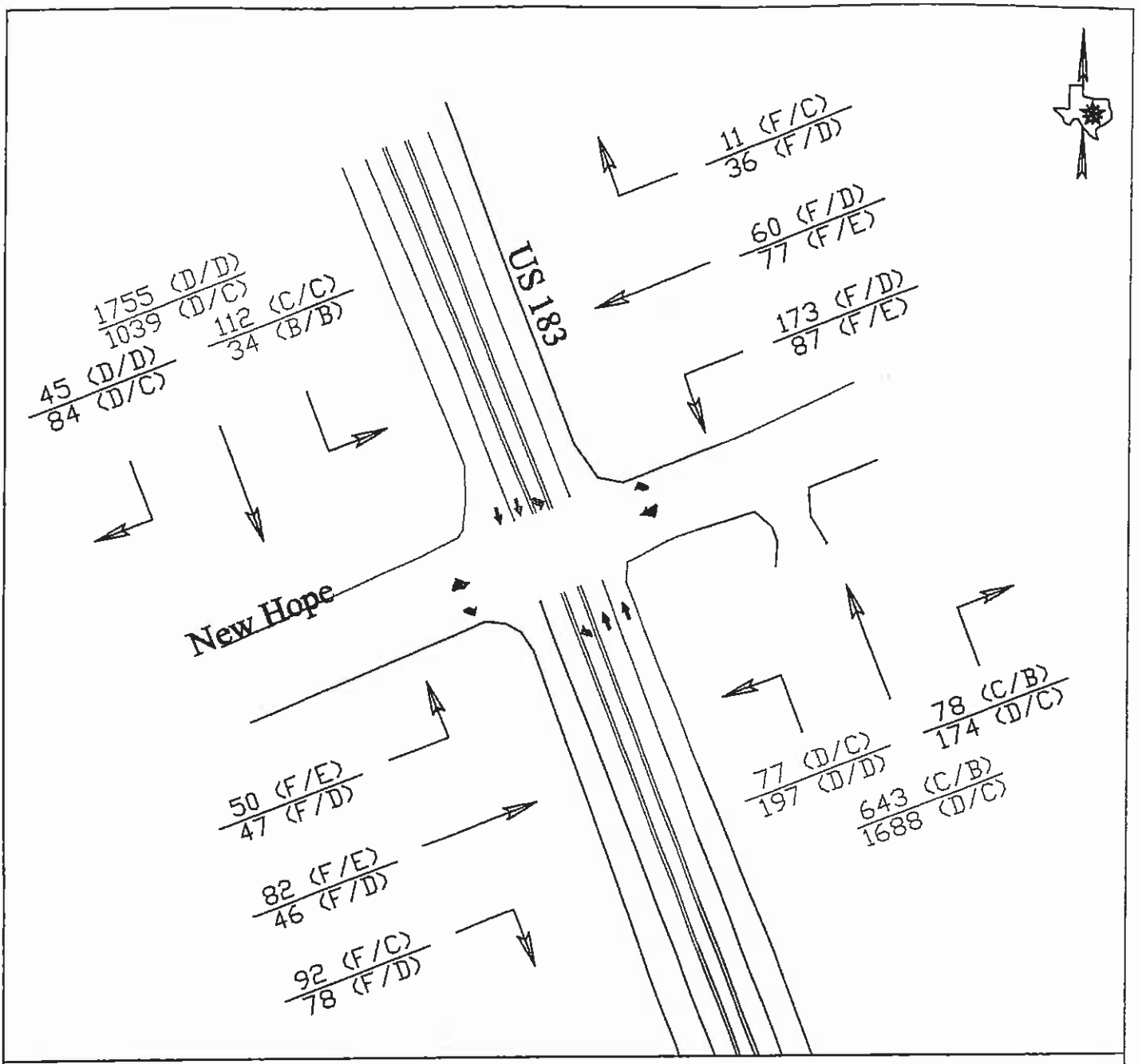


Figure 11: Turning Movement Count Locations



LEGEND:

AM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

PM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

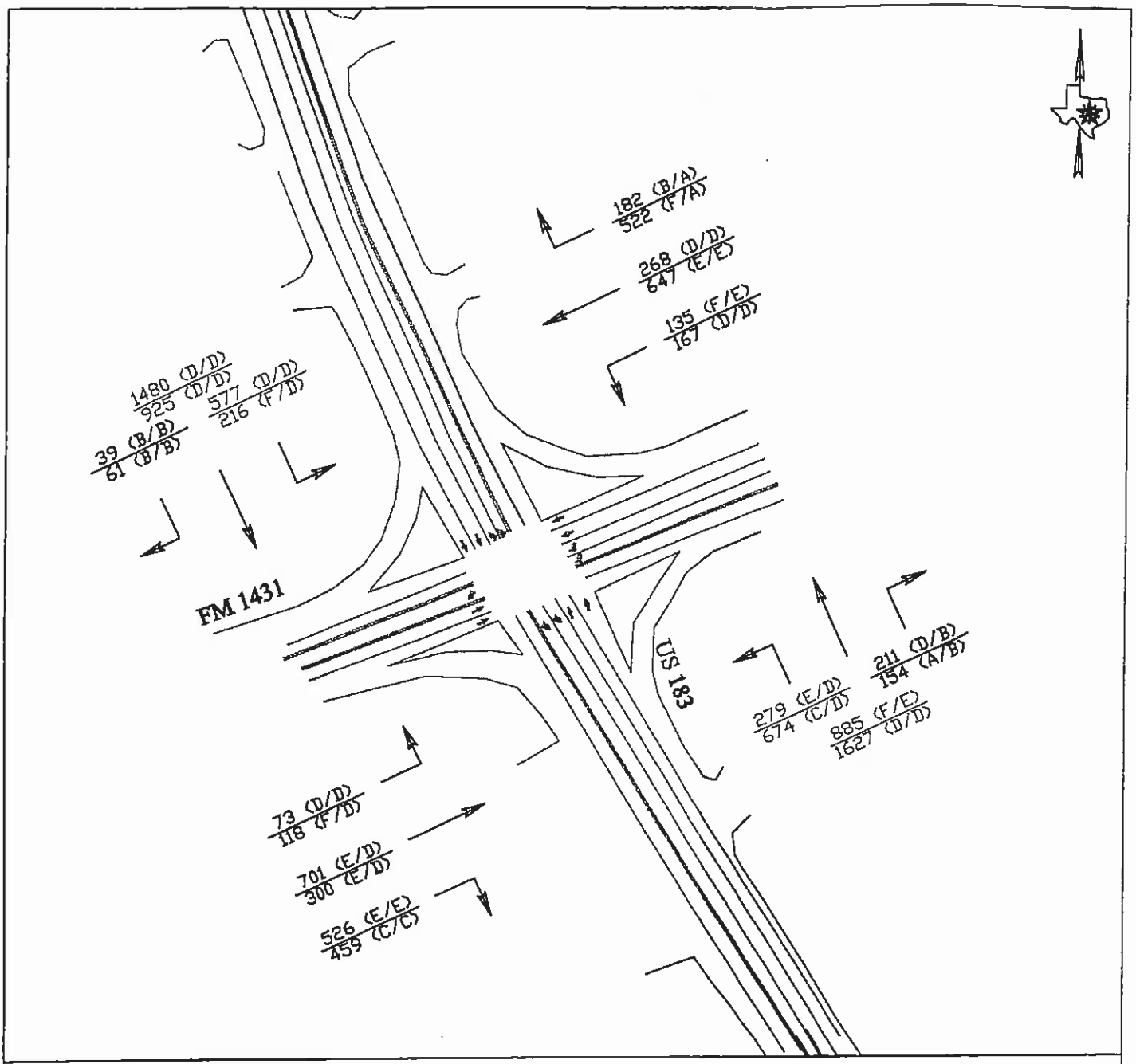
1999 LEVEL OF SERVICE MEASURES

BEFORE LOS:	D	AM PEAK
	D	PM PEAK
AFTER LOS:	C	AM PEAK
	C	PM PEAK

FIGURE 12

US 183 (BELL BLVD.) & NEW HOPE RD.

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

AM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

PM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

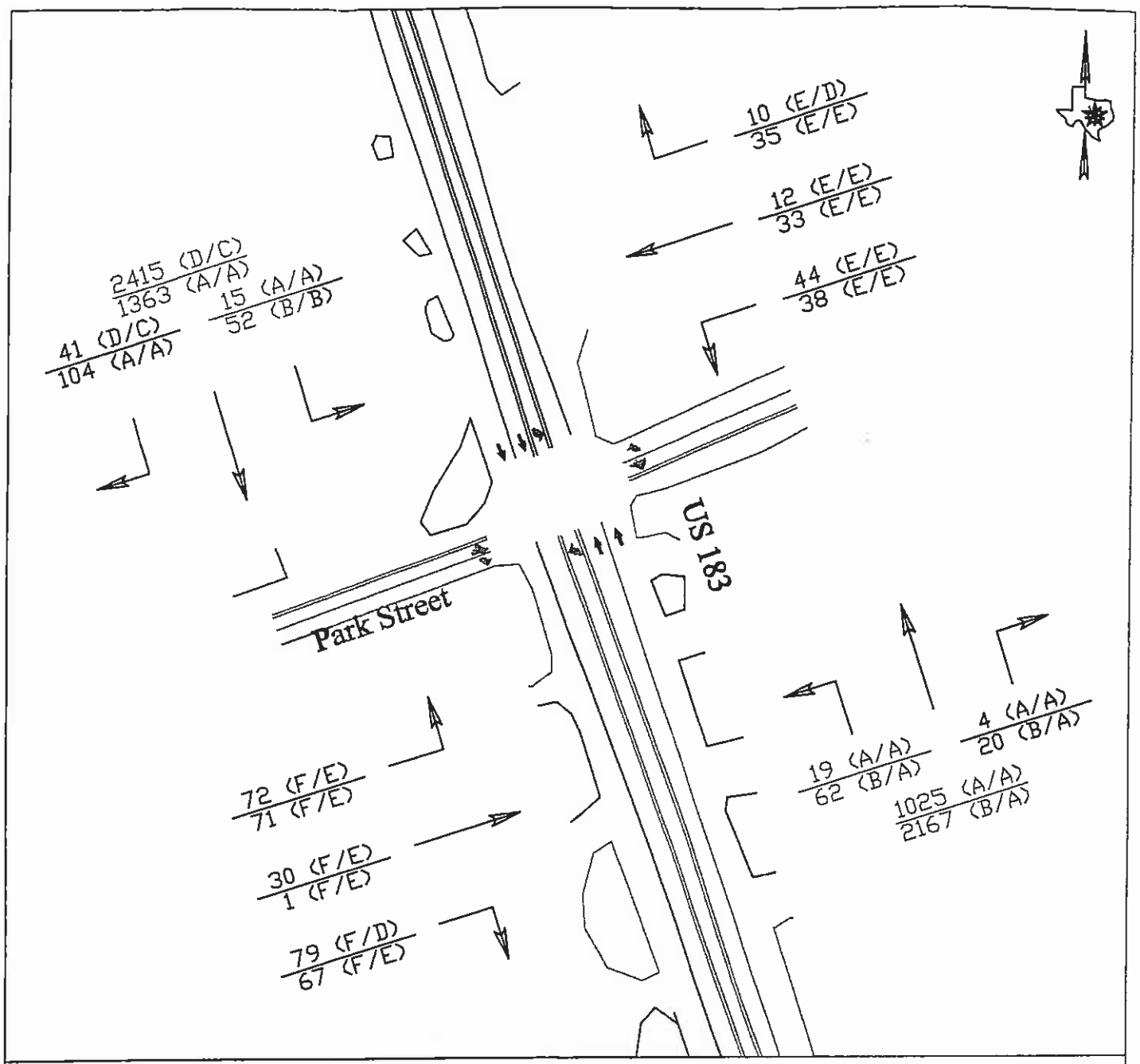
1999 LEVEL OF SERVICE MEASURES

BEFORE LOS:	E	AM PEAK
	D	PM PEAK
AFTER LOS:	D	AM PEAK
	D	PM PEAK

FIGURE 13

US 183 (BELL BLVD.) & FM 1431

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

AM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

PM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

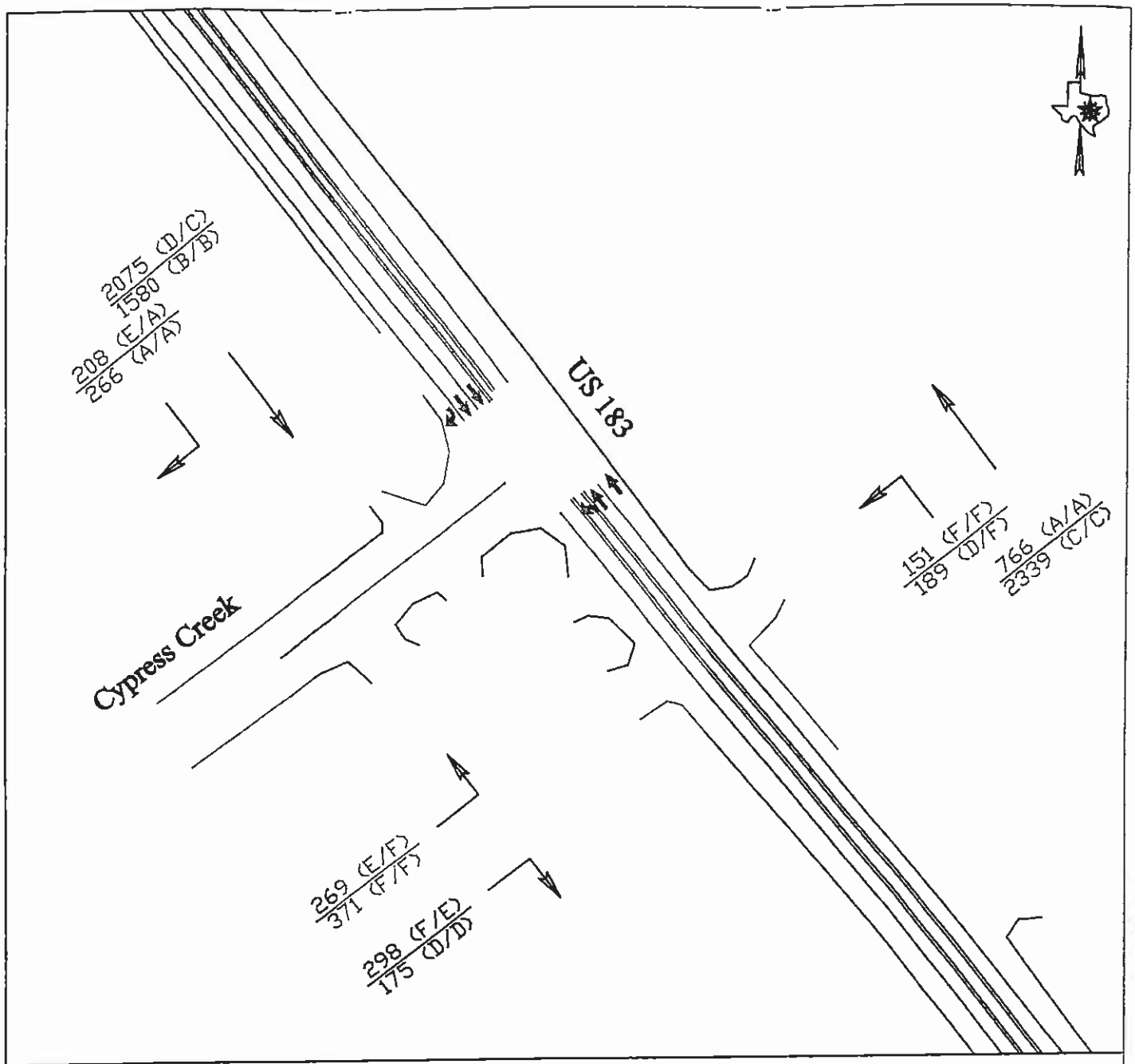
1999 LEVEL OF SERVICE MEASURES

BEFORE LOS:	D	AM PEAK
	B	PM PEAK
AFTER LOS:	C	AM PEAK
	B	PM PEAK

FIGURE 14

US 183 (BELL BLVD.) & PARK STREET

1999 INTERSECTION LEVEL OF SERVICE



LEGEND:

AM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

PM VOLUME (LOS BEFORE IMPROVEMENT/LOS AFTER IMPROVEMENT)

1999 LEVEL OF SERVICE MEASURES

BEFORE LOS:	D	AM PEAK
	C	PM PEAK
AFTER LOS:	D	AM PEAK
	C	PM PEAK

FIGURE 15

US 183 (BELL BLVD.) & CYPRESS CREEK

1999 INTERSECTION LEVEL OF SERVICE

Figure 16
Driveway Consolidations - Commercial Parkway

Figure17
Driveway Consolidations
Buttercup Creek

Figure 18
Driveway Consolidations
Park Street

Figure 19
Driveway Consolidations
North of FM 1431

Figure 20
Driveway Consolidations
S. of Discovery Boulevard

ANALYSIS AND FINDINGS

Analyses performed for this study include: compiling AM & PM peak hour turning movement counts (**Figures 2 - 8**), evaluating 24-hour count data for driveways, executing traffic simulation models (Synchro 3.0 and CORSIM), and evaluating accident data and pedestrian activity.

Two traffic engineering software packages were used on this project. These models include: Synchro 3.0 and CORSIM. The following provides a brief description of each of the models and how they were used

Both programs use existing roadway characteristics to simulate traffic operations. Roadway characteristics such as number of lanes, distances between intersections and lengths of turn bays are needed for input. Traffic data includes vehicle volumes, turning movements, free flow speed and mean queue discharge headways (i.e., time between vehicles exiting the queue at an intersection). Vehicle control at intersections must be defined such as stop signs and traffic signals. Traffic signalization is described by phasing (e.g., permitted/protected left turns) and timing of the green, yellow and red displays for each phase.

Synchro 3.0 is a complete package for modeling and optimizing traffic signal timings. Synchro 3.0 provides intersection capacity analysis and develops optimum signal timing plans to reduce network and intersection delays. Synchro 3.0 also provides an interface to CORSIM. Synchro 3.0 provides a manageable user interface that allows for the development of the roadway network and subsequently the simulation models. This software was used to time the US 183 signals to eliminate the queuing of vehicles on US 183 and provide the maximum green band progression along the corridor.

CORSIM is a microscopic computer simulation model developed by the Federal Highway Administration to analyze roadway networks. It identifies and tracks the movement of individual vehicles and traffic signal indications every second for the duration of the simulation. It was used primarily for its real time graphics capabilities. The graphics output was used to evaluate the optimized signal timings and provide graphic output for public presentations.

Geometric roadway treatments were developed for sections of US 183 to improve the operation of this facility. These treatments will provide improved conditions, and the varied median treatments impact the operations in distinct ways. Accident history, roadway operations, and access density help delineate the appropriate application of median treatments. Recommended roadway treatments were analyzed system wide for their effect on the intersection level of service. The resulting levels of service from these improvements are shown on **Figures 12-15**.

Traffic Flow Roadway Level of Service

The 1994 *Highway Capacity Manual* uses Level of Service (LOS) as the method by which the quality of traffic flow is described. LOS describes operational conditions in six levels based upon speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience and safety. These six levels are given the letters A-F and are given different descriptions and defining criteria depending on the roadway element analyzed. The roadway elements within the study area include roadway arterials, signalized intersections and two-way, stop-controlled intersections.

Table 5 presents the criteria used to identify roadway arterial LOS. Arterial LOS is based on the average travel speed in miles per hour. Arterial LOS is further subdivided based on the classification of the arterial analyzed. Thus large arterials such as US 183 (Bell Boulevard) with higher posted speed limits are expected to have higher speeds and the LOS criteria are defined accordingly.

	Arterial Classification		
	I	II	III
Range of free-flow speeds (mph)	45 to 35	35 to 30	35 to 25
Typical free-flow speeds (mph)	40	33	27
Level of Service	Average Travel Speed (MPH)		
A	35	30	25
B	28	24	19
C	22	18	13
D	17	14	9
E	13	10	7
F	<13	<10	<7

Table 2. LOS Criteria for Roadway Arterials

LOS A represents free flow conditions. Drivers travel at desired speed and are virtually unaffected by other vehicles. With LOS B, other vehicles in the traffic stream become noticeable. Under LOS C, a driver's behavior becomes significantly affected by the traffic stream. LOS D represents high-density traffic flow where speed and maneuverability are severely restricted and poor levels of comfort and convenience are experienced. LOS E generally describes a traffic stream at capacity where traffic is flowing but at a very slow rate, and any additional vehicles or unusual conditions will cause the system to break down. LOS F at breakdown occurs where stop and go conditions and excessive queues form.

Signalized intersection LOS criteria, shown in Table 6, is based on the average number of seconds a vehicle is stopped at the intersection. Thus, if the average stopped delay for vehicles at an intersection is forty seconds or less, the intersection is defined as operating at a LOS D or better. Stopped delay times of forty through sixty seconds represent LOS E and values greater than one minute define LOS F.

Level of Service	Average Total Delay (sec/veh)
A	5
B	>5 and 15
C	>15 and 25
D	>25 and 40
E	>40 and 60
F	>60

Table 3. LOS Criteria for Signalized Intersections

For signalized intersection operation, LOS A represents very low delay; most vehicles do not stop at all. With LOS B, more vehicles stop than LOS A, increasing the average delay. Under LOS C, the number of vehicles stopping is significant; however, many still pass through the intersection without stopping. LOS D describes conditions where congestion is readily apparent with many vehicles stopping and individual cycle failures (i.e., not all vehicles waiting in the intersection queue are able to get through the intersection on the first green indication) are noticeable. LOS E generally describes operations with poor progression, long cycle lengths and frequent cycle failures. LOS F describes unacceptable operations which include many cycle failures caused by arrival flows rates exceeding intersection capacity.

Two-way stop controlled intersections are analyzed in a similar manner; however, LOS is based on total delay per vehicle. The values which define LOS, shown in Table 7, are more restrictive than those for signalized intersections because it is assumed that drivers stopped at signalized intersections are able to relax while drivers waiting at stop signs must remain alert and continue to move ahead in the queue. Total delay includes both stopped delay and time spent in the queue waiting to enter the intersection. Two-way stop controlled intersections with the minor street average total delay greater than thirty seconds identifies LOS E or worse.

Level of Service	Average Total Delay (sec/veh)
A	5
B	>5 and 10
C	>10 and 20
D	>20 and 30
E	>30 and 45
F	>45

Table 4. LOS Criteria for Two-Way

The City of Cedar Park has not established specific criteria to identify limiting LOS that a development may impose on the adjacent roadways. For this study the common traffic engineering practice of limiting LOS in the peak hour for intersections to LOS D or better will be followed.

LOS calculated for each of the analyzed intersections either remains the same or are improved. The analysis output and summary tables are provided in the Appendix.

RECOMMENDATIONS

To improve the operation of US 183 with respect to the individual functions that it performs for the City of Cedar Park, all recommendations must be considered collectively. Recommendations are presented here which address roadway capacity, roadway operations, and business access. Recommendations were also developed to improve the overall safety and of US 183. The analysis performed for this project indicated that the recommended roadway improvements will provide adequate capacity throughout the project.

Signal Timings

The capacity and operation of US 183 are affected by the signal coordination along the arterial, the geometries of each intersection, and the geometric cross section of the roadway itself. The signal timing plan that is presented in the Appendix is optimized to provide efficient timings and coordination between signals on US 183. This signal plan has been developed to give priority to US 183 to ensure that the northbound and southbound vehicles receive the maximum green time possible.

The present year analysis provides the level of service measures for each intersection along US 183. Geometric improvements were developed within the constraints of pavement width, right-of-way, and operational needs of US 183.

Incident Management Systems

US 183 is a prime candidate for implementation of an incident management system due to the high number of accidents which occur (over 400 accidents in 1998), and the severe effect that these accidents have on the operation of a roadway. An incident management system consists of connecting the signal controllers to a main control unit that will monitor the flow of traffic along US 183 and vary the timing of the controllers in order to relieve any detected incidents, such as traffic interrupted due to an accident.

Emergency Signal Pre-Emption

The response time of emergency vehicles would be improved with the instillation of a signal pre-emption system that would give a green light to an emergency vehicle entering an intersection.

Driveway Consolidation/Closure

The existence of a large number of driveways that are in close proximity to one another has a severe effect on the operation and safety of US 183. The consolidation of closely spaced driveways that serve the same businesses will help to improve the safety and reduce the number of conflict points along US 183. **Figures 16 - 20** show the locations of the proposed driveway consolidations, and **Table 5** lists the proposed consolidations.

Table 5: Driveway Closures

Location	Driveway
510 S. Bell - Doc Hollidays	Northern Old Highway 183 Driveway to US 183
304 S. Bell - A1 Banners & Signs	Northern Driveway
Cedar Park Square - Callahan's	Southern Driveway
100 S. Bell - Sonic	Northern Driveway
Firestone Tire Shop North of Park	Northern and Southern Driveways
103 N. Bell- Parts Connection & 109 N. Bell - Walsh & Walsh, CPA	Close Three of the Five Driveways
303 N. Bell - Daylight Donuts	One Driveway
602 N. Bell - Texaco	Middle Driveway
604 N. Bell - Cedar Park BBQ	Driveway/Share Access With Texaco
707 N. Bell - Cedar Park Floor Store	Northern Driveway
1020 N. Bell - Citgo/7-11	Southern Driveway

Geometric Improvements

The following list describes the recommended geometric improvements that were developed to improve the safety and operation of US 183. These improvements are also shown in **Figures 21 - 25**.

- Raised Curb Medians:
    - North of FM 1431 Approximately 470 ft.
    - Between FM 1431 and Discovery
    - South of Discovery Approximately 1,250 ft.
    - South of Brushy Creek Approximately 450 ft.

- Right Turn Bays Eastbound and Westbound at Park and US 183

- Additional Southbound Left Turn Bay at FM 1431 and US 183

- Additional Westbound Left Turn Bay at FM 1431 and US 183

- Acceleration Lane for Westbound Right Turning Vehicles from FM 1431 to Northbound US 183

- Eastbound and Westbound Right Turn Bays at New Hope

- Extend Eastbound Right Turn Bay at FM 1431 and US 183

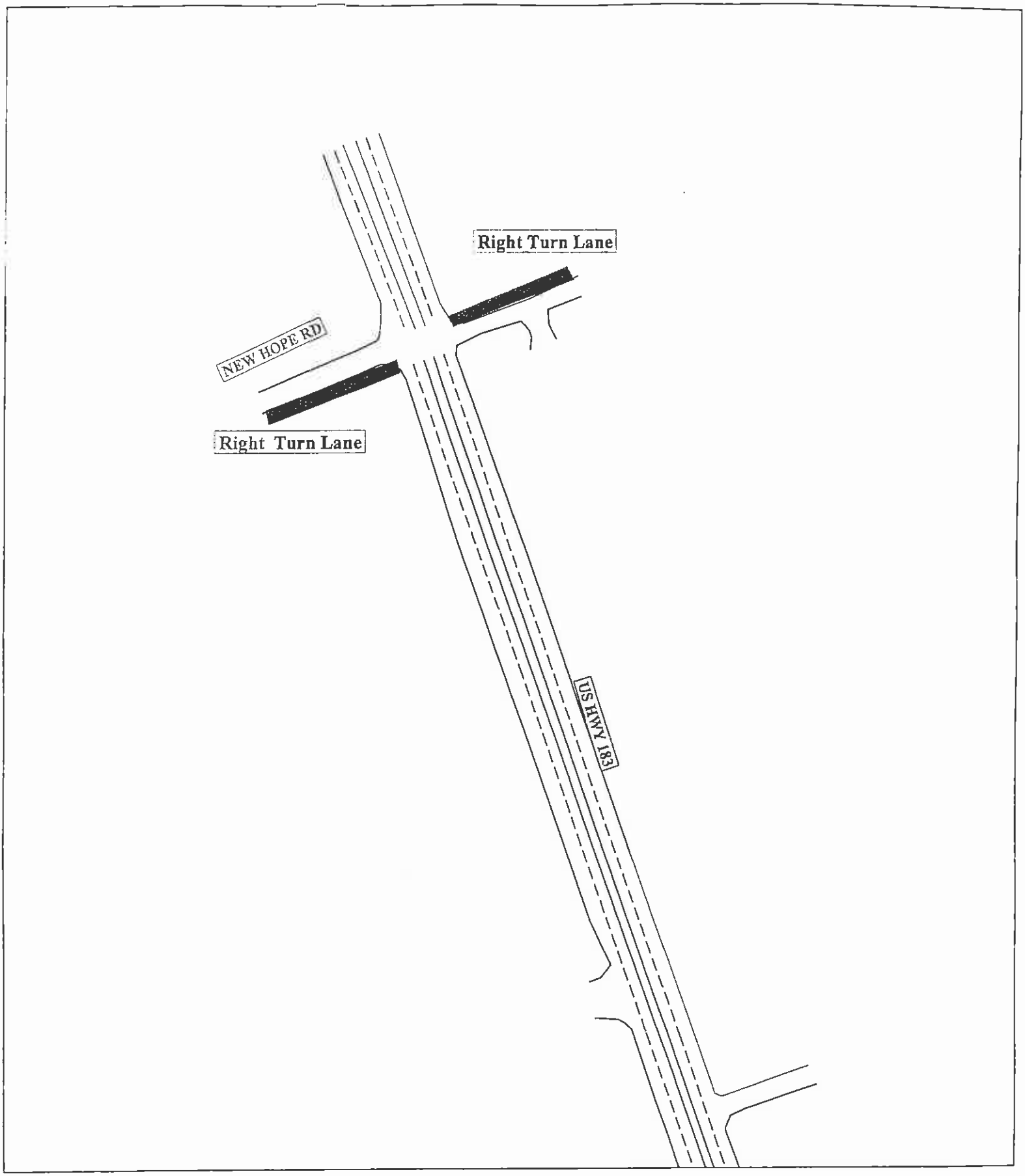


Figure 21: Recommended Improvements US 183 and New Hope Road

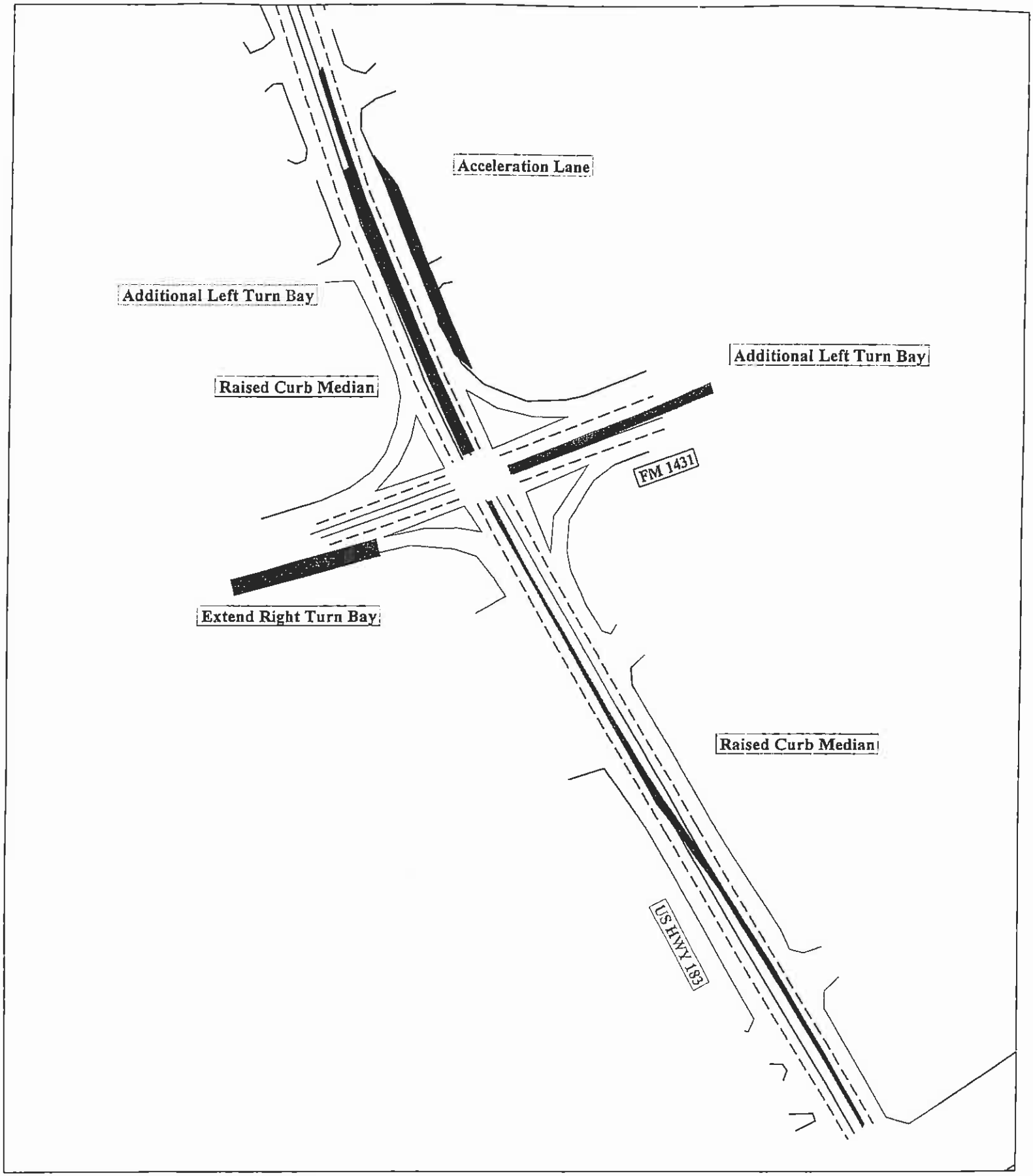


Figure 22: Recommended Improvements US 183 and FM 1431

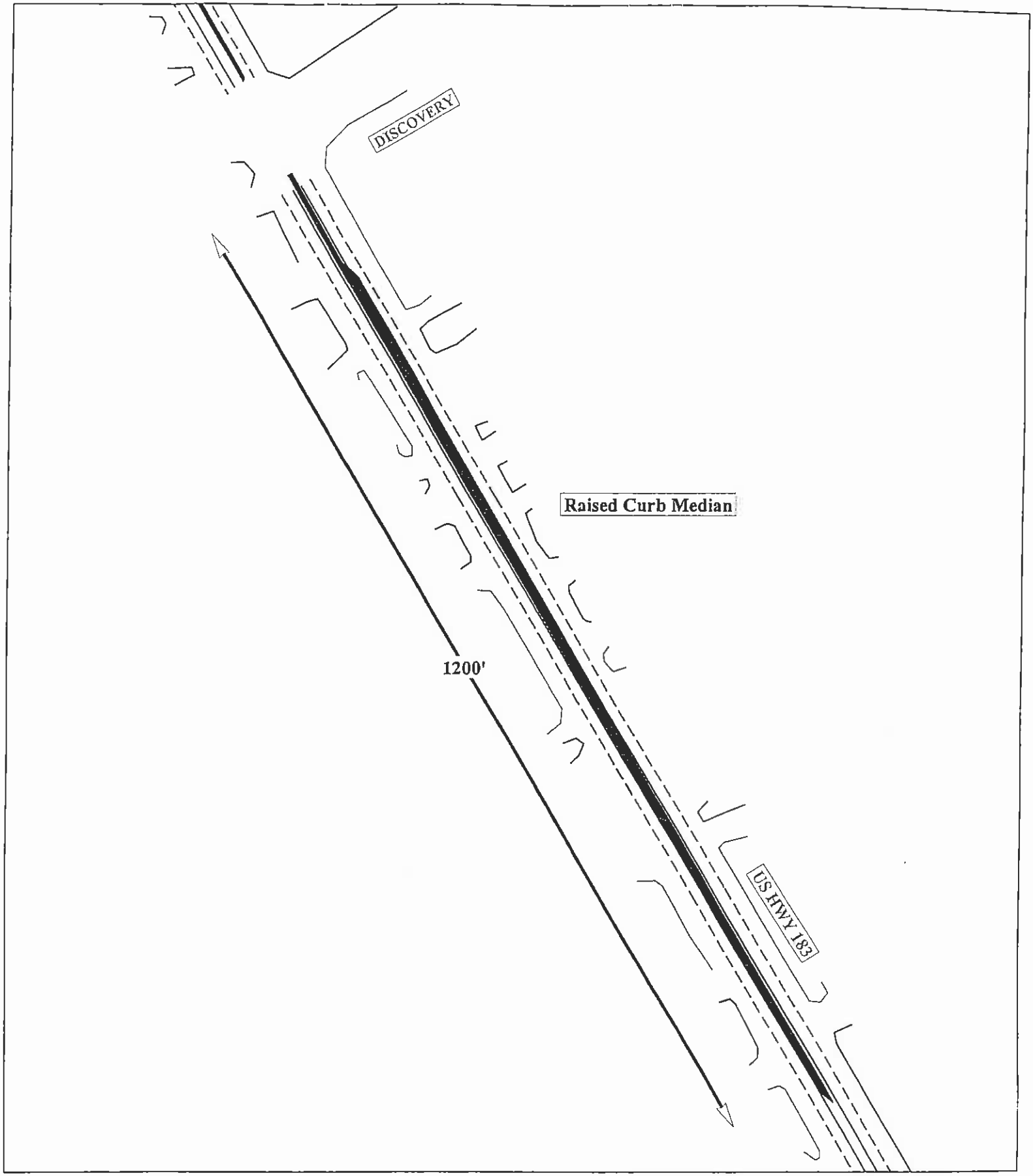


Figure 23: Recommended Improvements US 183 and Discovery Boulevard

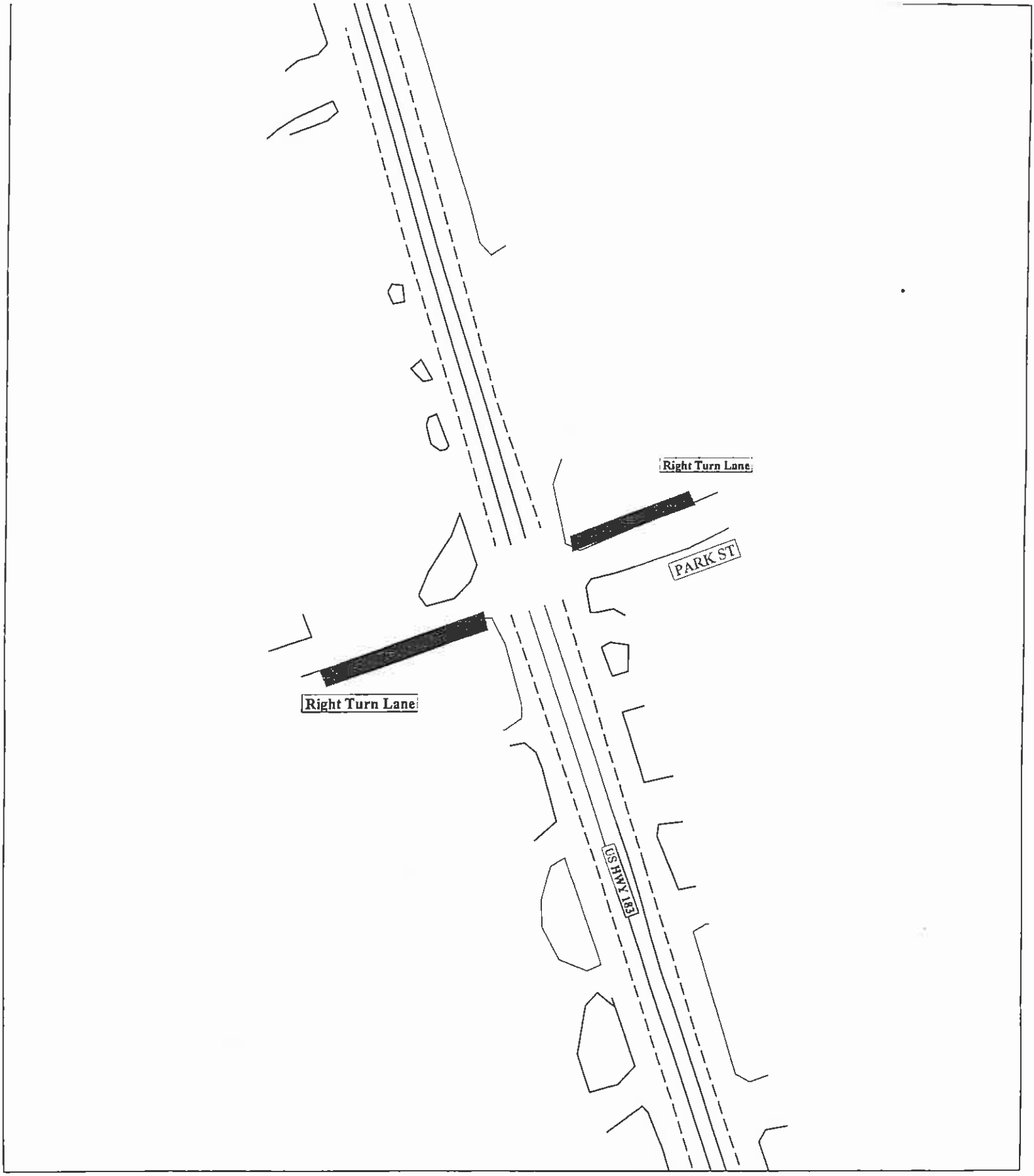


Figure 24: Recommended Improvements US 183 and Park Street

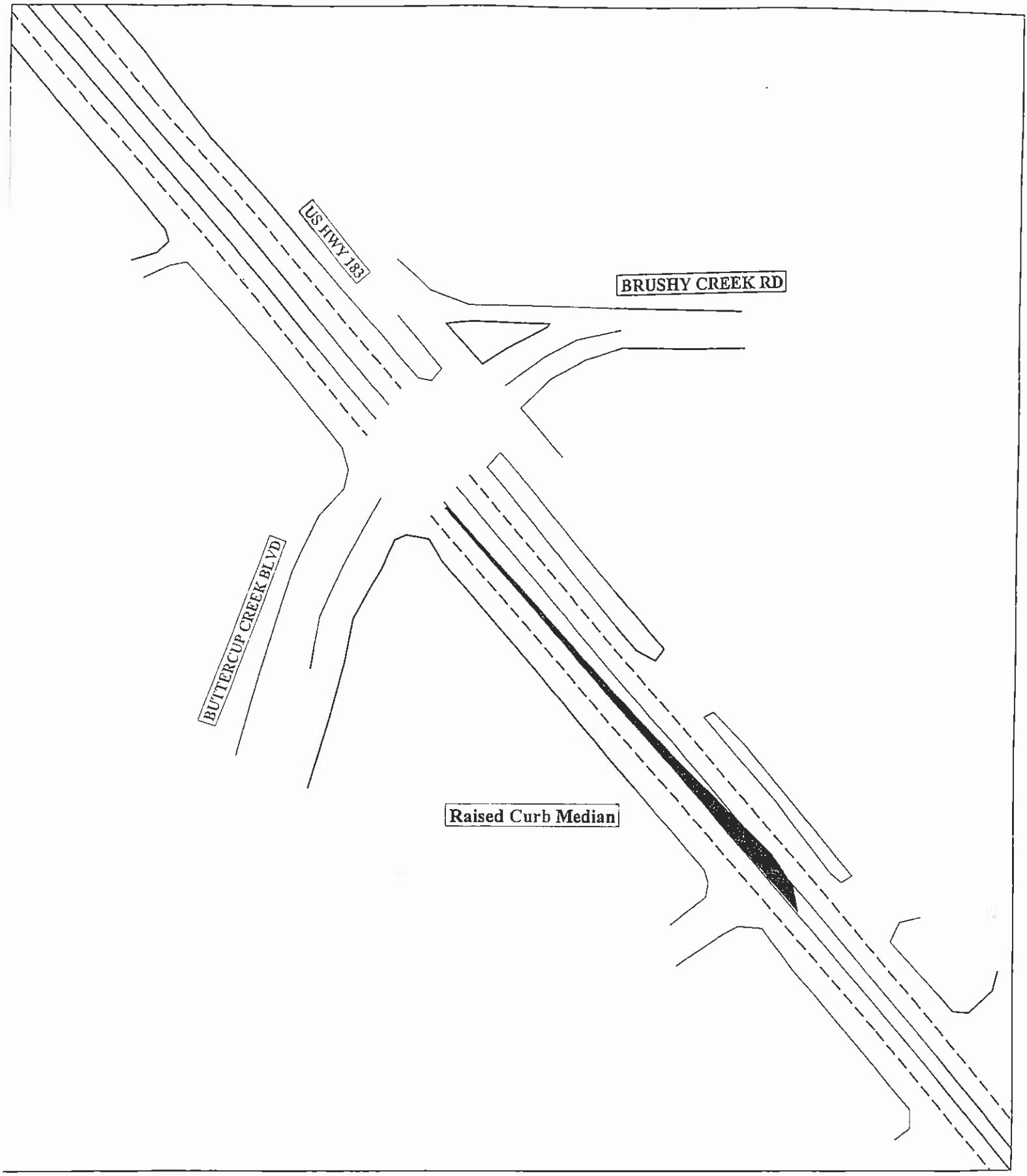


Figure 25: Recommended Improvements US 183 and Buttercup Creek Boulevard

Accident Countermeasures

After reviewing the accident data along US 183, countermeasures are recommended which have historically reduced the number of the same type of accidents found at the high accident intersections. It was determined that there were a high number of rear-end accidents resulting from the congestion on US 183. The signal timing developed as part of this report will help to decrease the number of these rear-end accidents by increasing the green time and lowering the number of stops vehicles make, thereby statistically lowering the opportunity of a rear-end accident occurring. A number of locations experience numerous right angle accidents at driveways located between signalized intersections. The main contributor to these accidents are the long queues that form as a result of congestion. The recommended raised medians are proposed to eliminate the turning of vehicles through a stacked queue.

To try less restrictive and more cost effective measures first, the proposed raised medians may be replaced by striped medians. The raised medians may also take the form of a mountable median to allow for emergency vehicle crossing of the median. However, the effectiveness on traffic operation will not be compromised.

Aesthetic Considerations

The alternatives developed as a part of this study allow for aesthetic treatments and guidelines to be implemented along US 183 which can create a transportation environment that is more conducive to shopping and pedestrian activity.

Public Involvement

Prior to implementation of the proposed plan, the US 183 Phase II Study Team anticipates that it will be necessary to go through an additional public involvement process to gain approval of the adjacent businesses and residences.

Other Considerations

Minor drainage and pavement reconstruction should be considered during construction of the roadway improvements. Also, aged utilities and or utilities found during the construction to be in disrepair should be candidates for replacement. These drainage, utilities and roadway repairs are contingent on funding availability.

Table 6: Recommended Improvements

1. Implementation of Signal Timing Plans
2. Development of an Incident Management System
3. Install Emergency Signal Pre-Emption
4. Various Driveway Consolidations (Table 5)
5. Geometric Improvements:
   - Raised Curb Medians:
     - North of FM 1431 Approximately 470 ft.
     - Between FM 1431 and Discovery
     - South of Discovery Approximately 1,250 ft.
     - South of Brushy Creek Approximately 450 ft.
   - Right Turn Bays Eastbound and Westbound at Park and US 183
   - Additional Southbound Left Turn Bay at FM 1431 and US 183
   - Additional Westbound Left Turn Bay at FM 1431 and US 183
   - Acceleration Lane for Westbound Right Turning Vehicles from FM 1431 to Northbound US 183
   - Eastbound and Westbound Right Turn Bays at New Hope
   - Extend Eastbound Right Turn Bay at FM 1431 and US 183

References

1. Bonneson, J.A., and P.T. McCoy. "Median Treatment Selection for Existing Arterial Streets". ITE Journal. March 1998. pp 26-34

2. Highway Capacity Manual, 3rd Edition. Transportation Research Board. Washington D.C. 1998

Appendix

AM Optimized Signal Timings

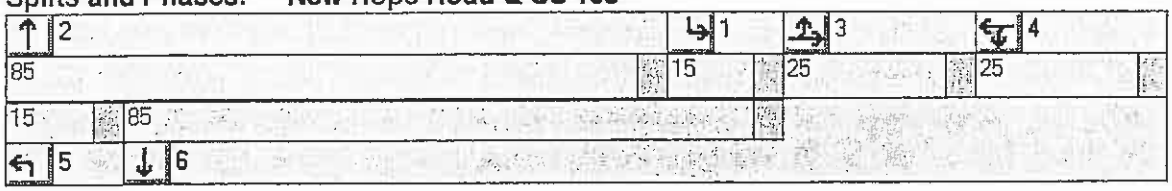
AM Existing Timings

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1557	0	0	1609	0	1770	3666	0	1770	3711	0
Flt Perm.	0.950	0.989		0.950	0.966		0.057			0.151		
Satd. Flow (perm)	0	1557	0	0	1609	0	106	3666	0	281	3711	0
Volume (vph)	50	82	92	173	60	11	77	643	78	112	1755	45
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	249	0	0	271	0	86	841	0	124	2101	0
Perm or Prot?	Prot			Prot			Pm+Pt			Pm+Pt		
Phase Number	3	3		4	4		5	2		1	6	
Maximum Split (s)	25	25		25	25		15	85		15	85	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio		0.15			0.15		0.55	0.55		0.55	0.55	
Lane Grp Cap (vph)		228			236		191	2004		273	2029	
V/C Ratio		1.09			1.15		0.45	0.42		0.45	1.04	
V/S Ratio Prot		0.16			0.17		0.04			0.04		
V/S Ratio Perm							0.21	0.23		0.21	0.57	
Critical LG?		Yes			Yes		Yes				Yes	
Uniform Delay, d1		48.6			48.6		12.3	15.2		21.0	25.8	
Platoon Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incr. Delay, d2		78.4			105.9		1.2	0.1		0.9	24.6	
Webster's St Delay		127.0			154.5		13.5	15.3		21.8	50.5	
LOS		F			F		B	C		C	E	

Cycle Length: 150
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.93
Intersection V/C Ratio: 1.01
Intersection Webster Stopped Delay: 53.4
Intersection LOS: E

Splits and Phases: New Hope Road & US 183



Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	1770	3725	1583	3539	3725	1583
Flt Perm.	0.500			0.500			0.200			0.235		
Satd. Flow (perm)	931	3725	1583	931	3725	1583	373	3725	1583	875	3725	1583
Volume (vph)	73	701	526	135	268	182	577	1480	39	279	885	211
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	81	818	584	150	313	202	641	1726	43	319	1032	234
Perm or Prot?	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov
Phase Number	3	8		7	4		1	6		5	2	
Maximum Split (s)	45	45		25	25		62	82		28	48	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.23	0.23	0.37	0.12	0.12	0.45	0.44	0.44	0.67	0.25	0.25	0.37
Lane Grp Cap (vph)	413	869	589	216	455	712	622	1635	1064	589	931	589
V/C Ratio	0.20	0.94	0.99	0.69	0.69	0.28	1.03	1.06	0.04	0.54	1.11	0.40
V/S Ratio Prot	0.05		0.14	0.08		0.09	0.34		0.01	0.08		0.05
V/S Ratio Perm	0.00	0.22	0.23	0.00	0.08	0.03	0.12	0.46	0.02	0.06	0.28	0.10
Critical LG?			Yes	Yes			Yes				Yes	
Uniform Delay, d1	42.1	51.5	34.7	57.6	57.5	11.9	38.8	38.4	6.8	50.5	51.3	30.0
Platoon Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.92
Incr. Delay, d2	0.0	13.1	26.4	6.2	3.0	0.1	36.3	33.1	0.0	0.8	60.2	0.2
Webster's St Delay	42.2	64.6	61.1	63.8	60.5	11.9	75.1	71.5	6.8	48.7	108.8	27.8
LOS	E	F	F	F	F	B	F	F	B	E	F	D

Cycle Length: 180
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.93
Intersection V/C Ratio: 1.00
Intersection Webster Stopped Delay: 69.8
Intersection LOS: F

Splits and Phases: FM 1431 & US 183

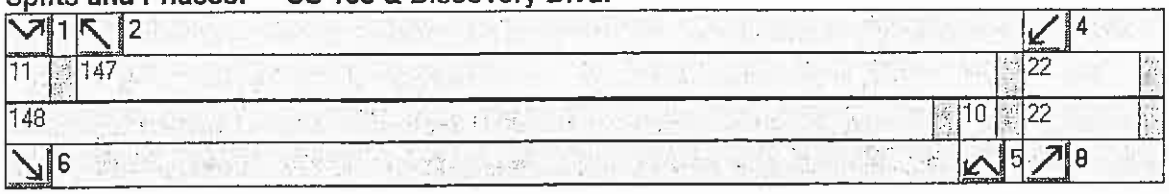
1	2	4	3
62	48	25	45
82	28	25	45
6	5	7	8

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	0	1770	3692	0	0	1425	0	1770	1770	1583
Flt Perm.	0.098			0.950			0.950			0.949	0.949	
Satd. Flow (perm)	183	3725	0	1770	3692	0	0	1425	0	1768	1768	1583
Volume (vph)	35	2037	0	0	1229	81	0	0	1	95	0	19
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	39	2376	0	0	1529	0	0	1	0	56	55	21
Perm or Prot?	Pm+Pt			Pm+Pt			Perm			Perm		Pm+Ov
Phase Number	1	6		5	2			8			4	
Maximum Split (s)	11	148		10	147			22			22	
Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
g/c Ratio	0.81	0.81			0.80			0.11		0.11	0.11	0.15
Lane Grp Cap (vph)	218	3001			2954			150		187	187	237
V/C Ratio	0.18	0.79			0.52			0.01		0.30	0.29	0.09
V/S Ratio Prot	0.01											0.00
V/S Ratio Perm	0.14	0.64			0.41			0.00		0.03	0.03	0.01
Critical LG?		Yes								Yes		
Uniform Delay, d1	2.6	7.1			4.7			54.7		56.5	56.5	48.2
Platoon Factor	0.17	0.54			0.59			1.00		1.00	1.00	1.10
Incr. Delay, d2	0.0	1.1			0.1			0.0		0.3	0.3	0.0
Webster's St Delay	0.5	4.9			2.9			54.7		56.8	56.7	52.8
LOS	A	A			A			E		E	E	E

Cycle Length: 180
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 0.67
Intersection V/C Ratio: 0.69
Intersection Webster Stopped Delay: 5.8
Intersection LOS: B

Splits and Phases: **US 183 & Discovery Blvd.**



Queues

Lane Group	EBL	EBT	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1458	0	1770	3718	0	1770	3725	0	0	1485	0
Flt Perm.	0.950	0.989		0.950			0.045			0.950	0.900	
Satd. Flow (perm)	0	1455	0	1770	3718	0	84	3725	0	0	1358	0
Volume (vph)	49	0	210	0	2165	32	43	1216	1	1	0	2
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	287	0	0	2564	0	48	1420	0	0	3	0
Perm or Prot?	Perm			Perm			Perm			Perm		
Phase Number		8			6			2			4	
Maximum Split (s)		30			150			150			30	
Lost Time (s)		3.0			3.0			3.0			3.0	
g/c Ratio		0.15			0.82		0.82	0.82			0.15	
Lane Grp Cap (vph)		218			3036		69	3042			204	
V/C Ratio		1.32			0.84		0.70	0.47			0.01	
V/S Ratio Prot												
V/S Ratio Perm		0.20			0.69		0.57	0.38			0.00	
Critical LG?		Yes			Yes							
Uniform Delay, d1		Error			7.4		5.4	3.7			49.4	
Platoon Factor		1.00			1.00		3.18	1.35			1.00	
Incr. Delay, d2		Error			1.7		17.2	0.1			0.0	
Webster's St Delay		Error			9.1		34.3	5.1			49.4	
LOS		F			B		D	B			E	

Cycle Length: 180
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 0.89
Intersection V/C Ratio: 0.92
Intersection Webster Stopped Delay: Error
Intersection LOS: F

Splits and Phases: Cedar Park Dr & US 183

2	4
150	30
150	30
6	8

Queues

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1535	0	1770	3725	0	1770	3714	0	0	1587	0
Flt Perm.	0.950	0.844		0.046			0.079			0.950	0.562	
Satd. Flow (perm)	0	1322	0	86	3725	0	147	3714	0	0	921	0
Volume (vph)	72	30	79	19	1025	4	15	2415	41	44	12	10
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	201	0	21	1200	0	17	2865	0	0	73	0
Perm or Prot?	Perm			Pm+Pt			Pm+Pt			Perm		
Phase Number		8		5	2		1	6			4	
Maximum Split (s)		30		30	120		30	120			30	
Lost Time (s)		3.0		3.0	3.0		3.0	3.0			3.0	
g/c Ratio		0.15		0.65	0.65		0.65	0.65			0.15	
Lane Grp Cap (vph)		198		308	2421		339	2414			138	
V/C Ratio		1.01		0.07	0.50		0.05	1.19			0.53	
V/S Ratio Prot				0.01			0.01					
V/S Ratio Perm		0.15		0.03	0.32		0.03	0.77			0.08	
Critical LG?		Yes		Yes				Yes				
Uniform Delay, d1		58.1		11.1	12.4		8.4	23.9			53.6	
Platoon Factor		1.00		0.64	0.63		0.88	1.14			1.00	
Incr. Delay, d2		53.3		0.0	0.1		0.0	95.9			2.9	
Webster's St Delay		111.4		7.1	7.9		7.4	123.1			56.6	
LOS		F		B	B		B	F			E	

Cycle Length: 180
Control Type: Pretimed
Lost Time: 9
Sum of Critical V/S Ratios: 0.93
Intersection V/C Ratio: 0.98
Intersection Webster Stopped Delay: 88.9
Intersection LOS: F

Splits and Phases: Park St & US 183

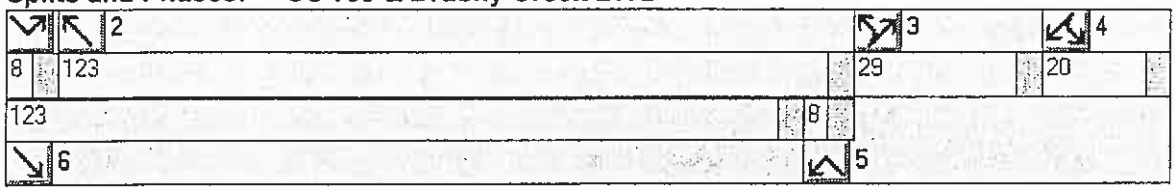
1	2	4
30	120	30
120	30	30
6	5	8

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3692	0	1770	1846	1583	1770	1770	0
Flt Perm.	0.093			0.036			0.950	0.991		0.950		
Satd. Flow (perm)	173	3725	1583	67	3692	0	1770	1846	1583	1770	1770	0
Volume (vph)	17	2248	138	35	898	60	294	208	185	122	31	15
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	19	2623	153	39	1118	0	287	299	206	136	51	0
Perm or Prot?	Pm+Pt		Pm+Ov	Pm+Pt			Prot		Pm+Ov	Prot		
Phase Number	1	6		5	2		3	3		4	4	
Maximum Split (s)	8	123		8	123		29	29		20	20	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.67	0.67	0.81	0.67	0.67		0.14	0.14	0.17	0.09	0.09	
Lane Grp Cap (vph)	160	2483	1284	92	2461		256	267	273	167	167	
V/C Ratio	0.12	1.06	0.12	0.42	0.45		1.12	1.12	0.76	0.81	0.31	
V/S Ratio Prot	0.00		0.02	0.01			0.16	0.16	0.02	0.08		
V/S Ratio Perm	0.08	0.70	0.08	0.27	0.30				0.11		0.03	
Critical LG?		Yes					Yes		Yes	Yes		
Uniform Delay, d1	7.7	22.8	1.5	18.2	10.9		58.5	58.5	53.4	60.7	57.7	
Platoon Factor	0.17	0.46	0.31	1.16	0.95		1.00	1.00	1.00	1.00	1.00	
Incr. Delay, d2	0.0	30.1	0.0	1.9	0.1		90.4	88.7	7.7	17.1	0.3	
Webster's St Delay	1.3	40.6	0.5	23.0	10.5		148.9	147.2	61.1	77.8	58.1	
LOS	A	E	A	C	B		F	F	F	F	E	

Cycle Length: 180
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.96
Intersection V/C Ratio: 1.03
Intersection Webster Stopped Delay: 47.1
Intersection LOS: E

Splits and Phases: US 183 & Brushy Creek Blvd

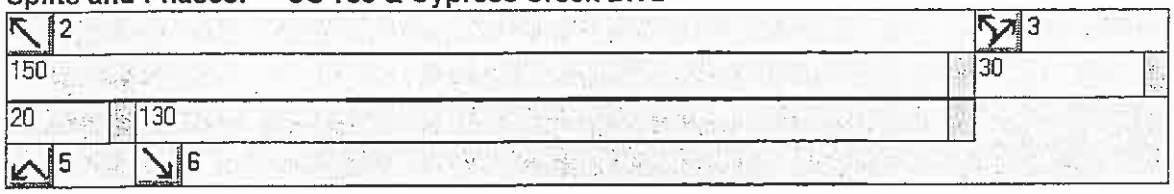


Queues

Lane Group	SET	SER	NWL	NWT	NEL	NET	NER
Lane Configurations							
Satd. Flow (prot)	3673	0	1770	3725	1770	0	1583
Flt Perm.			0.031		0.950		
Satd. Flow (perm)	3673	0	58	3725	1770	0	1583
Volume (vph)	2075	208	151	766	269	0	298
Confl. Peds. (#/hr)							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Lane Group Flow (vph)	2664	0	168	894	299	0	331
Perm or Prot?	Perm		Pm+Pt		Prot		Pm+Ov
Phase Number	6		5	2	3	3	
Maximum Split (s)	130		20	150	30	30	
Lost Time (s)	3.0		3.0	3.0	3.0	3.0	
g/c Ratio	0.71		0.82	0.82	0.15		0.24
Lane Grp Cap (vph)	2592		209	3042	266		387
V/C Ratio	1.03		0.80	0.29	1.13		0.86
V/S Ratio Prot			0.08		0.17		0.08
V/S Ratio Perm	0.73		0.59	0.24			0.13
Critical LG?	Yes				Yes		Yes
Uniform Delay, d1	20.1		40.6	3.0	58.1		47.7
Platoon Factor	0.37		1.00	1.00	1.00		1.00
Incr. Delay, d2	20.5		13.4	0.0	91.2		11.7
Webster's St Delay	28.0		54.0	3.0	149.3		59.5
LOS	D		E	A	F		E

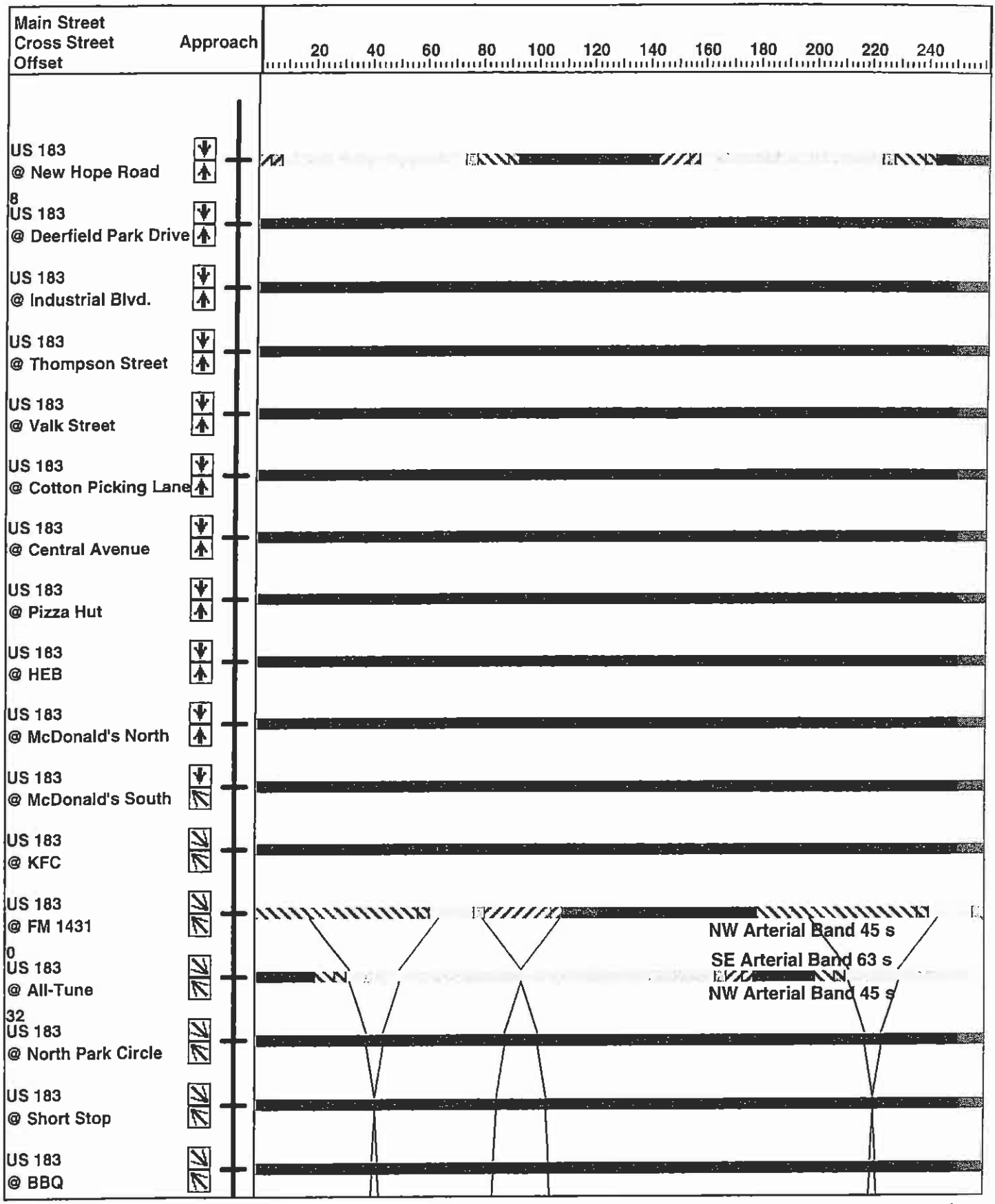
Cycle Length: 180
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.98
Intersection V/C Ratio: 1.03
Intersection Webster Stopped Delay: 34.6
Intersection LOS: D

Splits and Phases: US 183 & Cypress Creek Blvd



Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

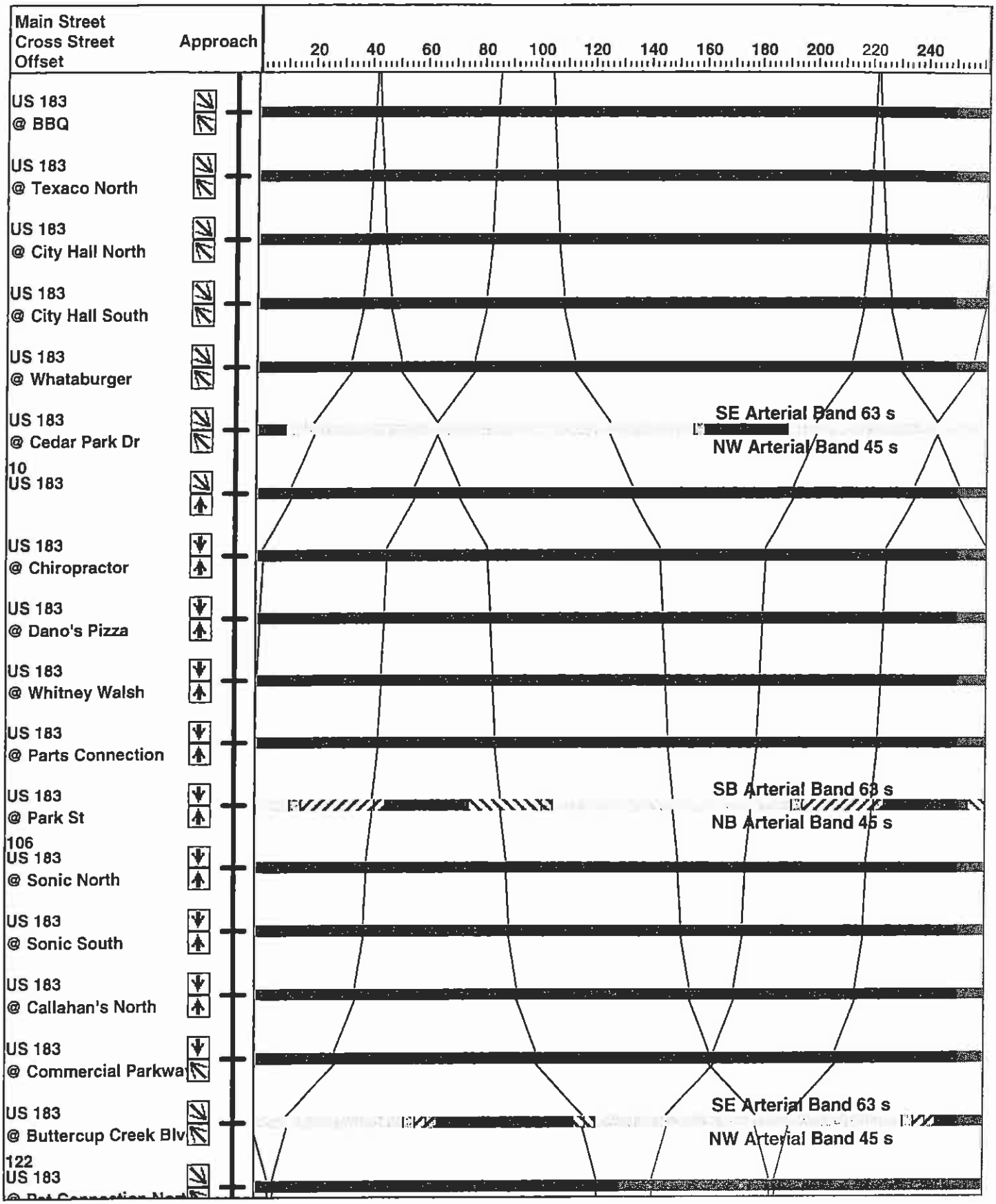


Baseline
Data Date: 10/6/1999 7:00 am
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMExisting.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

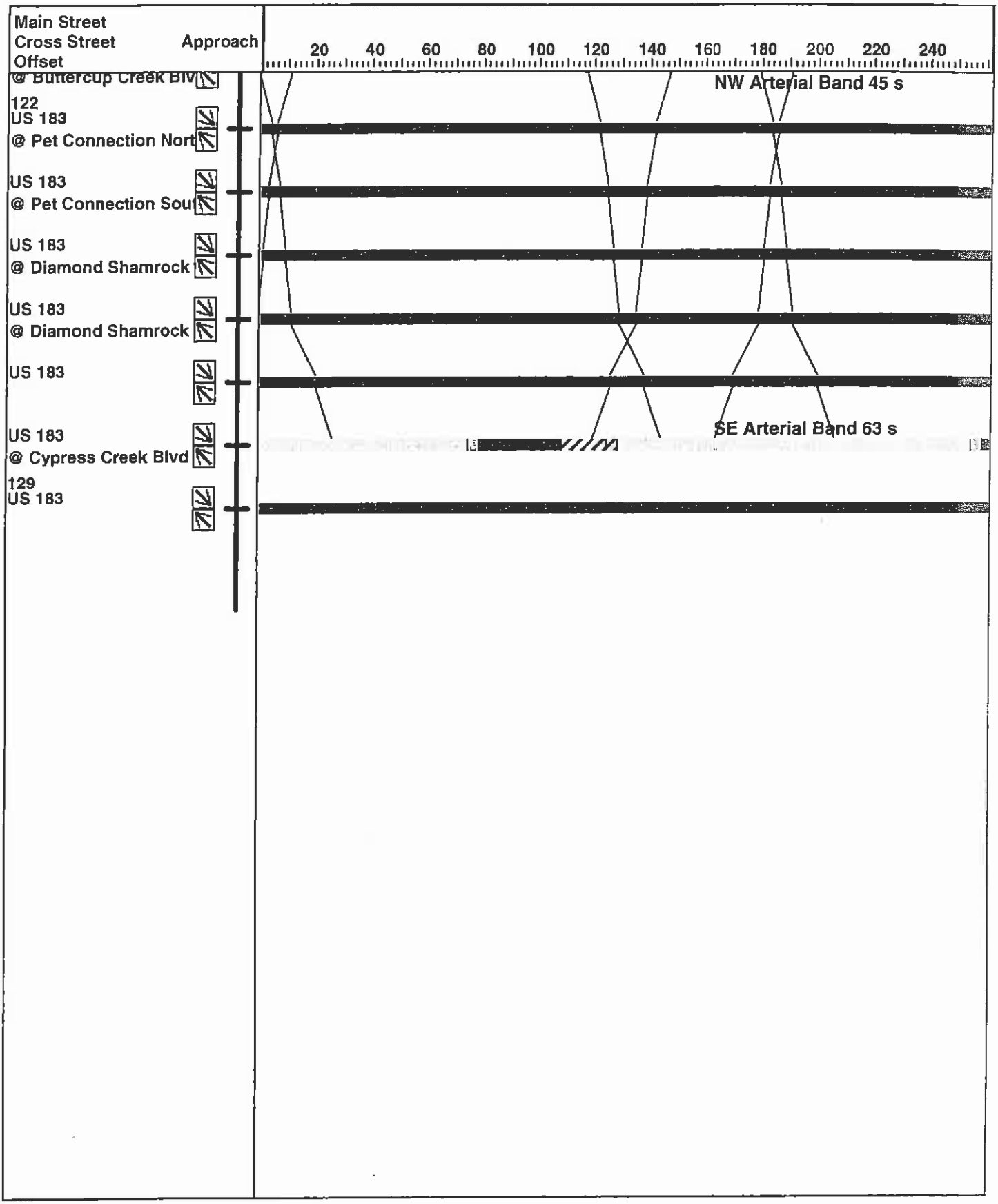


Baseline
Data Date: 10/6/1999 7:00 am
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMExisting.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999



Baseline
Data Date: 10/6/1999 7:00 am
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMExisting.sy5

AM Optimized Signal Timings

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1557	0	0	1609	0	1770	3666	0	1770	3711	0
Flt Perm.	0.950	0.832		0.950	0.362		0.067			0.124		
Satd. Flow (perm)	0	1310	0	0	603	0	125	3666	0	231	3711	0
Volume (vph)	50	82	92	173	60	11	77	643	78	112	1755	45
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	249	0	0	271	0	86	841	0	124	2101	0
Perm or Prot?	Perm			Pm+Pt			Pm+Pt			Pm+Pt		
Phase Number		3		4	8		5	2		1	6	
Maximum Split (s)		32		15	47		8	68		25	85	
Lost Time (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio		0.21			0.31		0.46	0.46		0.59	0.59	
Lane Grp Cap (vph)		271			276		117	1702		377	2174	
V/C Ratio		0.92			0.98		0.74	0.49		0.33	0.97	
V/S Ratio Prot					0.08		0.03			0.05		
V/S Ratio Perm		0.19			0.22		0.31	0.23		0.14	0.57	
Critical LG?		Yes			Yes		Yes				Yes	
Uniform Delay, d1		41.3			40.1		16.0	19.8		19.6	21.0	
Platoon Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incr. Delay, d2		23.9			37.1		14.0	0.2		0.2	9.3	
Webster's St Delay		65.2			77.2		30.0	20.0		19.8	30.3	
LOS		F			F		D	C		C	D	

Cycle Length: 140
Control Type: Actuated-Coordinated
Lost Time: 12
Sum of Critical V/S Ratios: 0.87
Intersection V/C Ratio: 0.95
Intersection Webster Stopped Delay: 33.4
Intersection LOS: D

Splits and Phases: New Hope Road & US 183

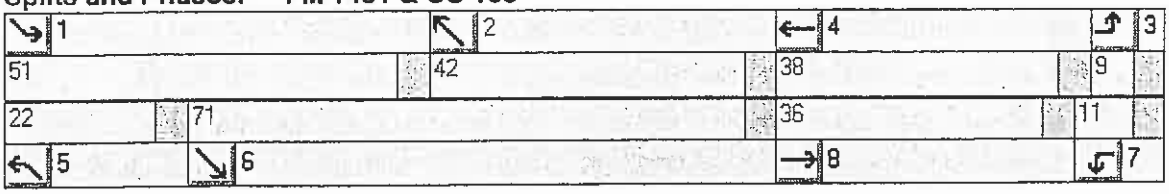
2	1	3	4
68	25	32	15
8 85		47	
5 6		8	

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	1770	3725	1583	3539	3725	1583
Flt Perm.	0.376			0.121			0.095			0.103		
Satd. Flow (perm)	700	3725	1583	225	3725	1583	177	3725	1583	384	3725	1583
Volume (vph)	73	701	526	135	268	182	577	1480	39	279	885	211
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	81	818	584	150	313	202	641	1726	43	319	1032	234
Perm or Prot?	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov
Phase Number	3	8		7	4		1	6		5	2	
Maximum Split (s)	9	36		11	38		51	71		22	42	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.28	0.24	0.37	0.31	0.25	0.59	0.64	0.49	0.53	0.41	0.28	0.34
Lane Grp Cap (vph)	241	878	588	159	931	938	660	1809	837	587	1038	531
V/C Ratio	0.34	0.93	0.99	0.94	0.34	0.22	0.97	0.95	0.05	0.54	0.99	0.44
V/S Ratio Prot	0.01		0.13	0.05		0.07	0.33		0.00	0.07		0.03
V/S Ratio Perm	0.08	0.22	0.23	0.24	0.08	0.05	0.29	0.46	0.03	0.15	0.28	0.12
Critical LG?				Yes			Yes					
Uniform Delay, d1	28.3	39.8	26.5	43.6	32.7	6.7	28.5	26.2	6.4	23.5	38.3	14.1
Platoon Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.50	0.92	0.80
Incr. Delay, d2	0.3	11.8	26.9	39.5	0.1	0.0	20.8	8.9	0.0	0.8	20.3	0.4
Webster's St Delay	28.7	51.6	53.4	83.1	32.7	6.8	49.2	35.1	6.4	36.0	55.6	11.7
LOS	D	E	E	F	D	B	E	D	B	D	E	B

Cycle Length: 140
Control Type: Pretimed
Lost Time: 6
Sum of Critical V/S Ratios: 0.92
Intersection V/C Ratio: 0.97
Intersection Webster Stopped Delay: 43.0
Intersection LOS: E

Splits and Phases: FM 1431 & US 183



Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	0	1770	3692	0	0	1425	0	1770	1770	1583
Flt Perm.	0.091			0.950			0.950			0.949	0.949	
Satd. Flow (perm)	170	3725	0	1770	3692	0	0	1425	0	1768	1768	1583
Volume (vph)	35	2037	0	0	1229	81	0	0	1	95	0	19
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	39	2376	0	0	1529	0	0	1	0	56	55	21
Perm or Prot?	Pm+Pt			Pm+Pt			Perm			Perm		Pm+Ov
Phase Number	1	6		5	2			8			4	
Maximum Split (s)	10	110		9	109			21			21	
Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
g/c Ratio	0.76	0.76			0.76			0.13		0.13	0.13	0.18
Lane Grp Cap (vph)	210	2847			2795			183		227	227	283
V/C Ratio	0.19	0.83			0.55			0.01		0.25	0.24	0.07
V/S Ratio Prot	0.01											0.00
V/S Ratio Perm	0.14	0.64			0.41			0.00		0.03	0.03	0.01
Critical LG?		Yes								Yes		
Uniform Delay, d1	3.0	8.2			5.4			40.3		41.7	41.7	34.5
Platoon Factor	0.19	0.11			0.60			1.00		1.00	1.00	1.13
Incr. Delay, d2	0.1	1.6			0.2			0.0		0.1	0.1	0.0
Webster's St Delay	0.6	2.5			3.4			40.3		41.8	41.8	39.2
LOS	A	A			A			E		E	E	D

Cycle Length: 140
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 0.67
Intersection V/C Ratio: 0.70
Intersection Webster Stopped Delay: 4.1
Intersection LOS: A

Splits and Phases: US 183 & Discovery Blvd.

1	2					4	
10	109					21	
110				9		21	
6				5		8	

Queues

Lane Group	EBL	EBT	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1458	0	1770	3718	0	1770	3725	0	0	1485	0
Flt Perm.	0.950	0.988		0.950			0.019			0.950	0.907	
Satd. Flow (perm)	0	1454	0	1770	3718	0	35	3725	0	0	1369	0
Volume (vph)	49	0	210	0	2165	32	43	1216	1	1	0	2
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	287	0	0	2564	0	48	1420	0	0	3	0
Perm or Prot?	Perm			Perm			Pm+Pt			Perm		
Phase Number		8			6		5	2			4	
Maximum Split (s)		65			206		9	215			65	
Lost Time (s)		3.0			3.0		3.0	3.0			3.0	
g/c Ratio		0.22			0.73		0.76	0.76			0.22	
Lane Grp Cap (vph)		322			2696		64	2820			303	
V/C Ratio		0.89			0.95		0.75	0.50			0.01	
V/S Ratio Prot							0.02					
V/S Ratio Perm		0.20			0.69		0.54	0.38			0.00	
Critical LG?		Yes			Yes		Yes					
Uniform Delay, d1		80.4			25.9		32.7	10.1			64.6	
Platoon Factor		1.00			1.00		1.13	0.80			1.00	
Incr. Delay, d2		17.6			6.4		24.9	0.1			0.0	
Webster's St Delay		98.0			32.3		61.9	8.2			64.6	
LOS		F			D		F	B			F	

Cycle Length: 280
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.90
Intersection V/C Ratio: 0.93
Intersection Webster Stopped Delay: 29.1
Intersection LOS: D

Splits and Phases: Cedar Park Dr & US 183

2	4
215	65
9 206	65
6	8

Queues

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1535	0	1770	3725	0	1770	3714	0	0	1587	0
Flt Perm.	0.950	0.849		0.041			0.101			0.950	0.575	
Satd. Flow (perm)	0	1330	0	76	3725	0	188	3714	0	0	943	0
Volume (vph)	72	30	79	19	1025	4	15	2415	41	44	12	10
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	201	0	21	1200	0	17	2865	0	0	73	0
Perm or Prot?	Perm			Pm+Pt			Pm+Pt			Perm		
Phase Number		8		5	2		1	6			4	
Maximum Split (s)		24		8	108		8	108			24	
Lost Time (s)		3.0		3.0	3.0		3.0	3.0			3.0	
g/c Ratio		0.15		0.75	0.75		0.75	0.75			0.15	
Lane Grp Cap (vph)		200		118	2794		198	2786			141	
V/C Ratio		1.01		0.18	0.43		0.09	1.03			0.52	
V/S Ratio Prot				0.01			0.00					
V/S Ratio Perm		0.15		0.13	0.32		0.06	0.77			0.08	
Critical LG?		Yes		Yes				Yes				
Uniform Delay, d1		45.2		4.6	4.9		3.4	13.3			41.6	
Platoon Factor		1.00		0.68	0.65		0.87	0.99			1.00	
Incr. Delay, d2		51.3		0.1	0.1		0.0	20.2			2.6	
Webster's St Delay		96.4		3.2	3.2		2.9	33.4			44.3	
LOS		F		A	A		A	D			E	

Cycle Length: 140
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.93
Intersection V/C Ratio: 0.99
Intersection Webster Stopped Delay: 28.0
Intersection LOS: D

Splits and Phases: Park St & US 183

1	2					4	
8	108					24	
108				8		24	
6				5		8	

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	1770	1842	1583	1770	1771	0
Flt Perm.	0.096			0.047			0.810	0.938		0.294		
Satd. Flow (perm)	179	3725	1583	88	3725	1583	1509	1747	1583	548	1771	0
Volume (vph)	17	2248	138	35	898	60	294	208	185	122	31	15
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	19	2623	153	39	1048	67	257	297	195	128	49	0
Perm or Prot?	Pm+Pt		Perm	Pm+Pt		Perm	Perm		Pm+Ov	Perm		
Phase Number	1	6		5	2			3			8	
Maximum Split (s)	8	97		8	97			35			35	
Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
g/c Ratio	0.67	0.67	0.67	0.67	0.67	0.67	0.23	0.23	0.26	0.23	0.23	
Lane Grp Cap (vph)	177	2501	1063	119	2501	1063	345	399	418	125	405	
V/C Ratio	0.11	1.05	0.14	0.33	0.42	0.06	0.75	0.74	0.47	1.02	0.12	
V/S Ratio Prot	0.00			0.01					0.02			
V/S Ratio Perm	0.07	0.70	0.10	0.20	0.28	0.04	0.17	0.17	0.11	0.23	0.03	
Critical LG?		Yes							Yes	Yes		
Uniform Delay, d1	5.8	17.5	6.4	10.3	8.0	6.0	38.1	38.1	32.2	41.0	32.5	
Platoon Factor	1.27	0.80	1.19	0.68	0.69	0.75	1.00	1.00	1.00	1.00	1.00	
Incr. Delay, d2	0.0	27.4	0.0	0.6	0.1	0.0	5.8	5.0	0.6	69.3	0.0	
Webster's St Delay	7.4	41.5	7.5	7.6	5.6	4.5	44.0	43.2	32.8	110.4	32.5	
LOS	B	E	B	B	B	A	E	E	D	F	D	

Cycle Length: 140
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.95
Intersection V/C Ratio: 1.02
Intersection Webster Stopped Delay: 33.4
Intersection LOS: D

Splits and Phases: US 183 & Brushy Creek Blvd

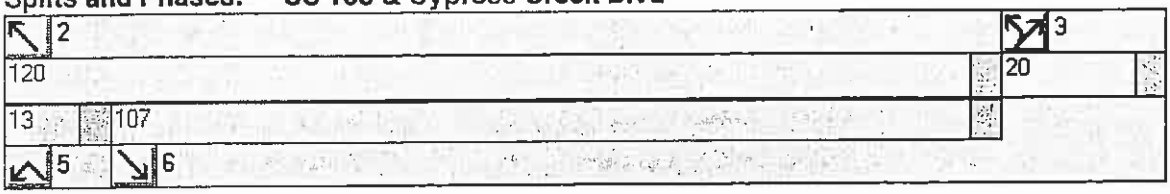
1	2					3	
8	97					35	
97				8		35	
6					5	8	

Queues

Lane Group	SET	SER	NWL	NWT	NEL	NET	NER
Lane Configurations							
Satd. Flow (prot)	3673	0	1770	3725	3539	0	1583
Flt Perm.			0.037		0.950		
Satd. Flow (perm)	3673	0	69	3725	3539	0	1583
Volume (vph)	2075	208	151	766	269	0	298
Confl. Peds. (#/hr)							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Lane Group Flow (vph)	2664	0	168	894	308	0	331
Perm or Prot?	Perm		Pm+Pt		Prot		Pm+Ov
Phase Number	6		5	2	3	3	
Maximum Split (s)	107		13	120	20	20	
Lost Time (s)	3.0		3.0	3.0	3.0	3.0	
g/c Ratio	0.74		0.84	0.84	0.12		0.19
Lane Grp Cap (vph)	2729		179	3113	430		305
V/C Ratio	0.98		0.94	0.29	0.72		1.08
V/S Ratio Prot			0.07		0.09		0.08
V/S Ratio Perm	0.73		0.71	0.24			0.13
Critical LG?	Yes						Yes
Uniform Delay, d1	12.8		29.7	1.9	45.0		41.5
Platoon Factor	1.82		1.00	1.00	1.00		1.00
Incr. Delay, d2	9.2		35.5	0.0	3.9		68.5
Webster's St Delay	32.5		65.3	1.9	48.9		110.0
LOS	D		F	A	E		F

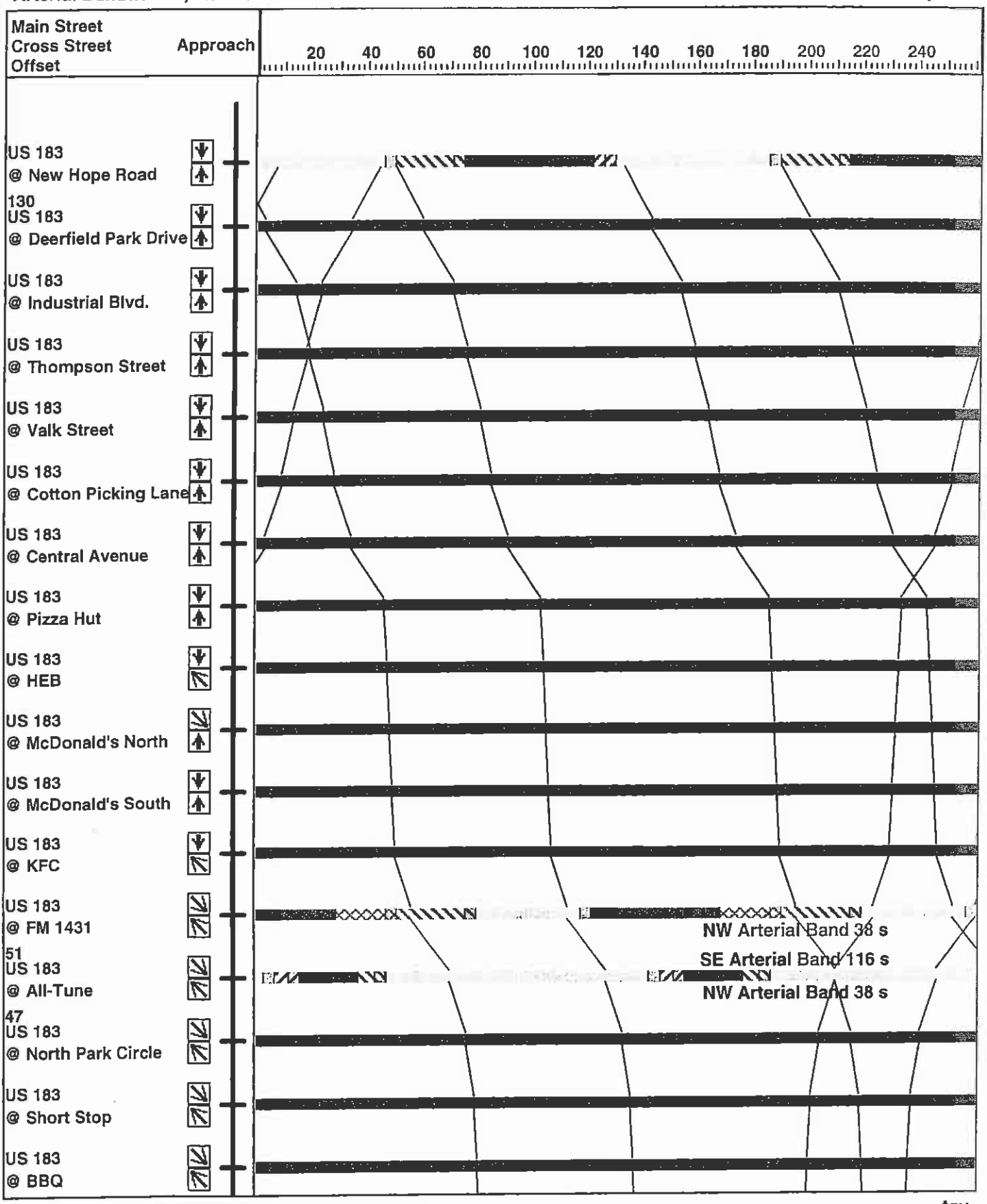
Cycle Length: 140
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.93
Intersection V/C Ratio: 1.00
Intersection Webster Stopped Delay: 34.5
Intersection LOS: D

Splits and Phases: US 183 & Cypress Creek Blvd



Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

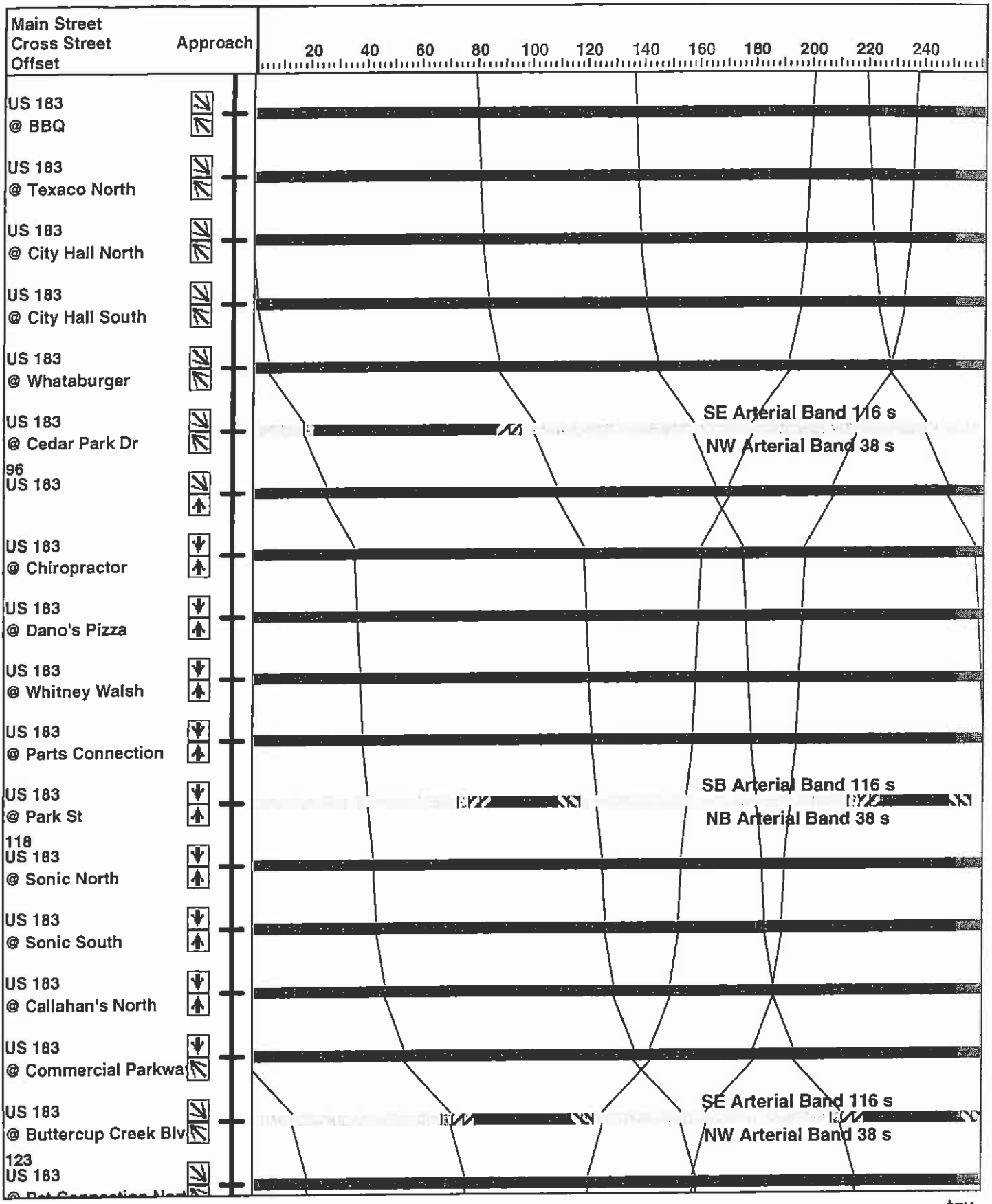


AM Optimized
Data Date: 10/6/1999 7:00 am
Timing Plan: Optimized

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMOptimized.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

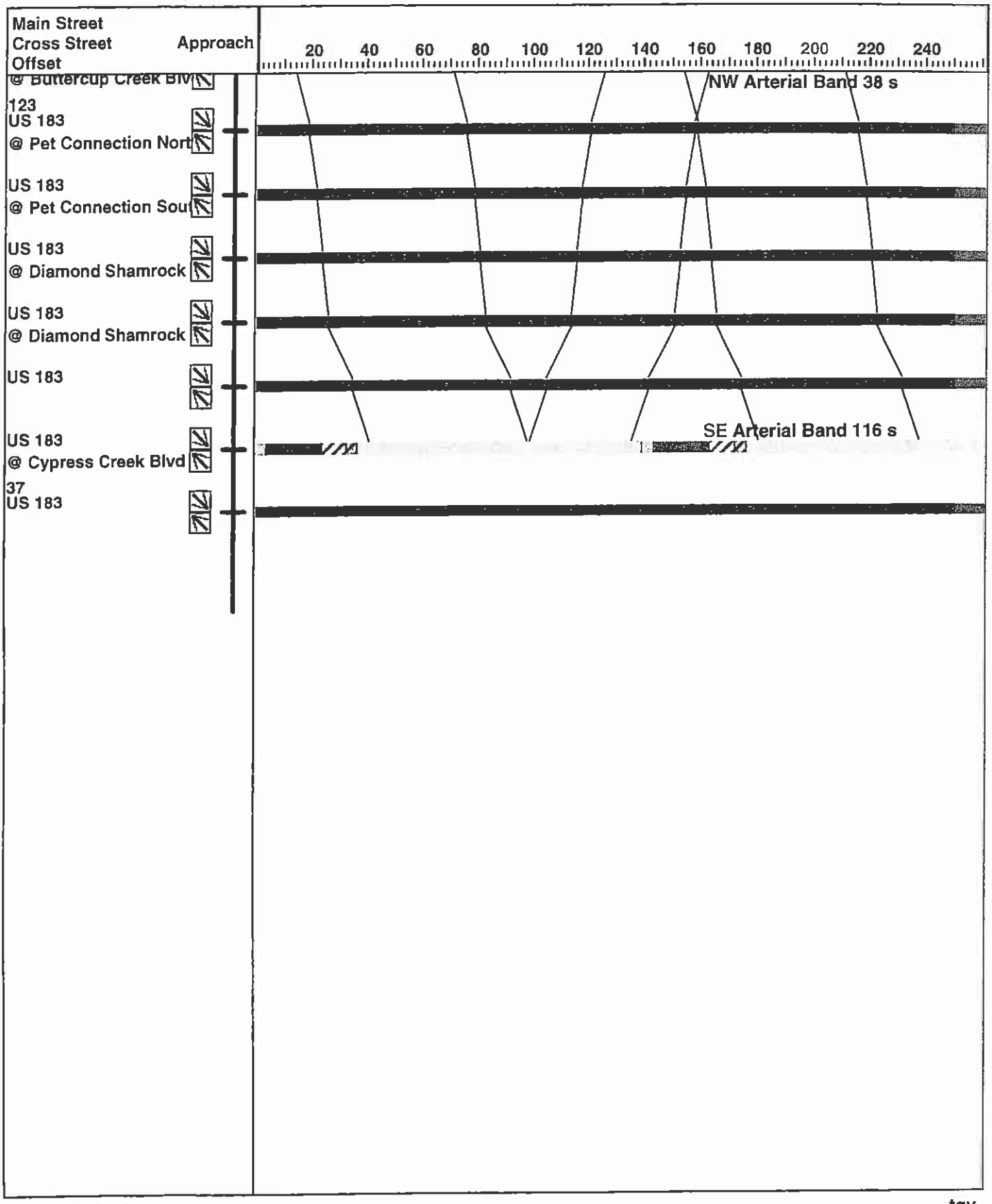


AM Optimized
Data Date: 10/6/1999 7:00 am
Timing Plan: Optimized

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMOptimized.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999



AM Optimized
Data Date: 10/6/1999 7:00 am
Timing Plan: Optimized

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\AMOptimized.sy5

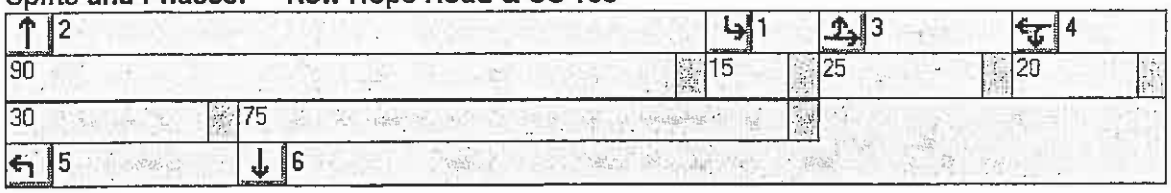
PM Existing Timings

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1539	0	0	1597	0	1770	3673	0	1770	3685	0
Flt Perm.	0.950	0.986		0.950	0.979		0.067			0.070		
Satd. Flow (perm)	0	1539	0	0	1597	0	125	3673	0	130	3685	0
Volume (vph)	47	46	78	87	77	36	197	1688	174	34	1039	84
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	190	0	0	223	0	219	2173	0	38	1310	0
Perm or Prot?	Prot			Prot			Pm+Pt			Pm+Pt		
Phase Number	3	3		4	4		5	2		1	6	
Maximum Split (s)	25	25		20	20		30	90		15	75	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio		0.15			0.11		0.58	0.58		0.48	0.48	
Lane Grp Cap (vph)		226			181		369	2130		194	1769	
V/C Ratio		0.84			1.23		0.59	1.02		0.20	0.74	
V/S Ratio Prot		0.12			0.14		0.11			0.02		
V/S Ratio Perm							0.24	0.59		0.08	0.36	
Critical LG?		Yes			Yes			Yes		Yes		
Uniform Delay, d1		47.3			Error		25.0	23.9		21.8	23.9	
Platoon Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incr. Delay, d2		16.3			Error		1.9	19.8		0.1	1.2	
Webster's St Delay		63.6			Error		26.9	43.7		21.8	25.1	
LOS		F			F		D	E		C	D	

Cycle Length: 150
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.87
Intersection V/C Ratio: 0.95
Intersection Webster Stopped Delay: Error
Intersection LOS: F

Splits and Phases: New Hope Road & US 183



Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	1770	3725	1583	3539	3725	1583
Flt Perm.	0.500			0.500			0.148			0.167		
Satd. Flow (perm)	931	3725	1583	931	3725	1583	276	3725	1583	622	3725	1583
Volume (vph)	118	300	459	167	647	522	216	925	61	674	1627	154
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	131	350	510	186	755	580	240	1079	68	771	1898	171
Perm or Prot?	Pm+Pt		Prot	Pm+Pt		Prot	Pm+Pt		Prot	Pm+Pt		Pm+Ov
Phase Number	3	8		7	4		1	6		5	2	
Maximum Split (s)	21	21		33	33		23	50		76	103	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.10	0.10	0.10	0.17	0.17	0.17	0.26	0.26	0.26	0.56	0.56	0.72
Lane Grp Cap (vph)	177	372	158	295	621	264	238	973	413	1529	2069	1143
V/C Ratio	0.74	0.94	3.22	0.63	1.22	2.20	1.01	1.11	0.16	0.50	0.92	0.15
V/S Ratio Prot	0.07		0.32	0.11		0.37	0.11		0.04	0.20		0.02
V/S Ratio Perm	0.00	0.09		0.00	0.20		0.15	0.29		0.08	0.51	0.08
Critical LG?	Yes					Yes	Yes				Yes	
Uniform Delay, d1	59.8	61.1	Error	53.1	Error	Error	43.4	50.5	39.0	27.2	27.5	3.0
Platoon Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.73	0.78
Incr. Delay, d2	10.1	22.8	Error	3.0	Error	Error	47.2	60.3	0.0	0.2	5.1	0.0
Webster's St Delay	69.9	84.0	Error	56.1	Error	Error	90.6	110.8	39.0	22.0	25.1	2.3
LOS	F	F	F	E	F	F	F	F	D	C	D	A

Cycle Length: 180
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 1.06
Intersection V/C Ratio: 1.14
Intersection Webster Stopped Delay: Error
Intersection LOS: F

Splits and Phases: FM 1431 & US 183

1	2	3	4
23	103	21	33
50	76	21	33
6	5	8	7

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	0	1770	3688	0	1770	1583	0	1770	1583	0
Flt Perm.	0.036			0.950			0.950			0.949		
Satd. Flow (perm)	67	3725	0	1770	3688	0	1770	1583	0	1768	1583	0
Volume (vph)	54	1459	0	0	2173	152	0	0	1	322	0	201
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	60	1702	0	0	2712	0	0	1	0	358	223	0
Perm or Prot?	Pm+Pt			Pm+Pt			Perm			Perm		
Phase Number	1	6		5	2			8			4	
Maximum Split (s)	25	115		25	115			40			40	
Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
g/c Ratio	0.76	0.62			0.62			0.21		0.21	0.21	
Lane Grp Cap (vph)	259	2318			2295			325		363	325	
V/C Ratio	0.23	0.73			1.18			0.00		0.99	0.69	
V/S Ratio Prot	0.03											
V/S Ratio Perm	0.15	0.46			0.74			0.00		0.20	0.14	
Critical LG?	Yes				Yes					Yes		
Uniform Delay, d1	4.2	18.0			25.8			43.3		54.1	50.2	
Platoon Factor	4.38	1.85			1.00			1.00		1.00	1.00	
Incr. Delay, d2	0.1	0.9			93.0			0.0		32.5	4.0	
Webster's St Delay	18.5	34.2			118.9			43.3		86.7	54.3	
LOS	C	D			F			E		F	E	

Cycle Length: 180
Control Type: Pretimed
Lost Time: 9
Sum of Critical V/S Ratios: 0.97
Intersection V/C Ratio: 1.02
Intersection Webster Stopped Delay: 84.0
Intersection LOS: F

Splits and Phases: US 183 & Discovery Blvd.

1	2	4
25	115	40
25	115	40
5	6	8

Queues

Lane Group	EBL	EBT	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1479	0	1770	3725	1583	1770	3725	1583	0	1450	0
Flt Perm.	0.950	0.979		0.048			0.080			0.950	0.978	
Satd. Flow (perm)	0	1470	0	89	3725	1583	149	3725	1583	0	1428	0
Volume (vph)	34	0	78	1	1399	55	103	2160	6	1	0	5
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	125	0	1	1632	61	114	2520	7	0	7	0
Perm or Prot?	Perm			Perm		Perm	Perm		Perm	Perm		
Phase Number		8			6			2			4	
Maximum Split (s)		30			150			150			30	
Lost Time (s)		3.0			3.0			3.0			3.0	
g/c Ratio		0.15		0.82	0.82	0.82	0.82	0.82	0.82		0.15	
Lane Grp Cap (vph)		220		73	3042	1293	122	3042	1293		214	
V/C Ratio		0.57		0.01	0.54	0.05	0.94	0.83	0.01		0.03	
V/S Ratio Prot												
V/S Ratio Perm		0.09		0.01	0.44	0.04	0.77	0.68	0.00		0.00	
Critical LG?		Yes					Yes					
Uniform Delay, d1		54.0		2.3	4.1	2.4	9.8	7.1	2.3		49.6	
Platoon Factor		1.00		0.67	0.68	0.68	1.33	1.07	0.95		1.00	
Incr. Delay, d2		2.5		0.0	0.2	0.0	44.6	1.5	0.0		0.0	
Webster's St Delay		56.5		1.5	2.9	1.6	57.6	9.1	2.2		49.6	
LOS		E		A	A	A	E	B	A		E	

Cycle Length: 180
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 0.85
Intersection V/C Ratio: 0.88
Intersection Webster Stopped Delay: 9.3
Intersection LOS: B

Splits and Phases: Cedar Park Dr & US 183

2	4
150	30
150	30
6	8

Queues

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1517	0	1770	3722	0	1770	3725	1583	0	1566	0
Flt Perm.	0.950	0.713		0.075			0.029			0.950	0.812	
Satd. Flow (perm)	0	1109	0	140	3722	0	54	3725	1583	0	1293	0
Volume (vph)	71	1	67	62	2167	20	52	1363	104	38	33	35
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	154	0	69	2551	0	58	1590	116	0	118	0
Perm or Prot?	Perm			Perm			Perm		Perm	Perm		
Phase Number		8			2			6			4	
Maximum Split (s)		39			141			141			39	
Lost Time (s)		3.0			3.0			3.0			3.0	
g/c Ratio		0.20		0.77	0.77		0.77	0.77	0.77		0.20	
Lane Grp Cap (vph)		222		107	2854		41	2856	1214		259	
V/C Ratio		0.69		0.64	0.89		1.40	0.56	0.10		0.46	
V/S Ratio Prot												
V/S Ratio Perm		0.14		0.49	0.69		1.07	0.43	0.07		0.09	
Critical LG?		Yes					Yes					
Uniform Delay, d1		50.8		7.3	11.8		Error	6.5	4.0		48.2	
Platoon Factor		1.00		0.84	0.63		1.13	0.70	0.73		1.00	
Incr. Delay, d2		6.1		8.3	3.0		Error	0.2	0.0		0.9	
Webster's St Delay		56.9		14.4	10.4		Error	4.7	2.9		49.1	
LOS		E		B	B		F	A	A		E	

Cycle Length: 180
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 1.21
Intersection V/C Ratio: 1.25
Intersection Webster Stopped Delay: Error
Intersection LOS: F

Splits and Phases: Park St & US 183

2	4
141	39
141	39
6	8

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3711	0	1770	1807	1583	1770	1825	0
Flt Perm.	0.038			0.070			0.950	0.970		0.950		
Satd. Flow (perm)	71	3725	1583	130	3711	0	1770	1807	1583	1770	1825	0
Volume (vph)	33	1273	242	82	1923	58	205	48	43	120	135	21
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	37	1485	269	91	2311	0	146	149	48	133	173	0
Perm or Prot?	Pm+Pt		Prot	Pm+Pt			Prot		Prot	Prot		
Phase Number	1	6		5	2		3	3		4	4	
Maximum Split (s)	8	117		16	125		22	22		25	25	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.63	0.63	0.63	0.68	0.68		0.11	0.11	0.11	0.12	0.12	
Lane Grp Cap (vph)	92	2359	1003	207	2515		187	191	167	216	223	
V/C Ratio	0.40	0.63	0.27	0.44	0.92		0.78	0.78	0.29	0.61	0.78	
V/S Ratio Prot	0.01		0.17	0.03			0.08	0.08	0.03	0.08		
V/S Ratio Perm	0.24	0.40		0.27	0.62						0.09	
Critical LG?	Yes				Yes		Yes				Yes	
Uniform Delay, d1	19.2	15.3	11.1	7.5	18.8		59.6	59.6	56.4	57.0	58.2	
Platoon Factor	0.81	0.77	0.70	1.46	0.37		1.00	1.00	1.00	1.00	1.00	
Incr. Delay, d2	1.6	0.4	0.0	1.0	4.4		12.7	12.5	0.3	3.6	10.5	
Webster's St Delay	17.1	12.2	7.7	11.9	11.5		72.3	72.1	56.7	60.6	68.7	
LOS	C	B	B	B	B		F	F	E	F	F	

Cycle Length: 180
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.81
Intersection V/C Ratio: 0.87
Intersection Webster Stopped Delay: 19.1
Intersection LOS: C

Splits and Phases: US 183 & Brushy Creek Blvd

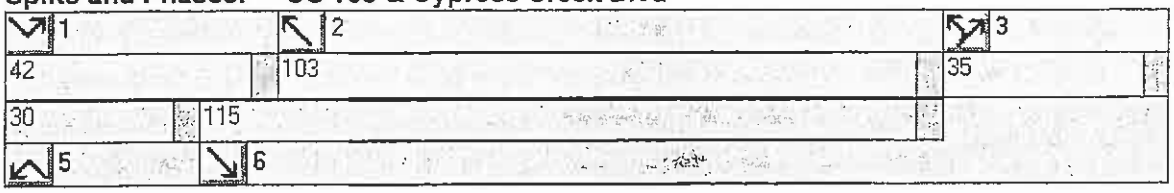
2				3	4	
125			8	22	25	
16	117					
5	6					

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3644	0	1814	3819	0	1814	0	1623	0	0	0
Flt Perm.	0.950			0.040			0.950			0.950		
Satd. Flow (perm)	1770	3644	0	76	3819	0	1814	0	1623	0	0	0
Volume (vph)	0	1580	266	189	2339	0	371	0	175	0	0	0
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	2155	0	210	2729	0	412	0	194	0	0	0
Perm or Prot?	Pm+Pt			Pm+Pt			Prot		Prot	Prot		
Phase Number	1	6		5	2		3	3				
Maximum Split (s)	42	115		30	103		35	35				
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0				
g/c Ratio		0.62		0.71	0.56		0.18		0.18			
Lane Grp Cap (vph)		2267		314	2122		322		289			
V/C Ratio		0.95		0.67	1.29		1.28		0.67			
V/S Ratio Prot				0.10			0.23		0.12			
V/S Ratio Perm		0.59		0.37	0.71							
Critical LG?					Yes		Yes					
Uniform Delay, d1		23.9		39.7	Error		Error		52.5			
Platoon Factor		0.88		1.00	1.00		1.00		1.00			
Incr. Delay, d2		7.2		3.7	Error		Error		4.1			
Webster's St Delay		28.2		43.4	Error		Error		56.6			
LOS		D		E	F		F		E			

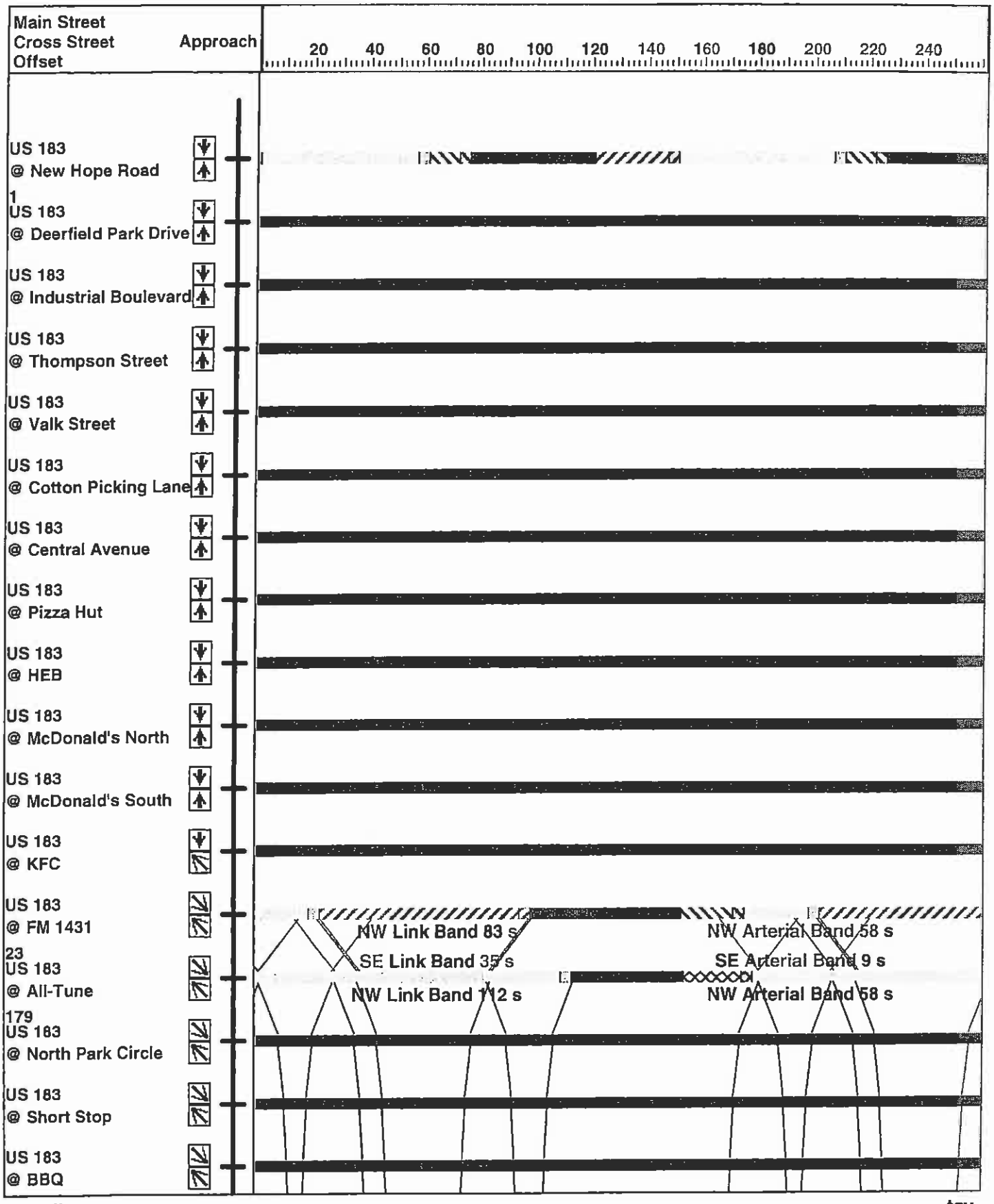
Cycle Length: 180
Control Type: Pretimed
Lost Time: 6
Sum of Critical V/S Ratios: 0.94
Intersection V/C Ratio: 0.97
Intersection Webster Stopped Delay: Error
Intersection LOS: F

Splits and Phases: US 183 & Cypress Creek Blvd



Time-Space Diagram - US 183
Arterial and Link-Link Bandwidths, Maximum Green Times

December 6, 1999

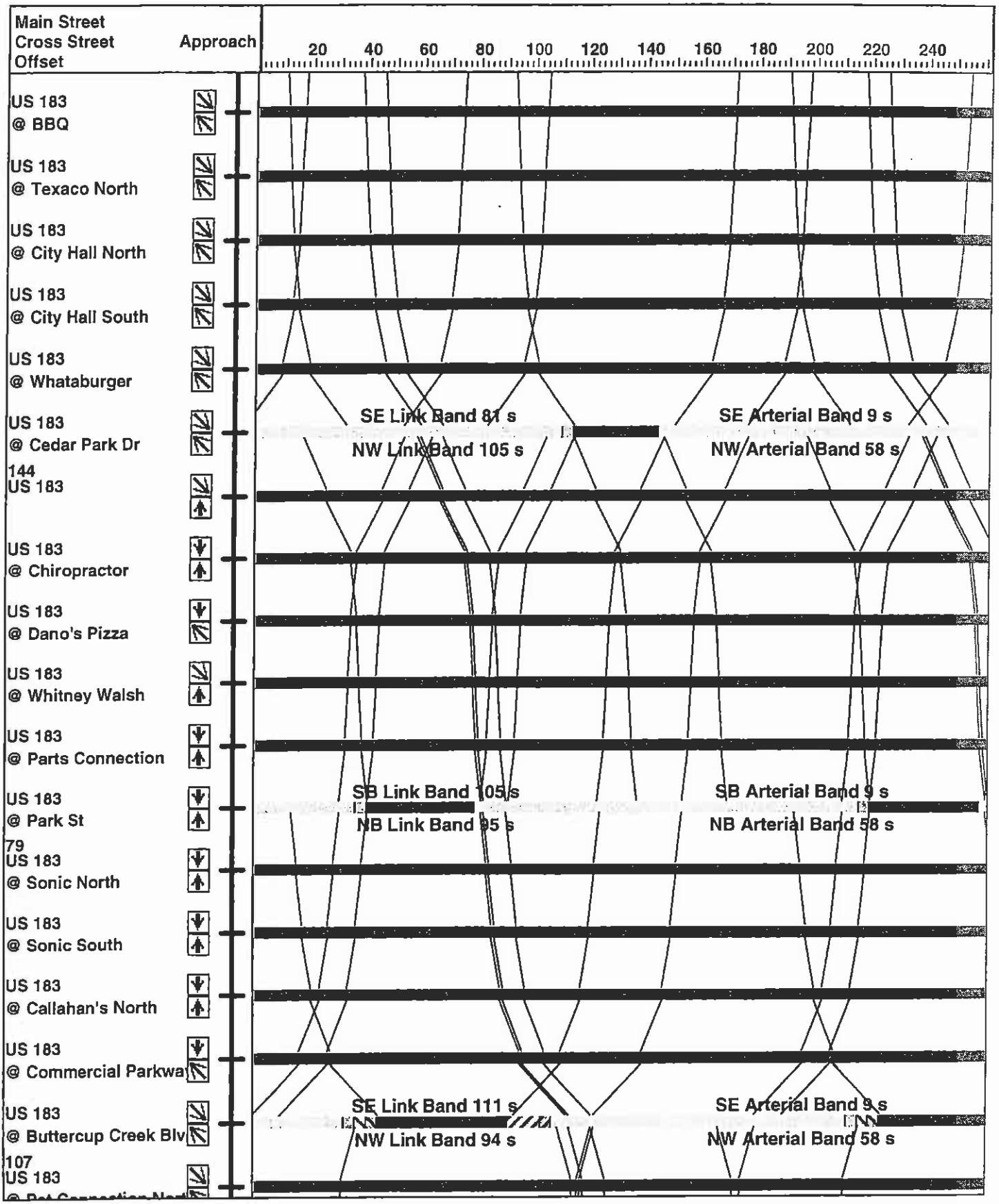


Baseline
Data Date: 10/6/1999 5:00 pm
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMExisting.sy5

Time-Space Diagram - US 183
Arterial and Link-Link Bandwidths, Maximum Green Times

December 6, 1999

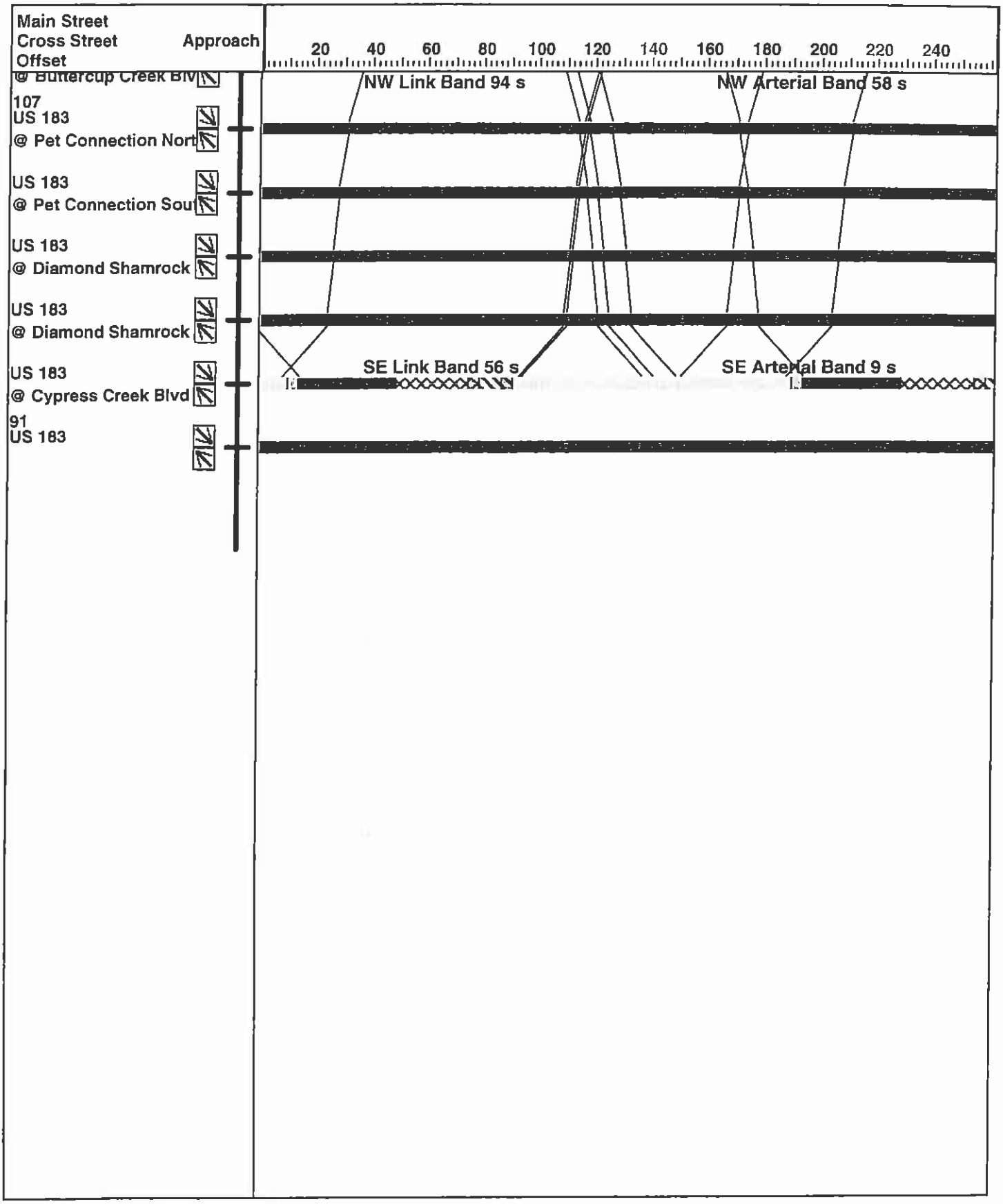


Baseline
Data Date: 10/6/1999 5:00 pm
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMExisting.sy5

Time-Space Diagram - US 183
Arterial and Link-Link Bandwidths, Maximum Green Times

December 6, 1999



Baseline
Data Date: 10/6/1999 5:00 pm
Timing Plan: Existing

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMExisting.sy5

PM Optimized Signal Timings

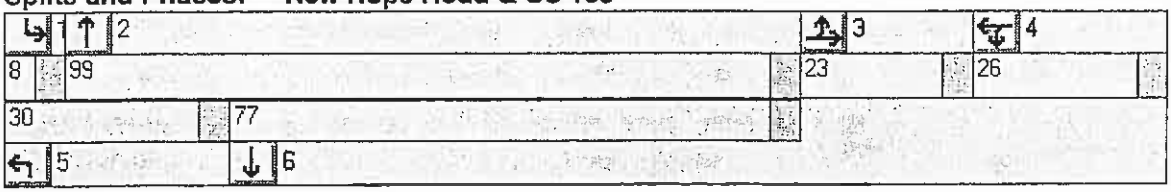
PM Optimized Signal Timings

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1539	0	0	1597	0	1770	3673	0	1770	3685	0
Flt Perm.	0.950	0.986		0.950	0.979		0.052			0.054		
Satd. Flow (perm)	0	1539	0	0	1597	0	97	3673	0	101	3685	0
Volume (vph)	47	46	78	87	77	36	197	1688	174	34	1039	84
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	190	0	0	223	0	219	2173	0	38	1310	0
Perm or Prot?	Prot			Prot			Pm+Pt			Pm+Pt		
Phase Number	3	3		4	4		5	2		1	6	
Maximum Split (s)	23	23		26	26		30	99		8	77	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio		0.13			0.15		0.67	0.62		0.51	0.47	
Lane Grp Cap (vph)		197			235		354	2260		105	1748	
V/C Ratio		0.96			0.95		0.62	0.96		0.36	0.75	
V/S Ratio Prot		0.12			0.14		0.11			0.01		
V/S Ratio Perm							0.31	0.59		0.17	0.36	
Critical LG?		Yes			Yes			Yes		Yes		
Uniform Delay, d1		51.4			50.1		28.6	21.5		9.2	25.4	
Platoon Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incr. Delay, d2		39.3			32.0		2.3	8.4		1.0	1.3	
Webster's St Delay		90.7			82.1		30.9	29.9		10.1	26.7	
LOS		F			F		D	D		B	D	

Cycle Length: 156
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.87
Intersection V/C Ratio: 0.94
Intersection Webster Stopped Delay: 34.3
Intersection LOS: D

Splits and Phases: New Hope Road & US 183



Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	1770	3725	1583	3539	3725	1583
Flt Perm.	0.125			0.278			0.100			0.108		
Satd. Flow (perm)	233	3725	1583	518	3725	1583	186	3725	1583	402	3725	1583
Volume (vph)	118	300	459	167	647	522	216	925	61	674	1627	154
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	131	350	510	186	755	580	240	1079	68	771	1898	171
Perm or Prot?	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov	Pm+Pt		Pm+Ov
Phase Number	3	8		7	4		1	6		5	2	
Maximum Split (s)	11	35		18	42		20	60		43	83	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.26	0.21	0.46	0.32	0.25	0.36	0.37	0.37	0.42	0.51	0.51	0.61
Lane Grp Cap (vph)	139	764	731	286	931	568	241	1361	660	1011	1910	964
V/C Ratio	0.95	0.46	0.70	0.65	0.81	1.02	1.00	0.79	0.10	0.76	0.99	0.18
V/S Ratio Prot	0.05		0.18	0.06		0.11	0.11		0.01	0.20		0.02
V/S Ratio Perm	0.19	0.09	0.14	0.14	0.20	0.26	0.26	0.29	0.04	0.20	0.51	0.09
Critical LG?	Yes					Yes					Yes	
Uniform Delay, d1	30.9	41.3	15.8	30.6	41.8	36.4	33.5	33.6	10.5	36.9	28.7	9.2
Platoon Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.72	0.57
Incr. Delay, d2	43.3	0.3	2.1	3.5	3.8	34.5	43.9	2.3	0.0	2.4	14.5	0.0
Webster's St Delay	74.2	41.6	17.9	34.1	45.7	70.9	77.5	35.9	10.5	31.4	35.3	5.3
LOS	F	E	C	D	E	F	F	D	B	D	D	B

Cycle Length: 156
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.92
Intersection V/C Ratio: 1.00
Intersection Webster Stopped Delay: 39.4
Intersection LOS: D

Splits and Phases: FM 1431 & US 183

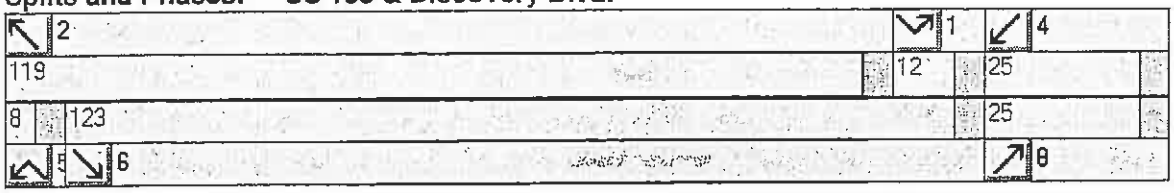
1	2			3	4		
20	83			11	42		
60		43		18		35	
6		5		7		8	

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	0	1425	0	1770	1770	1583
Flt Perm.	0.037			0.950			0.950			0.949	0.949	
Satd. Flow (perm)	69	3725	1583	1770	3725	1583	0	1425	0	1768	1768	1583
Volume (vph)	54	1459	0	0	2173	152	0	0	1	322	0	201
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	60	1702	0	0	2535	169	0	1	0	188	188	223
Perm or Prot?	Pm+Pt		Perm	Pm+Pt		Perm	Perm			Perm		Pm+Ov
Phase Number	1	6		5	2			8			4	
Maximum Split (s)	12	123		8	119			25			25	
Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
g/c Ratio	0.77	0.77			0.74	0.74		0.14		0.14	0.14	0.20
Lane Grp Cap (vph)	151	2865			2770	1177		201		249	249	315
V/C Ratio	0.40	0.59			0.92	0.14		0.00		0.75	0.75	0.71
V/S Ratio Prot	0.02											0.04
V/S Ratio Perm	0.28	0.46			0.68	0.11		0.00		0.11	0.11	0.10
Critical LG?					Yes						Yes	Yes
Uniform Delay, d1	18.2	5.8			12.2	4.4		44.1		48.9	48.9	43.4
Platoon Factor	0.64	0.23			1.00	1.00		1.00		1.00	1.00	1.00
Incr. Delay, d2	0.9	0.2			3.9	0.0		0.0		8.3	8.3	4.9
Webster's St Delay	12.6	1.6			16.1	4.4		44.1		57.2	57.2	48.3
LOS	B	A			C	A		E		E	E	E

Cycle Length: 156
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.83
Intersection V/C Ratio: 0.88
Intersection Webster Stopped Delay: 15.3
Intersection LOS: C

Splits and Phases: US 183 & Discovery Blvd.



Queues

Lane Group	EBL	EBT	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1479	0	1770	3725	1583	1770	3725	1583	0	1450	0
Flt Perm.	0.950	0.978		0.060			0.085			0.950	0.982	
Satd. Flow (perm)	0	1468	0	112	3725	1583	158	3725	1583	0	1434	0
Volume (vph)	34	0	78	1	1399	55	103	2160	6	1	0	5
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	125	0	1	1632	61	114	2520	7	0	7	0
Perm or Prot?	Perm			Perm		Perm	Perm		Perm	Perm		
Phase Number		8			6			2			4	
Maximum Split (s)		20			136			136			20	
Lost Time (s)		3.0			3.0			3.0			3.0	
g/c Ratio		0.11		0.85	0.85	0.85	0.85	0.85	0.85		0.11	
Lane Grp Cap (vph)		160		95	3176	1350	135	3176	1350		156	
V/C Ratio		0.78		0.01	0.51	0.05	0.85	0.79	0.01		0.04	
V/S Ratio Prot												
V/S Ratio Perm		0.09		0.01	0.44	0.04	0.72	0.68	0.00		0.00	
Critical LG?		Yes					Yes					
Uniform Delay, d1		51.4		1.5	2.3	1.3	4.6	4.0	1.3		47.2	
Platoon Factor		1.00		1.00	1.00	1.00	2.31	2.03	0.75		1.00	
Incr. Delay, d2		14.4		0.0	0.1	0.0	24.6	1.0	0.0		0.0	
Webster's St Delay		65.8		1.5	2.4	1.3	35.3	9.1	1.0		47.2	
LOS		F		A	A	A	D	B	A		E	

Cycle Length: 156
Control Type: Actuated-Coordinated
Lost Time: 6
Sum of Critical V/S Ratios: 0.81
Intersection V/C Ratio: 0.84
Intersection Webster Stopped Delay: 8.9
Intersection LOS: B

Splits and Phases: Cedar Park Dr & US 183

2	4
136	20
136	20
6	8

Queues

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	0	1517	0	1770	3722	0	1770	3725	1583	0	1566	0
Flt Perm.	0.950	0.684		0.105			0.034			0.950	0.796	
Satd. Flow (perm)	0	1064	0	196	3722	0	63	3725	1583	0	1268	0
Volume (vph)	71	1	67	62	2167	20	52	1363	104	38	33	35
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	154	0	69	2551	0	58	1590	116	0	118	0
Perm or Prot?	Perm			Perm			Pm+Pt		Perm	Perm		
Phase Number		8			2		1	6			4	
Maximum Split (s)		31			117		8	125			31	
Lost Time (s)		3.0			3.0		3.0	3.0			3.0	
g/c Ratio		0.18		0.73	0.73		0.78	0.78	0.78		0.18	
Lane Grp Cap (vph)		191		143	2720		104	2913	1238		228	
V/C Ratio		0.81		0.48	0.94		0.56	0.55	0.09		0.52	
V/S Ratio Prot							0.02					
V/S Ratio Perm		0.14		0.35	0.69		0.41	0.43	0.07		0.09	
Critical LG?		Yes			Yes		Yes					
Uniform Delay, d1		46.6		6.6	13.6		2.9	4.9	3.0		44.0	
Platoon Factor		1.00		0.53	0.31		3.05	0.92	0.95		1.00	
Incr. Delay, d2		14.7		2.0	5.3		4.7	0.2	0.0		1.7	
Webster's St Delay		61.3		5.5	9.5		13.6	4.7	2.9		45.7	
LOS		F		B	B		B	A	A		E	

Cycle Length: 156
Control Type: Actuated-Coordinated
Lost Time: 9
Sum of Critical V/S Ratios: 0.85
Intersection V/C Ratio: 0.90
Intersection Webster Stopped Delay: 10.3
Intersection LOS: B

Splits and Phases: Park St & US 183

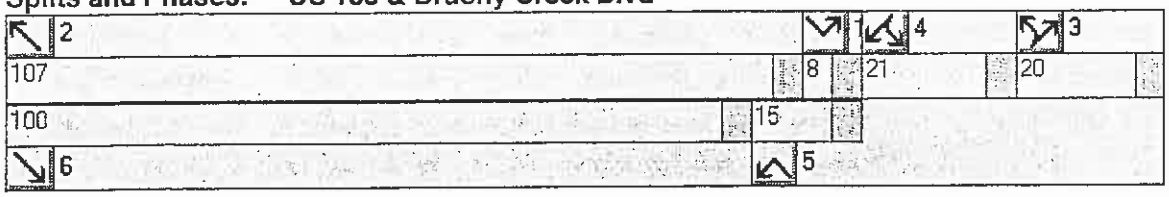
1	2		4
8	117		31
125			31
6			8

Queues

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Satd. Flow (prot)	1770	3636	0	1770	3711	0	1770	1807	1583	1770	1825	0
Flt Perm.	0.041			0.054			0.950	0.970		0.950		
Satd. Flow (perm)	76	3636	0	101	3711	0	1770	1807	1583	1770	1825	0
Volume (vph)	33	1273	242	82	1923	58	205	48	43	120	135	21
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	37	1767	0	91	2311	0	146	149	48	133	173	0
Perm or Prot?	Pm+Pt			Pm+Pt			Prot		Pm+Ov	Prot		
Phase Number	1	6		5	2		3	3		4	4	
Maximum Split (s)	8	100		15	107		20	20		21	21	
Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
g/c Ratio	0.65	0.62		0.72	0.67		0.11	0.11	0.19	0.12	0.12	
Lane Grp Cap (vph)	104	2261		201	2474		193	197	294	204	211	
V/C Ratio	0.36	0.78		0.45	0.93		0.76	0.76	0.16	0.65	0.82	
V/S Ratio Prot	0.01			0.04			0.08	0.08	0.01	0.08		
V/S Ratio Perm	0.22	0.49		0.29	0.62				0.02		0.09	
Critical LG?	Yes				Yes		Yes				Yes	
Uniform Delay, d1	9.4	16.5		23.6	17.5		51.3	51.3	28.1	50.2	51.2	
Platoon Factor	0.90	1.22		0.66	0.62		1.00	1.00	1.00	1.00	1.00	
Incr. Delay, d2	0.9	1.3		1.1	5.4		10.5	10.3	0.0	4.9	15.0	
Webster's St Delay	9.4	21.5		16.8	16.2		61.8	61.6	28.1	55.1	66.2	
LOS	B	C		C	C		F	F	D	E	F	

Cycle Length: 156
Control Type: Pretimed
Lost Time: 12
Sum of Critical V/S Ratios: 0.81
Intersection V/C Ratio: 0.88
Intersection Webster Stopped Delay: 23.8
Intersection LOS: C

Splits and Phases: US 183 & Brushy Creek Blvd

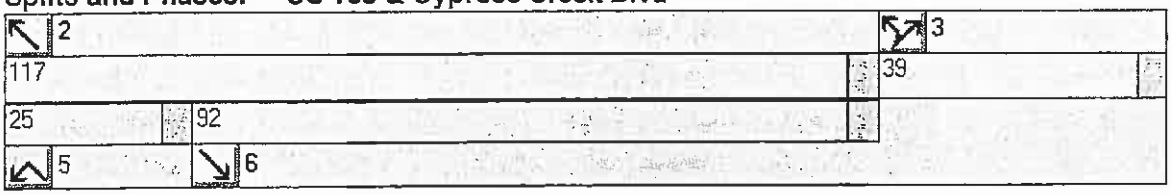


Queues

Lane Group	SET	SER	NWL	NWT	NEL	NET	NER
Lane Configurations							
Satd. Flow (prot)	3644	0	1814	3819	1814	0	1623
Flt Perm.			0.043		0.950		
Satd. Flow (perm)	3644	0	82	3819	1814	0	1623
Volume (vph)	1580	266	189	2339	371	0	175
Confl. Peds. (#/hr)							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Lane Group Flow (vph)	2155	0	210	2729	412	0	194
Perm or Prot?	Perm		Pm+Pt		Prot		Pm+Ov
Phase Number	6		5	2	3	3	
Maximum Split (s)	92		25	117	39	39	
Lost Time (s)	3.0		3.0	3.0	3.0	3.0	
g/c Ratio	0.57		0.73	0.73	0.23		0.37
Lane Grp Cap (vph)	2079		304	2791	419		603
V/C Ratio	1.04		0.69	0.98	0.98		0.32
V/S Ratio Prot			0.10		0.23		0.05
V/S Ratio Perm	0.59		0.40	0.71			0.07
Critical LG?				Yes	Yes		
Uniform Delay, d1	25.4		31.4	15.0	45.4		25.0
Platoon Factor	0.49		1.00	1.00	1.00		1.00
Incr. Delay, d2	24.7		4.4	9.3	30.0		0.1
Webster's St Delay	37.3		35.8	24.3	75.3		25.1
LOS	D		D	C	F		D

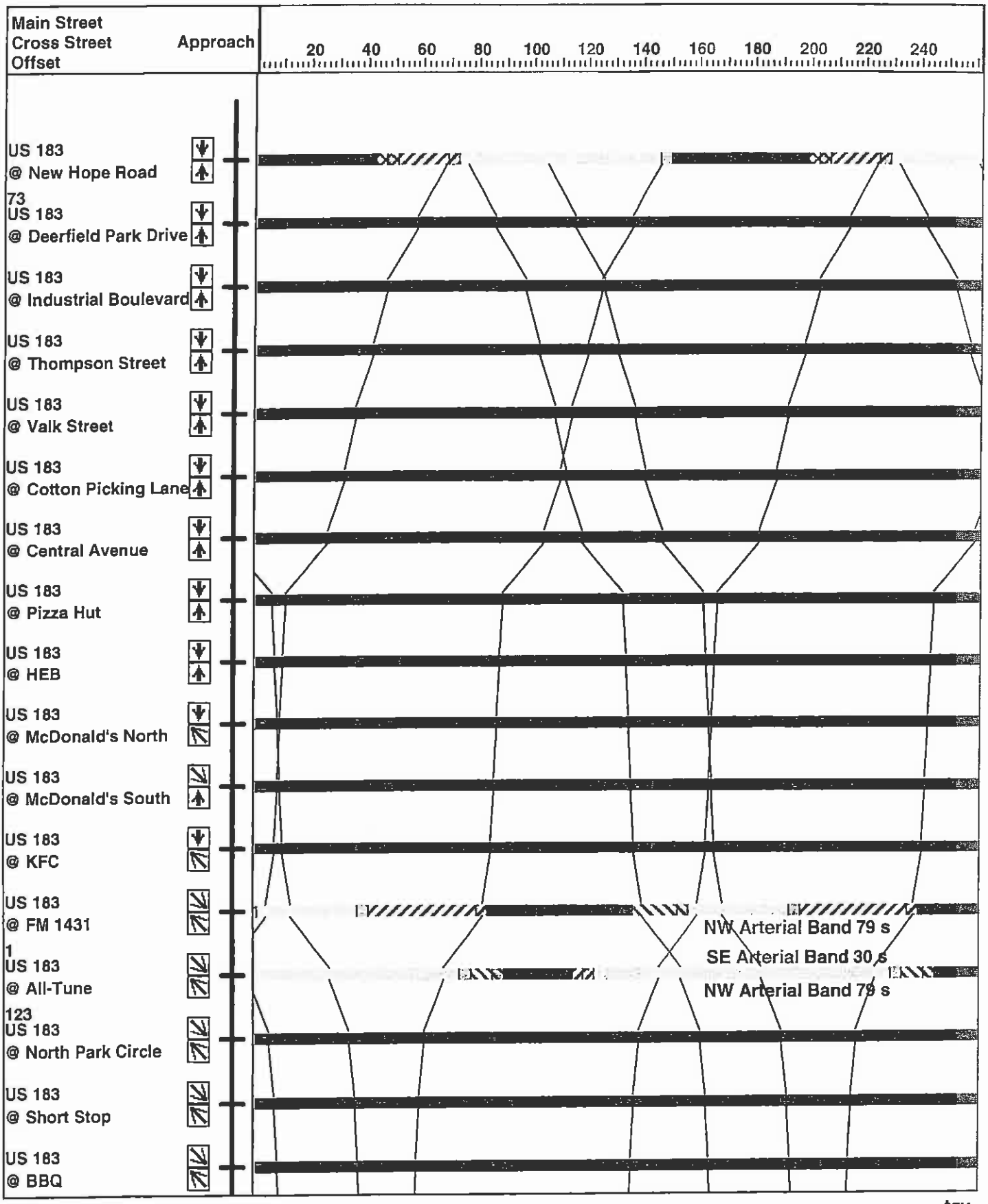
Cycle Length: 156
Control Type: Pretimed
Lost Time: 6
Sum of Critical V/S Ratios: 0.94
Intersection V/C Ratio: 0.98
Intersection Webster Stopped Delay: 33.3
Intersection LOS: D

Splits and Phases: US 183 & Cypress Creek Blvd



Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

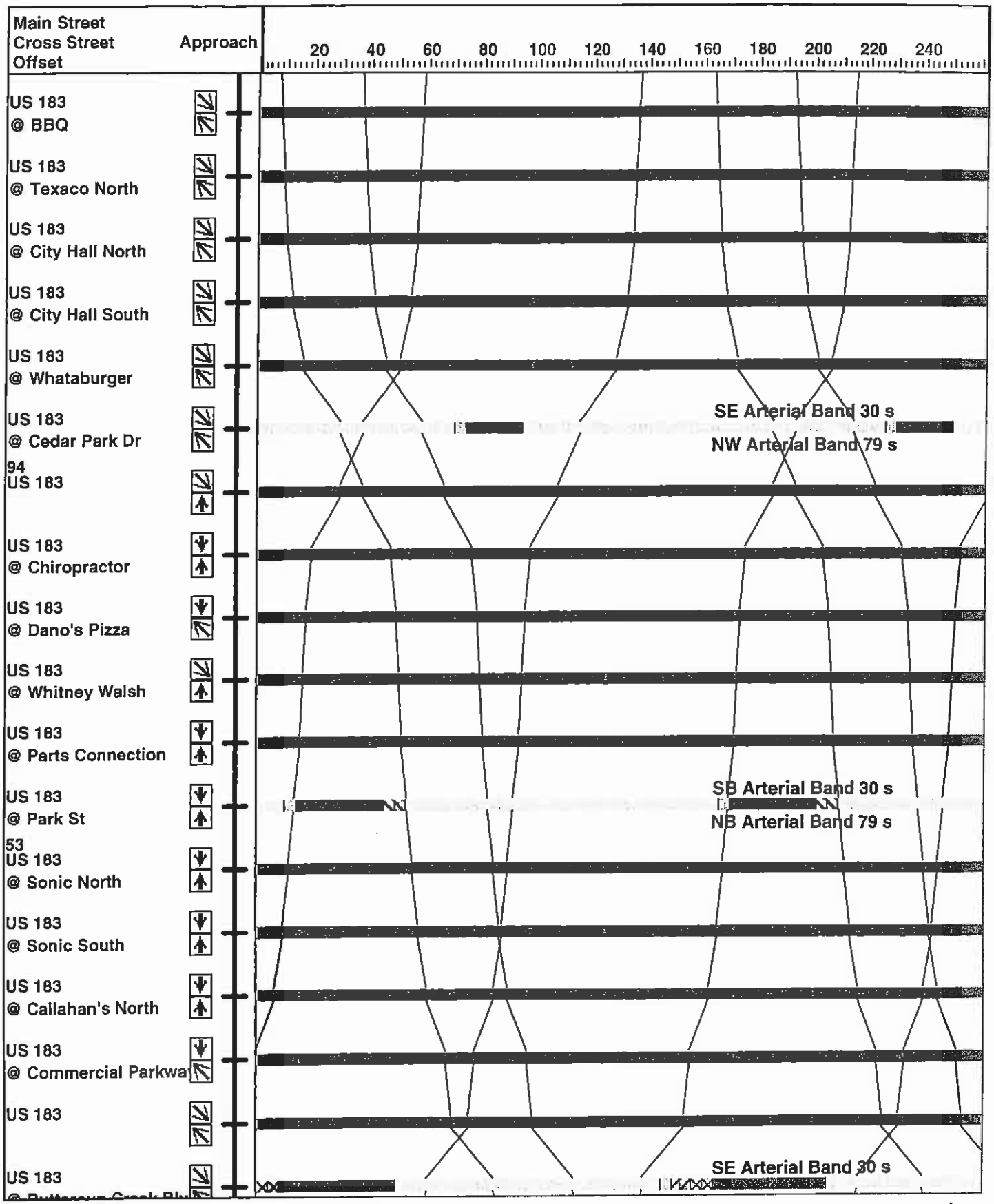


Baseline
Data Date: 9/28/1999 5:00 pm
Timing Plan: Default

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMOptimized.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

December 6, 1999

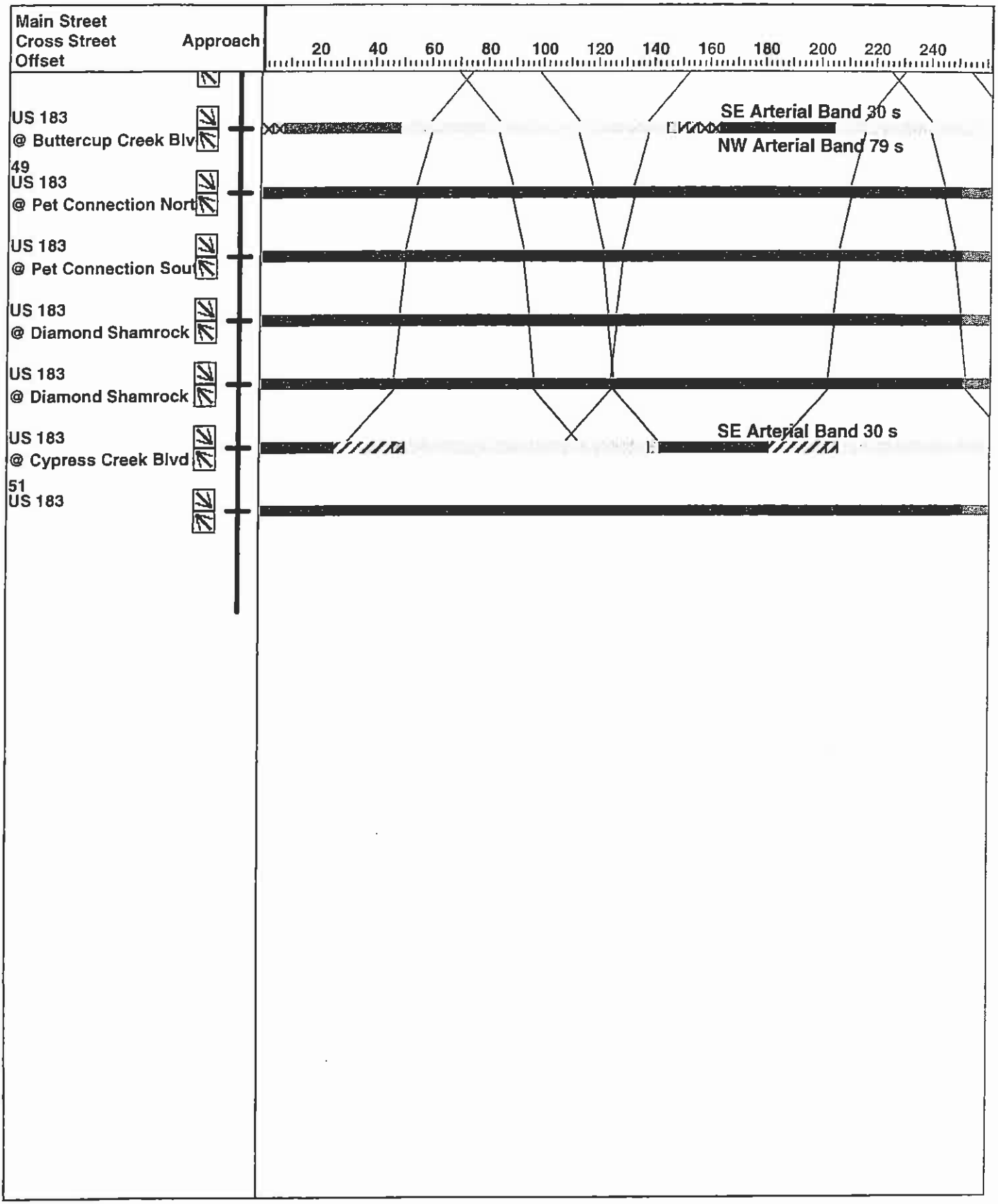


Baseline
Data Date: 9/28/1999 5:00 pm
Timing Plan: Default

tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMOptimized.sy5

Time-Space Diagram - US 183
Arterial Bandwidths, Maximum Green Times

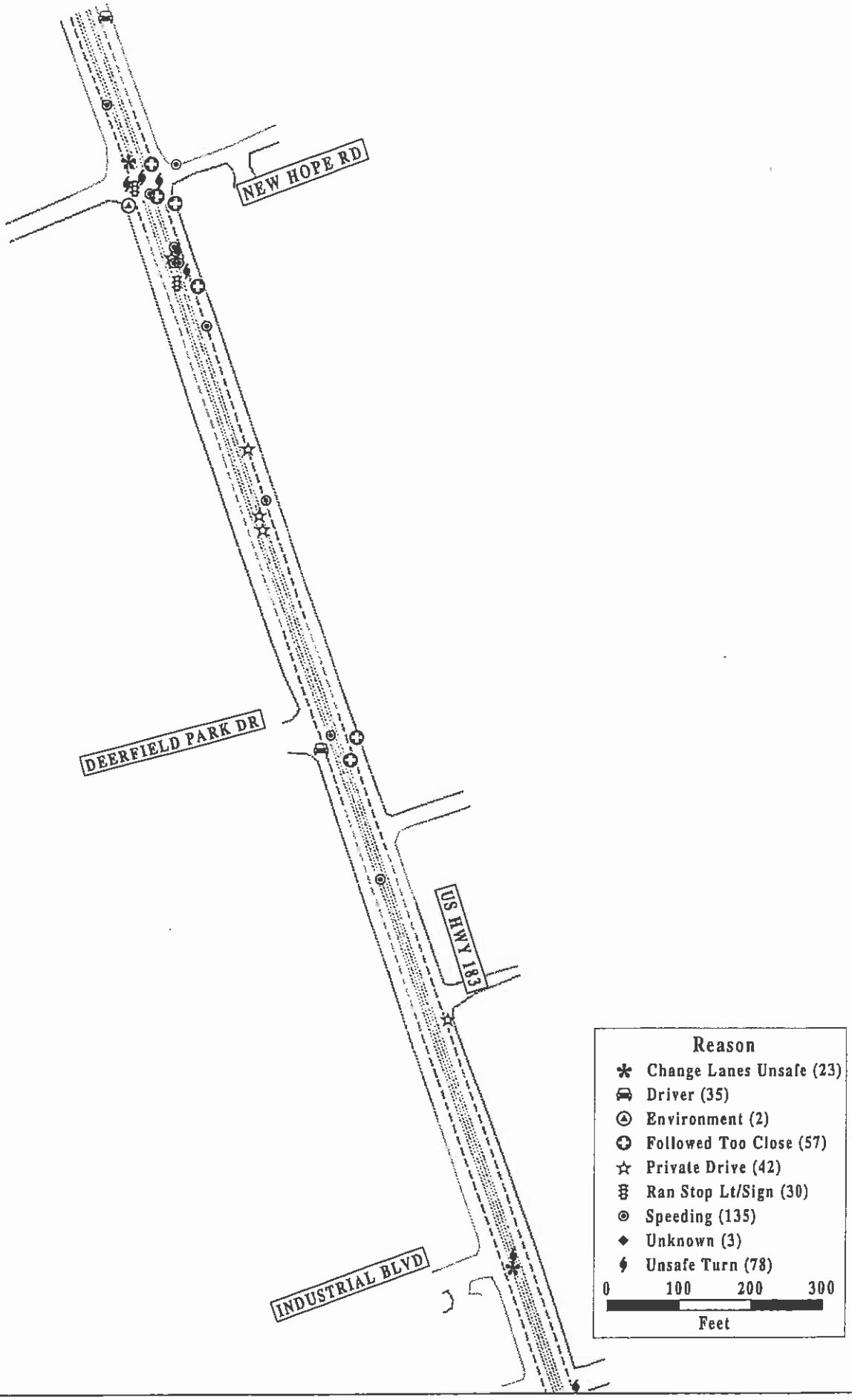
December 6, 1999

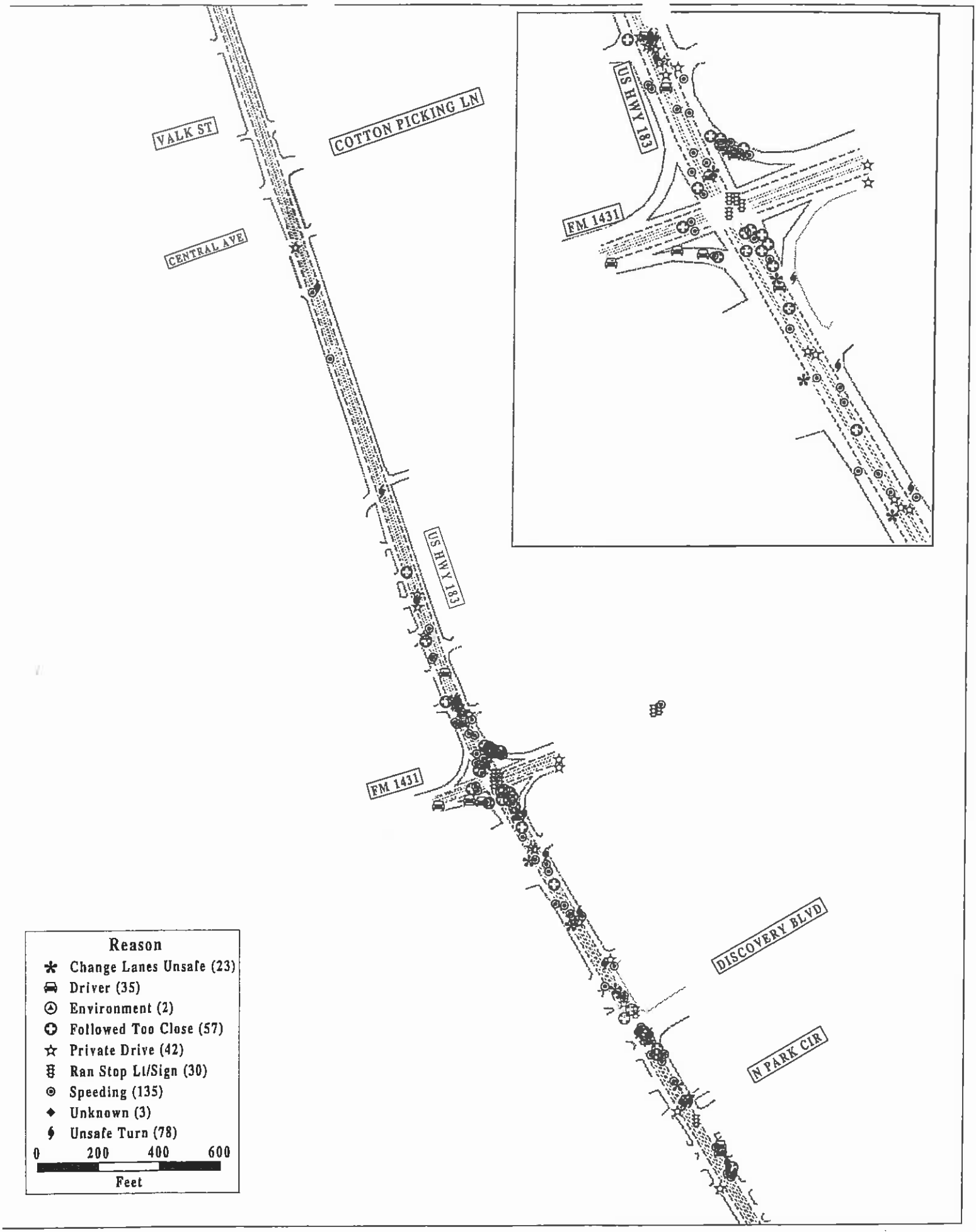


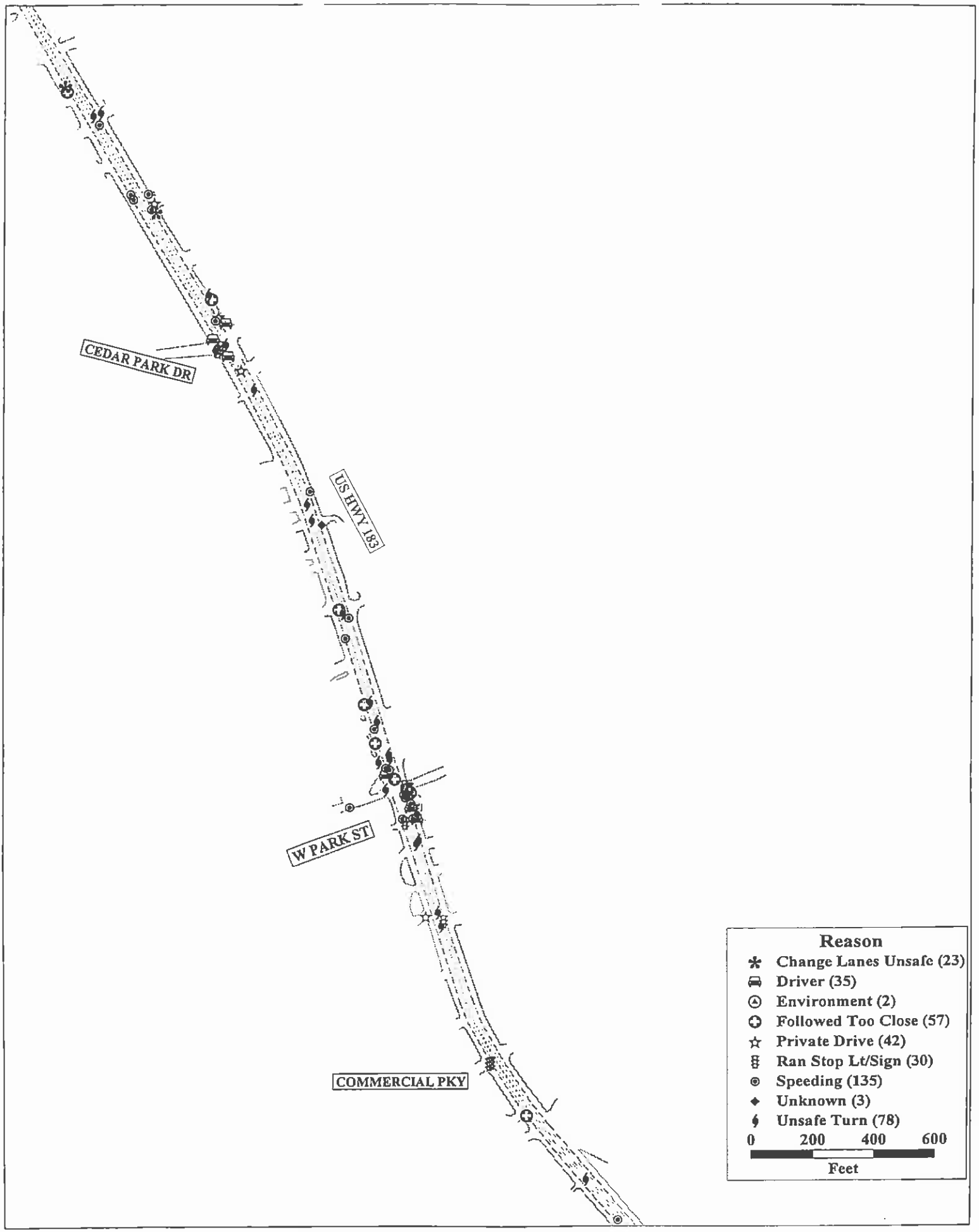
Baseline
Data Date: 9/28/1999 5:00 pm
Timing Plan: Default

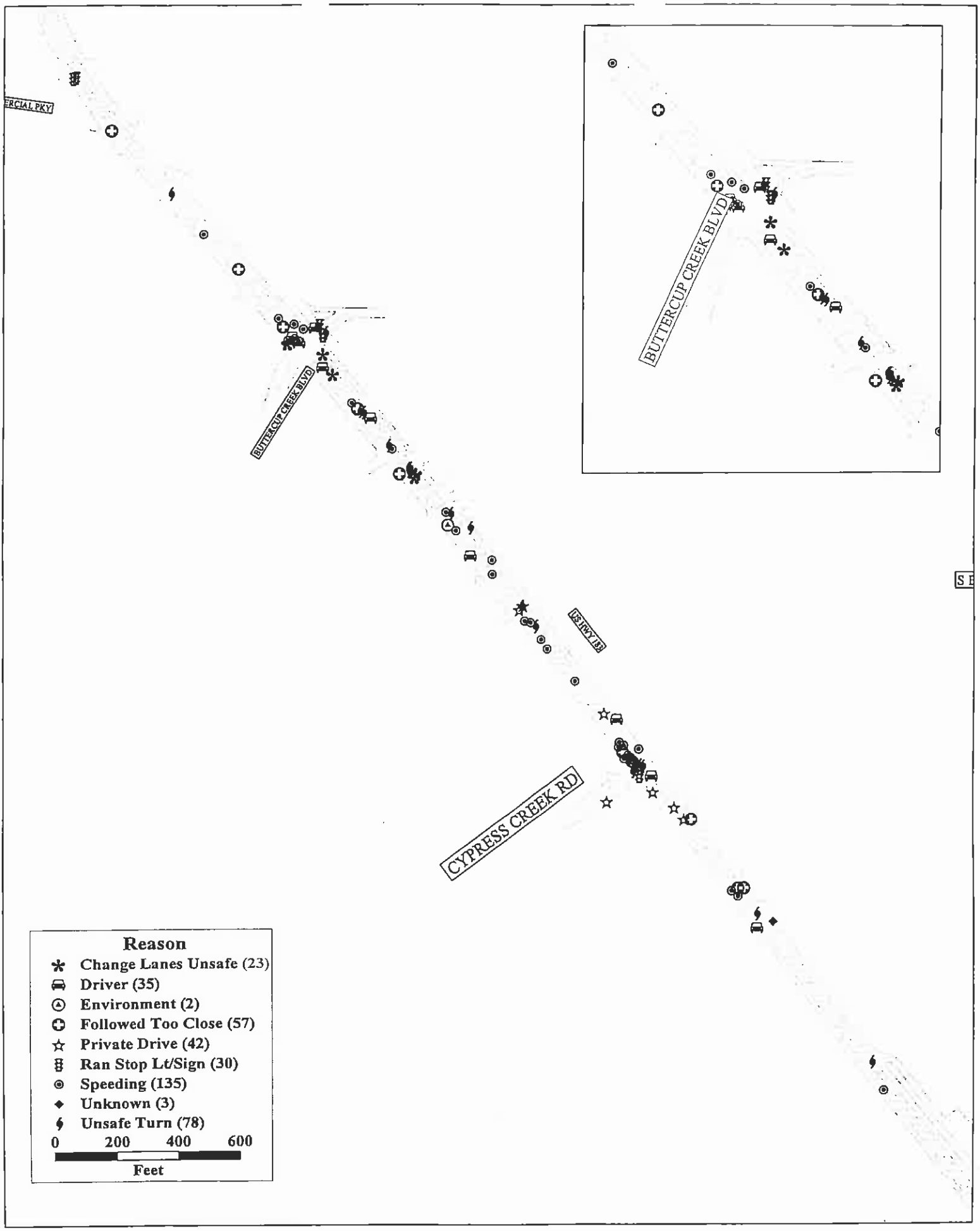
tgv
Z:\A-TEC\CedarPark\US183 PhaseII\PMOptimized.sy5

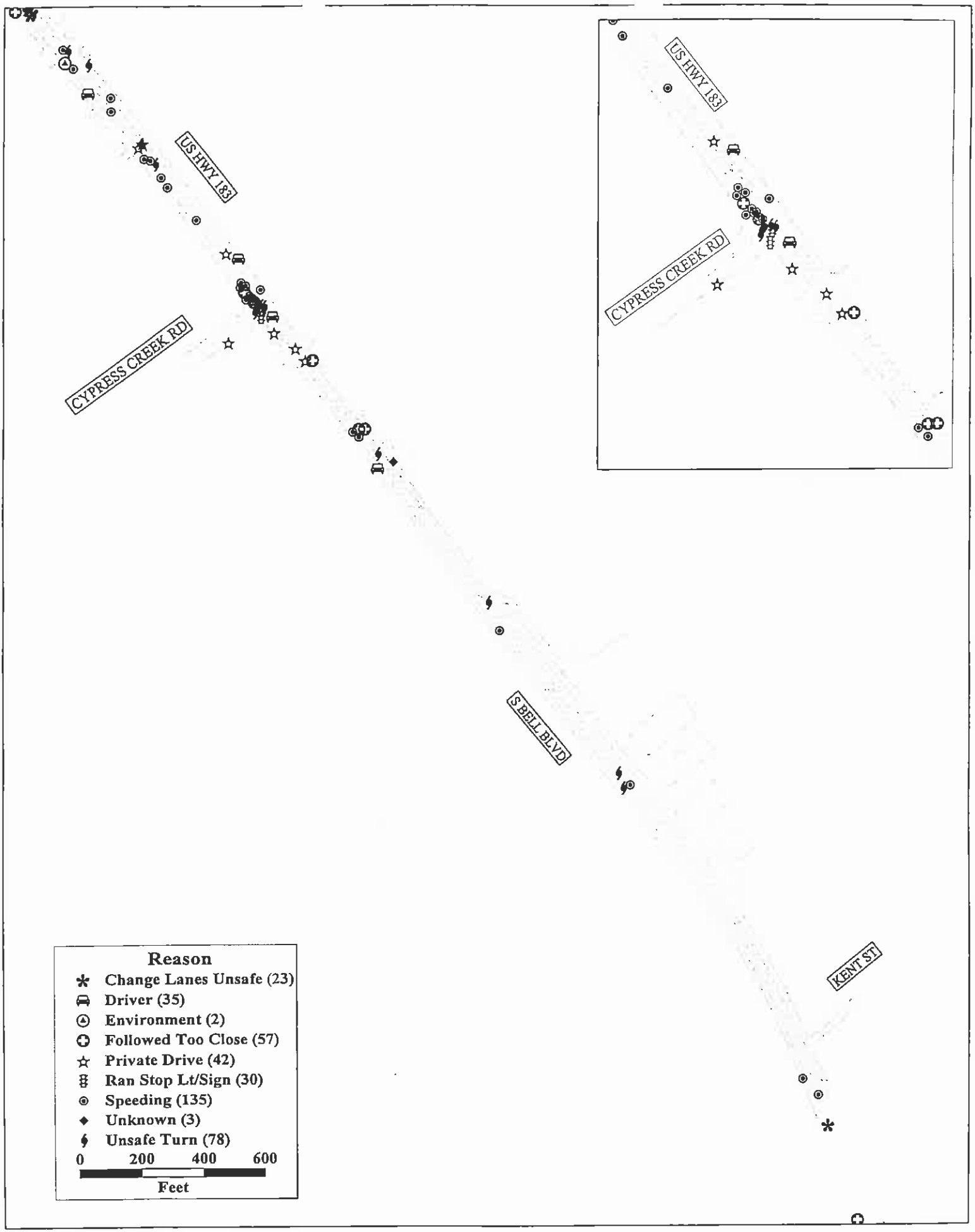
Accident Data


NEW HOPE RD
DEERFIELD PARK DR
US HWY 183
INDUSTRIAL BLVD
Reason
Change Lanes Unsafe (23)
Driver (35)
Environment (2)
Followed Too Close (57)
Private Drive (42)
Ran Stop Lt/Sign (30)
Speeding (135)
Unknown (3)
Unsafe Turn (78)
0
100
200
300
Feet


VALK ST
COTTON PICKING LN
CENTRAL AVE
US HWY 183
FM 1431
DISCOVERY BLVD
N PARK CIR
Reason
Change Lanes Unsafe (23)
Driver (35)
Environment (2)
Followed Too Close (57)
Private Drive (42)
Ran Stop Lt/Sign (30)
Speeding (135)
Unknown (3)
Unsafe Turn (78)
0 200 400 600
Feet


CEDAR PARK DR
US HWY 183
W PARK ST
COMMERCIAL PKY
Reason
Change Lanes Unsafe (23)
Driver (35)
Environment (2)
Followed Too Close (57)
Private Drive (42)
Ran Stop Lt/Sign (30)
Speeding (135)
Unknown (3)
Unsafe Turn (78)
0
200
400
600
Feet


ERCIAL PKY
BUTTERCUP CREEK BLVD
BUTTERCUP CREEK BLVD
US HWY 183
CYPRESS CREEK RD
S E
Reason
Change Lanes Unsafe (23)
Driver (35)
Environment (2)
Followed Too Close (57)
Private Drive (42)
Ran Stop Lt/Sign (30)
Speeding (135)
Unknown (3)
Unsafe Turn (78)
0 200 400 600
Feet


US HWY 183
CYPRESS CREEK RD
S BELL BLVD
KENT ST
Reason
Change Lanes Unsafe (23)
Driver (35)
Environment (2)
Followed Too Close (57)
Private Drive (42)
Ran Stop Lt/Sign (30)
Speeding (135)
Unknown (3)
Unsafe Turn (78)
0 200 400 600
Feet

Count Data

GRAM Traffic Counting
12406 Uttimer Lane Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 201213
Site Code : 201213
Start Date: 01/19/99
Page : 1

Movement 7

Start Time	Hwy 183 Southbound Thru	Rght	Hwy 183 Northbound Left	Thru	Cypress Creek Eastbound Left	Rght	Intrvl. Total
01/19/99							
07:00	551	35	26	157	33	48	850
07:15	522	45	21	168	29	53	838
07:30	543	53	25	178	58	86	943
07:45	519	45	37	242	82	101	1026
Hour	2135	178	109	745	202	288	3657
08:00	502	59	48	171	78	63	921
08:15	511	51	41	175	51	48	877
08:30	412	46	27	204	47	41	777
08:45	405	41	38	189	41	38	752
Hour	1830	197	154	739	217	190	3327
Total	3965	375	263	1484	419	478	6984
% Apr.	91.3	8.6	15.0	84.9	46.7	53.2	-
% Int.	56.7	5.3	3.7	21.2	5.9	6.8	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:00		07:45		07:30	
Vol.	2135	178	153	792	269	298
Pct.	92.3	7.6	16.1	83.8	47.4	52.5
Total	2313		945		567	
High	07:30		07:45		07:45	
Vol.	543	53	37	242	82	101
Total	596		279		183	
PHF	0.970		0.847		0.775	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:30		07:30		07:30	
Vol.	2075	208	151	766	269	298
Pct.	90.8	9.1	16.4	83.5	47.4	52.5
Total	2283		917		567	
High	07:30		07:45		07:45	
Vol.	543	53	37	242	82	101
Total	596		279		183	
PHF	0.958		0.822		0.775	

GRAM Traffic Counting
12406 Uttimer Lane Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 2012541
Site Code : 2012541
Start Date: 01/19/99
Page : 1

Start Time	Hwy 183 Southbound Left	Thru	Rght	private parking lot Westbound Left	Thru	Rght	Hwy 183 Northbound Left	Thru	Rght	Cedar Park street Eastbound Left	Thru	Rght	Intrvl. Total
01/19/99													
07:00	0	555	2	0	0	0	1	212	0	4	0	45	819
07:15	0	537	9	0	0	0	6	202	0	8	0	89	851
07:30	0	575	8	0	0	0	7	260	0	13	0	73	936
07:45	0	529	4	0	0	0	8	327	0	11	0	66	945
Hour	0	2196	23	0	0	0	22	1001	0	36	0	273	3551
08:00	0	568	6	0	0	0	13	323	0	7	0	43	960
08:15	0	493	14	1	0	2	15	306	1	18	0	28	878
08:30	0	501	7	0	0	1	11	270	1	8	0	17	816
08:45	0	480	8	0	0	0	8	231	0	3	0	11	741
Hour	0	2042	35	1	0	3	47	1130	2	36	0	99	3395
Total	0	4238	58	1	0	3	69	2131	2	72	0	372	6946
% Apr.	-	98.6	1.3	25.0	-	75.0	3.1	96.7	-	16.2	-	83.7	-
% Int.	-	61.0	0.8	-	-	-	0.9	30.6	-	1.0	-	5.3	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:15			07:45			07:45			07:15		
Vol.	0	2209	27	1	0	3	47	1226	2	39	0	271
Pct.	0.0	98.7	1.2	25.0	0.0	75.0	3.6	96.1	0.1	12.5	0.0	87.4
Total	2236			4			1275			310		
High	07:30			08:15			08:00			07:15		
Vol.	0	575	8	1	0	2	13	323	0	8	0	89
Total	583			3			336			97		
PHF	0.959			0.333			0.949			0.799		

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:30			07:30			07:30			07:30		
Vol.	0	2165	32	1	0	2	43	1216	1	49	0	210
Pct.	0.0	98.5	1.4	33.3	0.0	66.6	3.4	96.5	0.0	18.9	0.0	81.0
Total	2197			3			1260			259		
High	07:30			08:15			08:00			07:30		
Vol.	0	575	8	1	0	2	13	323	0	13	0	73
Total	583			3			336			86		
PHF	0.942			0.250			0.938			0.753		

GRAM Traffic Counting
12406 Uttimer Lane Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 2012873
Site Code : 2012541
Start Date: 01/19/99
Page : 1

Movement 7

Start Time	Hwy 183 Southbound Left	Thru	Rght	W. Park Westbound Left	Thru	Rght	Hwy 183 Northbound Left	Thru	Rght	W. Park Eastbound Left	Thru	Rght	Intrvl. Total
01/19/99													
07:00	0	591	4	12	1	0	9	191	3	11	0	21	843
07:15	3	599	12	14	2	3	2	189	1	13	8	24	870
07:30	6	637	8	15	4	3	6	232	1	21	6	16	955
07:45	4	585	10	7	6	1	7	290	1	20	11	18	960
Hour	13	2412	34	48	13	7	24	902	6	65	25	79	3628
08:00	2	594	11	8	0	3	4	314	1	18	5	21	981
08:15	6	503	9	4	7	1	4	287	3	11	8	23	866
08:30	4	509	12	5	8	5	7	266	0	9	7	17	849
08:45	4	479	8	7	0	2	9	219	1	4	6	14	753
Hour	16	2085	40	24	15	11	24	1086	5	42	26	75	3449
Total	29	4497	74	72	28	18	48	1988	11	107	51	154	7077
% Apr.	0.6	97.7	1.6	61.0	23.7	15.2	2.3	97.1	0.5	34.2	16.3	49.3	-
% Int.	0.4	63.5	1.0	1.0	0.3	0.2	0.6	28.0	0.1	1.5	0.7	2.1	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:15			07:00			07:45			07:15		
Vol.	15	2415	41	48	13	7	22	1157	5	72	30	79
Pct.	0.6	97.7	1.6	70.5	19.1	10.2	1.8	97.7	0.4	39.7	16.5	43.6
Total	2471			68			1184			181		
High	07:30			07:30			08:00			07:45		
Vol.	6	637	8	15	4	3	4	314	1	20	11	18
Total	651			22			319			49		
PHF	0.949			0.773			0.928			0.923		

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:15			07:15			07:15			07:15		
Vol.	15	2415	41	44	12	10	19	1025	4	72	30	79
Pct.	0.6	97.7	1.6	66.6	18.1	15.1	1.8	97.8	0.3	39.7	16.5	43.6
Total	2471			66			1048			181		
High	07:30			07:30			08:00			07:45		
Vol.	6	637	8	15	4	3	4	314	1	20	11	18
Total	651			22			319			49		
PHF	0.949			0.750			0.821			0.923		

GRAM Traffic Counting
12406 Uttimer Lane Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 201213
Site Code : 2012971
Start Date: 01/19/99
Page : 1

Movement 7

Start Time	Hwy 183 Southbound Left	Thru	Rght	Butter Cup Creek Westbound Left	Thru	Rght	Hwy 183 Northbound Left	Thru	Rght	Butter Cup Creek Eastbound Left	Thru	Rght	Intrvl. Total
01/19/99													
07:00	6	559	29	18	0	7	3	174	5	58	14	51	924
07:15	3	564	32	35	2	3	5	176	11	47	27	37	942
07:30	2	591	38	37	12	2	7	198	16	80	62	48	1093
07:45	3	549	28	24	9	3	9	267	14	75	63	62	1106
Hour	14	2263	127	114	23	15	24	815	46	260	166	198	4065
08:00	9	544	40	26	8	7	14	257	19	92	56	38	1110
08:15	8	449	35	29	5	4	12	263	7	40	31	43	926
08:30	7	443	34	21	7	3	11	211	6	75	37	37	892
08:45	6	438	55	16	6	5	7	179	8	94	33	34	881
Hour	30	1874	164	92	26	19	44	910	40	301	157	152	3809
Total	44	4137	291	206	49	34	68	1725	86	561	323	350	7874
% Apr.	0.9	92.5	6.5	71.2	16.9	11.7	3.6	91.8	4.5	45.4	26.1	28.3	-
% Int.	0.5	52.5	3.6	2.6	0.6	0.4	0.8	21.9	1.0	7.1	4.1	4.4	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:00			07:15			07:45			07:30		
Vol.	14	2263	127	122	31	15	46	998	46	287	212	191
Pct.	0.5	94.1	5.2	72.6	18.4	8.9	4.2	91.5	4.2	41.5	30.7	27.6
Total	2404			168			1090			690		
High	07:30			07:30			07:45			07:45		
Vol.	2	591	38	37	12	2	9	267	14	75	63	62
Total	631			51			290			200		
PHF	0.952			0.824			0.940			0.863		

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 01/19/99 to 08:45 on 01/19/99

Time	07:15			07:15			07:15			07:15		
Vol.	17	2248	138	122	31	15	35	898	60	294	208	185
Pct.	0.7	93.5	5.7	72.6	18.4	8.9	3.5	90.4	6.0	42.7	30.2	26.9
Total	2403			168			993			687		
High	07:30			07:30			07:45			07:45		
Vol.	2	591	38	37	12	2	9	267	14	75	63	62
Total	631			51			290			200		
PHF	0.952			0.824			0.856			0.859		

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 183DEER
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Deerfield Eastbound Left	Right	Intrvl. Total
04/27/99							
07:00	502	0	3	158	2	31	696
07:15	547	0	4	170	1	33	755
07:30	480	0	12	216	0	37	745
07:45	449	2	21	205	0	40	717
Hour	1978	2	40	749	3	141	2913
08:00	451	0	31	265	0	24	771
08:15	372	0	49	242	0	8	671
08:30	366	0	17	195	0	13	591
08:45	402	0	6	180	0	11	599
Hour	1591	0	103	882	0	56	2632
Total	3569	2	143	1631	3	197	5545
% Apr.	99.9	-	8.0	91.9	1.5	98.5	-
% Int.	64.3	-	2.5	29.4	-	3.5	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:30		07:00	
Vol.	1978	2	113	928	3	141
Pct.	99.8	0.1	10.8	89.1	2.0	97.9
Total	1980		1041		144	
High	07:15		08:00		07:45	
Vol.	547	0	31	265	0	40
Total	547		296		40	
PHF	0.905		0.879		0.900	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	1927	2	68	856	1	134
Pct.	99.8	0.1	7.3	92.6	0.7	99.2
Total	1929		924		135	
High	07:15		08:00		07:45	
Vol.	547	0	31	265	0	40
Total	547		296		40	
PHF	0.882		0.780		0.844	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: CEDDEER
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Deerfield Eastbound Left	Right	Intrvl. Total
04/27/99							
16:00	245	2	8	391	1	12	659
16:15	273	0	13	452	1	2	741
16:30	252	0	11	469	1	7	740
16:45	253	1	15	492	2	9	772
Hour	1023	3	47	1804	5	30	2912
17:00	255	2	18	526	0	8	809
17:15	338	3	13	487	0	9	850
17:30	268	2	21	472	0	9	772
17:45	275	3	18	559	0	10	865
Hour	1136	10	70	2044	0	36	3296
Total	2159	13	117	3848	5	66	6208
% Apr.	99.4	0.5	2.9	97.0	7.0	92.9	-
% Int.	34.7	0.2	1.8	61.9	-	1.0	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		16:45	
Vol.	1136	10	70	2044	2	35
Pct.	99.1	0.8	3.3	96.6	5.4	94.5
Total	1146		2114		37	
High	17:15		17:45		16:45	
Vol.	338	3	18	559	2	9
Total	341		577		11	
PHF	0.840		0.916		0.841	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		17:00	
Vol.	1136	10	70	2044	0	36
Pct.	99.1	0.8	3.3	96.6	0.0	100.0
Total	1146		2114		36	
High	17:15		17:45		17:45	
Vol.	338	3	18	559	0	10
Total	341		577		10	
PHF	0.840		0.916		0.900	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: 183INDS
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Industrial Eastbound Left	Right	Intrvl. Total
04/27/99							
07:00	542	10	0	147	2	0	701
07:15	573	9	2	188	3	3	778
07:30	503	8	3	227	0	0	741
07:45	476	10	0	238	1	2	727
Hour	2094	37	5	800	6	5	2947
08:00	488	12	3	258	1	1	763
08:15	393	5	4	257	0	2	661
08:30	377	3	3	192	1	1	577
08:45	396	4	1	185	0	3	589
Hour	1654	24	11	892	2	7	2590
Total	3748	61	16	1692	8	12	5537
% Apr.	98.3	1.6	0.9	99.0	40.0	60.0	-
% Int.	67.6	1.1	0.2	30.5	0.1	0.2	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:30		07:00	
Vol.	2094	37	10	980	6	5
Pct.	98.2	1.7	1.0	98.9	54.5	45.4
Total	2131		990		11	
High	07:15		08:00		07:15	
Vol.	573	9	3	258	3	3
Total	582		261		6	
PHF	0.915		0.948		0.458	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	2040	39	8	911	5	6
Pct.	98.1	1.8	0.8	99.1	45.4	54.5
Total	2079		919		11	
High	07:15		08:00		07:15	
Vol.	573	9	3	258	3	3
Total	582		261		6	
PHF	0.893		0.880		0.458	

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: CEDINDS
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Industrial Eastbound Left	Right	Intrvl. Total
04/27/99							
16:00	258	3	6	419	2	5	693
16:15	262	1	13	427	3	2	708
16:30	281	0	4	477	6	0	768
16:45	246	1	6	496	2	5	756
Hour	1047	5	29	1819	13	12	2925
17:00	278	2	7	509	5	2	803
17:15	324	3	9	475	4	2	817
17:30	269	5	11	437	5	3	730
17:45	256	4	10	500	12	1	783
Hour	1127	14	37	1921	26	8	3133
Total	2174	19	66	3740	39	20	6058
% Apr.	99.1	0.8	1.7	98.2	66.1	33.8	-
% Int.	35.8	0.3	1.0	61.7	0.6	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		16:30		17:00	
Vol.	1127	14	26	1957	26	8
Pct.	98.7	1.2	1.3	98.6	76.4	23.5
Total	1141		1983		34	
High	17:15		17:00		17:45	
Vol.	324	3	7	509	12	1
Total	327		516		13	
PHF	0.872		0.961		0.654	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	16:30		16:30		16:30	
Vol.	1129	6	26	1957	17	9
Pct.	99.4	0.5	1.3	98.6	65.3	34.6
Total	1135		1983		26	
High	17:15		17:00		16:45	
Vol.	324	3	7	509	2	5
Total	327		516		7	
PHF	0.868		0.961		0.929	

12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: 183THOM
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Thompson Eastbound Left	Right	Intrvl. Total
04/27/99							
07:00	531	0	1	122	0	7	661
07:15	593	1	0	191	1	4	790
07:30	541	1	0	235	1	5	783
07:45	480	4	1	218	2	3	708
Hour	2145	6	2	766	4	19	2942
08:00	497	3	4	281	4	3	792
08:15	407	2	1	264	0	0	674
08:30	398	1	7	211	5	3	625
08:45	422	5	17	175	3	2	624
Hour	1724	11	29	931	12	8	2715
Total	3869	17	31	1697	16	27	5657
% Apr.	99.5	0.4	1.7	98.2	37.2	62.7	-
% Int.	68.3	0.3	0.5	29.9	0.2	0.4	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:30		07:00	
Vol.	2145	6	6	998	4	19
Pct.	99.7	0.2	0.5	99.4	17.3	82.6
Total	2151		1004		23	
High	07:15		08:00		07:00	
Vol.	593	1	4	281	0	7
Total	594		285		7	
PHF	0.905		0.881		0.821	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	2111	9	5	925	8	15
Pct.	99.5	0.4	0.5	99.4	34.7	65.2
Total	2120		930		23	
High	07:15		08:00		08:00	
Vol.	593	1	4	281	4	3
Total	594		285		7	
PHF	0.892		0.816		0.821	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: CEDTHOM
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	US 183 Southbound Right	US 183 Northbound Left	US 183 Northbound Thru	Thompson Eastbound Left	Thompson Eastbound Right	Intrvl. Total
04/27/99							
16:00	267	3	3	411	0	0	684
16:15	263	5	3	460	2	0	733
16:30	286	1	3	488	0	3	781
16:45	257	1	1	512	0	1	772
Hour	1073	10	10	1871	2	4	2970
17:00	280	5	2	524	1	1	813
17:15	349	4	1	474	2	2	832
17:30	279	1	5	469	1	0	755
17:45	272	2	4	521	0	5	804
Hour	1180	12	12	1988	4	8	3204
Total	2253	22	22	3859	6	12	6174
% Apr.	99.0	0.9	0.5	99.4	33.3	66.6	-
% Int.	36.4	0.3	0.3	62.5	-	0.1	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		16:30		17:00	
Vol.	1180	12	7	1998	4	8
Pct.	98.9	1.0	0.3	99.6	33.3	66.6
Total	1192		2005		12	
High	17:15		17:00		17:45	
Vol.	349	4	2	524	0	5
Total	353		526		5	
PHF	0.844		0.953		0.600	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		17:00	
Vol.	1180	12	12	1988	4	8
Pct.	98.9	1.0	0.6	99.4	33.3	66.6
Total	1192		2000		12	
High	17:15		17:00		17:45	
Vol.	349	4	2	524	0	5
Total	353		526		5	
PHF	0.844		0.951		0.600	

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 183VALK
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	VALK Eastbound Left	Right	Intrvl. Total
04/27/99							
07:00	561	0	0	138	1	5	705
07:15	560	0	1	220	1	3	785
07:30	489	1	1	228	0	6	725
07:45	503	0	0	241	1	6	751
Hour	2113	1	2	827	3	20	2966
08:00	482	0	0	266	1	2	751
08:15	387	0	0	253	0	4	644
08:30	421	0	2	198	1	1	623
08:45	410	3	0	161	0	3	577
Hour	1700	3	2	878	2	10	2595
Total	3813	4	4	1705	5	30	5561
% Apr.	99.8	0.1	0.2	99.7	14.2	85.7	-
% Int.	68.5	-	-	30.6	-	0.5	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:30		07:00	
Vol.	2113	1	1	988	3	20
Pct.	99.9	0.0	0.1	99.8	13.0	86.9
Total	2114		989		23	
High	07:00		08:00		07:45	
Vol.	561	0	0	266	1	6
Total	561		266		7	
PHF	0.942		0.930		0.821	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	2034	1	2	955	3	17
Pct.	99.9	0.0	0.2	99.7	15.0	85.0
Total	2035		957		20	
High	07:15		08:00		07:45	
Vol.	560	0	0	266	1	6
Total	560		266		7	
PHF	0.908		0.899		0.714	

GRAM Traffic Counting
12406 Ottimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: CEDVALK
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	VALK Eastbound Left	Right	Intrvl. Total
04/27/99							
16:00	261	0	0	401	0	2	664
16:15	269	0	2	449	0	1	721
16:30	281	0	4	493	0	2	780
16:45	269	0	7	506	0	3	785
Hour	1080	0	13	1849	0	8	2950
17:00	264	2	4	521	0	5	796
17:15	361	0	3	468	0	2	834
17:30	283	0	4	478	0	4	769
17:45	273	1	2	529	1	4	810
Hour	1181	3	13	1996	1	15	3209
Total	2261	3	26	3845	1	23	6159
% Apr.	99.8	0.1	0.6	99.3	4.1	95.8	-
% Int.	36.7	-	0.4	62.4	-	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		17:00	
Vol.	1181	3	13	1996	1	15
Pct.	99.7	0.2	0.6	99.3	6.2	93.7
Total	1184		2009		16	
High	17:15		17:45		17:00	
Vol.	361	0	2	529	0	5
Total	361		531		5	
PHF	0.820		0.946		0.800	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		17:00	
Vol.	1181	3	13	1996	1	15
Pct.	99.7	0.2	0.6	99.3	6.2	93.7
Total	1184		2009		16	
High	17:15		17:45		17:00	
Vol.	361	0	2	529	0	5
Total	361		531		5	
PHF	0.820		0.946		0.800	

12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: 183COTT
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Cotton Picking Westbound Left	Right	US 183 Northbound Thru	Right	Intrvl. Total
04/27/99							
07:00	0	575	1	0	145	1	722
07:15	2	552	3	1	213	1	772
07:30	0	493	0	0	225	1	719
07:45	1	514	0	1	253	0	769
Hour	3	2134	4	2	836	3	2982
08:00	0	477	0	1	278	1	757
08:15	0	391	1	0	247	0	639
08:30	0	432	0	0	194	1	627
08:45	1	398	1	0	169	2	571
Hour	1	1698	2	1	888	4	2594
Total	4	3832	6	3	1724	7	5576
% Apr.	0.1	99.8	66.6	33.3	99.5	0.4	-
% Int.	-	68.7	0.1	-	30.9	0.1	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:00		07:30	
Vol.	3	2134	4	2	1003	2
Pct.	0.1	99.8	66.6	33.3	99.8	0.1
Total	2137		6		1005	
High	07:00		07:15		08:00	
Vol.	0	575	3	1	278	1
Total	575		4		279	
PHF	0.929		0.375		0.901	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	3	2036	3	3	969	3
Pct.	0.1	99.8	50.0	50.0	99.6	0.3
Total	2039		6		972	
High	07:15		07:15		08:00	
Vol.	2	552	3	1	278	1
Total	554		4		279	
PHF	0.920		0.375		0.871	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: CEDCOTT
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	US 183 Southbound Thru	Cotton Picking Westbound Left	Cotton Picking Westbound Right	US 183 Northbound Thru	US 183 Northbound Right	Intrvl. Total
04/27/99							
16:00	1	255	0	0	408	1	665
16:15	0	264	0	1	457	0	722
16:30	0	273	0	0	491	1	765
16:45	0	268	0	0	515	1	784
Hour	1	1060	0	1	1871	3	2936
17:00	0	269	0	0	525	0	794
17:15	0	342	0	0	466	0	808
17:30	0	272	0	0	464	0	736
17:45	1	270	0	1	514	0	786
Hour	1	1153	0	1	1969	0	3124
Total	2	2213	0	2	3840	3	6060
% Apr.	-	99.9	-	100.0	99.9	-	-
% Int.	-	36.5	-	-	63.3	-	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		16:00		16:30	
Vol.	1	1153	0	1	1997	2
Pct.	0.0	99.9	0.0	100.0	99.9	0.1
Total	1154		1		1999	
High	17:15		16:15		17:00	
Vol.	0	342	0	1	525	0
Total	342		1		525	
PHF	0.844		0.250		0.952	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	16:30		16:30		16:30	
Vol.	0	1152	0	0	1997	2
Pct.	0.0	100.0	0.0	0.0	99.9	0.1
Total	1152		0		1999	
High	17:15		17:15		17:00	
Vol.	0	342	0	0	525	0
Total	342		0		525	
PHF	0.842		0.000		0.952	

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: 183CENT
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Central Eastbound Left	Right	Intrvl. Total
04/27/99							
07:00	580	3	0	141	0	0	724
07:15	556	0	0	209	0	1	766
07:30	501	1	1	226	1	3	733
07:45	522	0	1	247	0	0	770
Hour	2159	4	2	823	1	4	2993
08:00	480	0	0	273	0	0	753
08:15	402	0	0	252	0	1	655
08:30	439	0	1	188	2	2	632
08:45	411	2	1	170	1	0	585
Hour	1732	2	2	883	3	3	2625
Total	3891	6	4	1706	4	7	5618
% Apr.	99.8	0.1	0.2	99.7	36.3	63.6	-
% Int.	69.2	0.1	-	30.3	-	0.1	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:00		07:30		08:00	
Vol.	2159	4	2	998	3	3
Pct.	99.8	0.1	0.2	99.8	50.0	50.0
Total	2163		1000		6	
High	07:00		08:00		08:30	
Vol.	580	3	0	273	2	2
Total	583		273		4	
PHF	0.928		0.916		0.375	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/27/99 to 08:45 on 04/27/99

Time	07:15		07:15		07:15	
Vol.	2059	1	2	955	1	4
Pct.	99.9	0.0	0.2	99.7	20.0	80.0
Total	2060		957		5	
High	07:15		08:00		07:30	
Vol.	556	0	0	273	1	3
Total	556		273		4	
PHF	0.926		0.876		0.312	

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: CEDCENT
Site Code : 00000000
Start Date: 04/27/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Central Eastbound Left	Right	Intrvl. Total
04/27/99							
16:00	261	3	3	414	2	3	686
16:15	268	2	1	457	0	2	730
16:30	271	5	3	480	2	2	763
16:45	268	6	3	529	1	3	810
Hour	1068	16	10	1880	5	10	2989
17:00	271	6	5	527	3	3	815
17:15	337	6	7	475	2	1	828
17:30	278	1	4	482	3	2	770
17:45	281	6	7	523	3	3	823
Hour	1167	19	23	2007	11	9	3236
Total	2235	35	33	3887	16	19	6225
% Apr.	98.4	1.5	0.8	99.1	45.7	54.2	-
% Int.	35.9	0.5	0.5	62.4	0.2	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		16:45		17:00	
Vol.	1167	19	19	2013	11	9
Pct.	98.3	1.6	0.9	99.0	55.0	45.0
Total	1186		2032		20	
High	17:15		16:45		17:00	
Vol.	337	6	3	529	3	3
Total	343		532		6	
PHF	0.864		0.955		0.833	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/27/99 to 17:45 on 04/27/99

Time	17:00		17:00		17:00	
Vol.	1167	19	23	2007	11	9
Pct.	98.3	1.6	1.1	98.8	55.0	45.0
Total	1186		2030		20	
High	17:15		17:00		17:00	
Vol.	337	6	5	527	3	3
Total	343		532		6	
PHF	0.864		0.954		0.833	

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Study Name: RAYPARK
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	N. Park Westbound Left	Right	US 183 Northbound Thru	Right	Intrvl. Total
04/28/99							
07:00	2	541	0	1	273	1	818
07:15	4	571	0	0	308	2	885
07:30	1	537	1	0	312	3	854
07:45	1	521	0	0	341	2	865
Hour	8	2170	1	1	1234	8	3422
08:00	2	442	0	1	349	6	800
08:15	0	466	0	0	314	2	782
08:30	1	464	1	0	304	0	770
08:45	1	449	1	0	276	3	730
Hour	4	1821	2	1	1243	11	3082
Total	12	3991	3	2	2477	19	6504
% Apr.	0.3	99.7	60.0	40.0	99.2	0.7	-
% Int.	0.1	61.3	-	-	38.0	0.2	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:00		08:00		07:30	
Vol.	8	2170	2	1	1316	13
Pct.	0.3	99.6	66.6	33.3	99.0	0.9
Total	2178		3		1329	
High	07:15		08:30		08:00	
Vol.	4	571	1	0	349	6
Total	575		1		355	
PHF	0.947		0.750		0.936	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:00		07:00		07:00	
Vol.	8	2170	1	1	1234	8
Pct.	0.3	99.6	50.0	50.0	99.3	0.6
Total	2178		2		1242	
High	07:15		07:30		07:45	
Vol.	4	571	1	0	341	2
Total	575		1		343	
PHF	0.947		0.500		0.905	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: RENEPARK
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	US 183 Southbound Thru	N. Park Westbound Left	N. Park Westbound Right	US 183 Northbound Thru	US 183 Northbound Right	Intrvl. Total
04/28/99							
16:00	1	374	3	2	497	2	879
16:15	0	389	0	2	516	4	911
16:30	2	372	2	3	555	1	935
16:45	0	403	0	4	543	2	952
Hour	3	1538	5	11	2111	9	3677
17:00	0	412	1	2	587	6	1008
17:15	1	454	1	0	563	4	1023
17:30	1	417	0	0	547	2	967
17:45	0	440	0	3	516	2	961
Hour	2	1723	2	5	2213	14	3959
Total	5	3261	7	16	4324	23	7636
% Apr.	0.1	99.8	30.4	69.5	99.4	0.5	-
% Int.	-	42.7	-	0.2	56.6	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	17:00		16:00		16:30	
Vol.	2	1723	5	11	2248	13
Pct.	0.1	99.8	31.2	68.7	99.4	0.5
Total	1725		16		2261	
High	17:15		16:00		17:00	
Vol.	1	454	3	2	587	6
Total	455		5		593	
PHF	0.948		0.800		0.953	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	17:00		17:00		17:00	
Vol.	2	1723	2	5	2213	14
Pct.	0.1	99.8	28.5	71.4	99.3	0.6
Total	1725		7		2227	
High	17:15		17:00		17:00	
Vol.	1	454	1	2	587	6
Total	455		3		593	
PHF	0.948		0.583		0.939	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: COMMWAYN
Site Code : 00000000
Start Date: 04/29/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Commercial Eastbound Left	Right	Intrvl. Total
04/29/99							
07:00	582	3	1	218	0	1	805
07:15	541	0	1	286	0	4	832
07:30	584	4	1	282	3	2	876
07:45	580	1	1	358	1	3	944
Hour	2287	8	4	1144	4	10	3457
08:00	556	1	1	302	2	2	864
08:15	474	4	2	285	0	7	772
08:30	491	4	0	260	2	1	758
08:45	515	2	1	236	3	2	759
Hour	2036	11	4	1083	7	12	3153
Total	4323	19	8	2227	11	22	6610
% Apr.	99.5	0.4	0.3	99.6	33.3	66.6	-
% Int.	65.4	0.2	0.1	33.6	0.1	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/29/99 to 08:45 on 04/29/99

Time	07:00		07:15		07:30	
Vol.	2287	8	4	1228	6	14
Pct.	99.6	0.3	0.3	99.6	30.0	70.0
Total	2295		1232		20	
High	07:30		07:45		08:15	
Vol.	584	4	1	358	0	7
Total	588		359		7	
PHF	0.976		0.858		0.714	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/29/99 to 08:45 on 04/29/99

Time	07:15		07:15		07:15	
Vol.	2261	6	4	1228	6	11
Pct.	99.7	0.2	0.3	99.6	35.2	64.7
Total	2267		1232		17	
High	07:30		07:45		07:30	
Vol.	584	4	1	358	3	2
Total	588		359		5	
PHF	0.964		0.858		0.850	

GRAM Traffic Counting
12406 Uttimer Ln Austin TX 78753-7055
512-834-7550
(email) gram@kdi.com

Weather :
Counted by:
NORTH/STH :
EAST/WEST :

Study Name: WAYNCOMM
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Thru	Right	US 183 Northbound Left	Thru	Commercial Eastbound Left	Right	Intrvl. Total
04/28/99							
16:00	369	1	1	504	8	5	888
16:15	378	4	1	526	3	0	912
16:30	342	1	1	514	1	2	861
16:45	386	0	3	467	0	2	858
Hour	1475	6	6	2011	12	9	3519
17:00	359	0	2	557	0	1	919
17:15	431	0	1	552	0	4	988
17:30	394	2	6	522	0	3	927
17:45	413	15	2	501	4	6	941
Hour	1597	17	11	2132	4	14	3775
Total	3072	23	17	4143	16	23	7294
% Apr.	99.2	0.7	0.4	99.5	41.0	58.9	-
% Int.	42.1	0.3	0.2	56.8	0.2	0.3	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	17:00		17:00		16:00	
Vol.	1597	17	11	2132	12	9
Pct.	98.9	1.0	0.5	99.4	57.1	42.8
Total	1614		2143		21	
High	17:15		17:00		16:00	
Vol.	431	0	2	557	8	5
Total	431		559		13	
PHF	0.936		0.958		0.404	

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	17:00		17:00		17:00	
Vol.	1597	17	11	2132	4	14
Pct.	98.9	1.0	0.5	99.4	22.2	77.7
Total	1614		2143		18	
High	17:15		17:00		17:45	
Vol.	431	0	2	557	4	6
Total	431		559		10	
PHF	0.936		0.958		0.450	

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :New Hope

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Study Name: 183NEW_P
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Right	Other	Aprch Total	New Hope Westbound Left	Thru	Right	Other	Aprch Total	US 183 Northbound Left	Thru	Right	Other	Aprch Total	New Hope Eastbound Left	Thru	Right	Other	Aprch Total	Intvl Total
04/28/99																					
07:00	24	461	9	0	494	32	7	1	0	40	12	139	14	0	165	13	26	31	0	70	769
07:15	31	475	8	0	514	38	11	1	0	50	18	160	17	0	195	9	18	19	0	46	805
07:30	38	430	12	0	480	61	27	5	0	93	21	163	31	0	215	14	19	24	0	57	845
07:45	19	389	16	0	424	42	15	4	0	61	26	181	16	0	223	14	19	18	0	51	759
Hour	112	1755	45	0	1912	173	60	11	0	244	77	643	78	0	798	50	82	92	0	224	3178
08:00	9	356	17	0	382	31	11	1	0	43	40	193	10	0	243	17	16	22	0	55	723
08:15	10	359	21	0	390	29	8	3	0	40	30	198	13	0	241	10	11	21	0	42	713
08:30	16	355	14	0	385	45	8	2	0	55	24	192	9	0	225	18	14	21	0	53	718
08:45	5	317	13	0	335	22	4	4	0	30	21	175	9	0	205	16	9	20	0	45	615
Hour	40	1387	65	0	1492	127	31	10	0	168	115	758	41	0	914	61	50	84	0	195	2769
Total	152	3142	110	0	3404	300	91	21	0	412	192	1401	119	0	1712	111	132	176	0	419	5947
% Apr.	4.4	92.3	3.2	-	-	72.8	22.0	5.0	-	-	11.2	81.8	6.9	-	-	26.4	31.5	42.0	-	-	-
% Int.	2.5	52.8	1.8	-	-	5.0	1.5	0.3	-	-	3.2	23.5	2.0	-	-	1.8	2.2	2.9	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:00				07:15				07:45				07:00					
Vol.	112	1755	45	0	172	64	11	0	120	764	48	0	50	82	92	0		
Pct.	5.8	91.7	2.3	0.0	69.6	25.9	4.4	0.0	12.8	81.9	5.1	0.0	22.3	36.6	41.0	0.0		
Total	1912				247				932				224					
High	07:15				07:30				08:00				07:00					
Vol.	31	475	8	0	61	27	5	0	40	193	10	0	13	26	31	0		
Total	514				93				243				70					
PHF	0.930				0.664				0.959				0.800					

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:00				07:00				07:00				07:00					
Vol.	112	1755	45	0	173	60	11	0	77	643	78	0	50	82	92	0		
Pct.	5.8	91.7	2.3	0.0	70.9	24.5	4.5	0.0	9.6	80.5	9.7	0.0	22.3	36.6	41.0	0.0		
Total	1912				244				798				224					
High	07:15				07:30				07:45				07:00					
Vol.	31	475	8	0	61	27	5	0	26	181	16	0	13	26	31	0		
Total	514				93				223				70					
PHF	0.930				0.656				0.895				0.800					

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :New Hope

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Study Name: 183NEW_A
Site Code : 00000000
Start Date: 04/29/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Right	Other	Aprch Total	New Hope Westbound Left	Thru	Right	Other	Aprch Total	US 183 Northbound Left	Thru	Right	Other	Aprch Total	New Hope Eastbound Left	Thru	Right	Other	Aprch Total	Intvl Total
04/29/99																					
16:00	6	216	3	0	225	21	4	7	0	32	38	361	22	0	421	5	11	11	0	27	705
16:15	6	250	19	0	275	26	6	3	0	35	28	364	29	0	421	6	6	18	0	30	761
16:30	1	220	10	0	231	11	9	12	0	32	43	377	25	0	445	8	10	17	0	35	743
16:45	5	274	7	0	286	18	11	14	0	43	41	403	41	0	485	6	13	15	0	34	848
Hour	18	960	39	0	1017	76	30	36	0	142	150	1505	117	0	1772	25	40	61	0	126	3057
17:00	6	238	16	0	260	18	12	14	0	44	53	419	41	0	513	7	7	23	0	37	854
17:15	13	283	22	0	318	24	19	5	0	48	41	443	44	0	528	10	15	13	0	38	932
17:30	5	252	21	0	278	25	30	8	0	63	50	404	38	0	492	17	16	18	0	51	884
17:45	10	266	25	0	301	20	16	9	0	45	53	422	51	0	526	13	8	24	0	45	917
Hour	34	1039	84	0	1157	87	77	36	0	200	197	1688	174	0	2059	47	46	78	0	171	3587
Total	52	1999	123	0	2174	163	107	72	0	342	347	3193	291	0	3831	72	86	139	0	297	6644
% Apr.	2.3	91.9	5.6	-	-	47.6	31.2	21.0	-	-	9.0	83.3	7.5	-	-	24.2	28.9	46.8	-	-	-
% Int.	0.7	30.0	1.8	-	-	2.4	1.6	1.0	-	-	5.2	48.0	4.3	-	-	1.0	1.2	2.0	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/29/99 to 17:45 on 04/29/99

Time	17:00				17:00				17:00				17:00			
Vol.	34	1039	84	0	87	77	36	0	197	1688	174	0	47	46	78	0
Pct.	2.9	89.8	7.2	0.0	43.5	38.5	18.0	0.0	9.5	81.9	8.4	0.0	27.4	26.9	45.6	0.0
Total	1157				200				2059				171			
High	17:15				17:30				17:15				17:30			
Vol.	13	283	22	0	25	30	8	0	41	443	44	0	17	16	18	0
Total	318				63				528				51			
PHF	0.910				0.794				0.975				0.838			

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/29/99 to 17:45 on 04/29/99

Time	17:00				17:00				17:00				17:00			
Vol.	34	1039	84	0	87	77	36	0	197	1688	174	0	47	46	78	0
Pct.	2.9	89.8	7.2	0.0	43.5	38.5	18.0	0.0	9.5	81.9	8.4	0.0	27.4	26.9	45.6	0.0
Total	1157				200				2059				171			
High	17:15				17:30				17:15				17:30			
Vol.	13	283	22	0	25	30	8	0	41	443	44	0	17	16	18	0
Total	318				63				528				51			
PHF	0.910				0.794				0.975				0.838			

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :FM 1431

Study Name: 1431183A
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Right	Other	Aprch Total	FM 1431 Westbound Left	Thru	Right	Other	Aprch Total	US 183 Northbound Left	Thru	Right	Other	Aprch Total	FM 1431 Eastbound Left	Thru	Right	Other	Aprch Total	Intvl Total
04/28/99																					
07:00	134	432	10	0	576	36	58	45	0	139	63	145	37	0	245	10	195	140	0	345	1305
07:15	166	395	5	0	566	30	58	43	0	131	67	207	41	0	315	12	187	133	0	332	1344
07:30	136	379	9	0	524	24	62	45	0	131	68	175	55	0	298	15	196	119	0	330	1283
07:45	134	377	11	0	522	40	72	42	0	154	79	265	63	0	407	22	168	128	0	318	1401
Hour	570	1583	35	0	2188	130	250	175	0	555	277	792	196	0	1265	59	746	520	0	1325	5333
08:00	141	329	14	0	484	41	76	52	0	169	65	238	52	0	355	24	150	146	0	320	1328
08:15	126	318	16	0	460	35	68	46	0	149	72	212	36	0	320	18	155	138	0	311	1240
08:30	122	321	9	0	452	36	62	48	0	146	63	239	49	0	351	22	146	125	0	293	1242
08:45	118	296	12	0	426	43	71	43	0	157	64	202	37	0	303	24	139	133	0	296	1182
Hour	507	1264	51	0	1822	155	277	189	0	621	264	891	174	0	1329	88	590	542	0	1220	4992
Total	1077	2847	86	0	4010	285	527	364	0	1176	541	1683	370	0	2594	147	1336	1062	0	2545	10325
% Apr.	26.8	70.9	2.1	-	-	24.2	44.8	30.9	-	-	20.8	64.8	14.2	-	-	5.7	52.4	41.7	-	-	-
% Int.	10.4	27.5	0.8	-	-	2.7	5.1	3.5	-	-	5.2	16.3	3.5	-	-	1.4	12.9	10.2	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:00				08:00				07:45				07:00			
Vol.	570	1583	35	0	155	277	189	0	279	954	200	0	59	746	520	0
Pct.	26.0	72.3	1.6	0.0	24.9	44.6	30.4	0.0	19.4	66.5	13.9	0.0	4.4	56.3	39.2	0.0
Total	2188				621				1433				1325			
High	07:00				08:00				07:45				07:00			
Vol.	134	432	10	0	41	76	52	0	79	265	63	0	10	195	140	0
Total	576				169				407				345			
PHF	0.950				0.919				0.880				0.960			

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/28/99 to 08:45 on 04/28/99

Time	07:15				07:15				07:15				07:15			
Vol.	577	1480	39	0	135	268	182	0	279	885	211	0	73	701	526	0
Pct.	27.5	70.6	1.8	0.0	23.0	45.8	31.1	0.0	20.2	64.3	15.3	0.0	5.6	53.9	40.4	0.0
Total	2096				585				1375				1300			
High	07:15				08:00				07:45				07:15			
Vol.	166	395	5	0	41	76	52	0	79	265	63	0	12	187	133	0
Total	566				169				407				332			
PHF	0.926				0.865				0.845				0.979			

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :FM 1431

Study Name: 1431183P
Site Code : 00000000
Start Date: 04/28/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Right	Other	Aprch Total	FM 1431 Westbound Left	Thru	Right	Other	Aprch Total	US 183 Northbound Left	Thru	Right	Other	Aprch Total	FM 1431 Eastbound Left	Thru	Right	Other	Aprch Total	Intvl Total
04/28/99																					
16:00	54	201	16	0	271	41	136	92	0	269	103	338	49	0	490	18	79	103	0	200	1230
16:15	55	231	19	0	305	38	151	102	0	291	164	337	55	0	556	27	83	137	0	247	1399
16:30	47	246	17	0	310	36	135	112	0	283	187	389	37	0	613	32	70	118	0	220	1426
16:45	50	242	14	0	306	28	145	102	0	275	160	343	42	0	545	33	76	111	0	220	1346
Hour	206	920	66	0	1192	143	567	408	0	1118	614	1407	183	0	2204	110	308	469	0	887	5401
17:00	57	218	14	0	289	46	170	114	0	330	141	390	46	0	577	20	78	122	0	220	1416
17:15	58	257	18	0	333	35	151	137	0	323	157	408	39	0	604	27	81	117	0	225	1485
17:30	55	211	16	0	282	47	164	127	0	338	186	417	48	0	651	34	68	109	0	211	1482
17:45	46	239	13	0	298	39	162	144	0	345	190	412	21	0	623	37	73	111	0	221	1487
Hour	216	925	61	0	1202	167	647	522	0	1336	674	1627	154	0	2455	118	300	459	0	877	5870
Total	422	1845	127	0	2394	310	1214	930	0	2454	1288	3034	337	0	4659	228	608	928	0	1764	11271
% Apr.	17.6	77.0	5.3	-	-	12.6	49.4	37.8	-	-	27.6	65.1	7.2	-	-	12.9	34.4	52.6	-	-	-
% Int.	3.7	16.3	1.1	-	-	2.7	10.7	8.2	-	-	11.4	26.9	2.9	-	-	2.0	5.3	8.2	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	16:30				17:00				17:00				16:15			
Vol.	212	963	63	0	167	647	522	0	674	1627	154	0	112	307	488	0
Pct.	17.1	77.7	5.0	0.0	12.5	48.4	39.0	0.0	27.4	66.2	6.2	0.0	12.3	33.8	53.8	0.0
Total	1238				1336				2455				907			
High	17:15				17:45				17:30				16:15			
Vol.	58	257	18	0	39	162	144	0	186	417	48	0	27	83	137	0
Total	333				345				651				247			
PHF	0.929				0.968				0.943				0.918			

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/28/99 to 17:45 on 04/28/99

Time	17:00				17:00				17:00				17:00			
Vol.	216	925	61	0	167	647	522	0	674	1627	154	0	118	300	459	0
Pct.	17.9	76.9	5.0	0.0	12.5	48.4	39.0	0.0	27.4	66.2	6.2	0.0	13.4	34.2	52.3	0.0
Total	1202				1336				2455				877			
High	17:15				17:45				17:30				17:15			
Vol.	58	257	18	0	39	162	144	0	186	417	48	0	27	81	117	0
Total	333				345				651				225			
PHF	0.902				0.968				0.943				0.974			

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :Discovery

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Study Name: 183DIS_A
Site Code : 00000000
Start Date: 04/29/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Other	Apprch. Total	Discovery Westbound Left	Right	Other	Apprch. Total	US 183 Northbound Thru	Right	Other	Apprch. Total	Intrvl. Total
04/29/99													
07:00	4	354	0	358	14	3	0	17	196	8	0	204	579
07:15	11	549	0	560	20	5	0	25	263	14	0	277	862
07:30	10	477	0	487	19	4	0	23	303	19	0	322	832
07:45	9	499	0	508	35	5	0	40	337	26	0	363	911
Hour	34	1879	0	1913	88	17	0	105	1099	67	0	1166	3184
08:00	5	512	0	517	21	5	0	26	326	22	0	348	891
08:15	14	451	0	465	20	11	0	31	280	22	0	302	798
08:30	12	480	0	492	43	4	0	47	256	16	0	272	811
08:45	11	458	0	469	32	5	0	37	215	19	0	234	740
Hour	42	1901	0	1943	116	25	0	141	1077	79	0	1156	3240
Total	76	3780	0	3856	204	42	0	246	2176	146	0	2322	6424
% Apr.	1.9	98.0	-	-	82.9	17.0	-	-	93.7	6.2	-	-	-
% Int.	1.1	58.8	-	-	3.1	0.6	-	-	33.8	2.2	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 07:00 on 04/29/99 to 08:45 on 04/29/99

Time	07:15			07:45			07:30			
Vol.	35	2037	0	119	25	0	1246	89	0	
Pct.	1.6	98.3	0.0	82.6	17.3	0.0	93.3	6.6	0.0	
Total	2072			144			1335			
High	07:15			08:30			07:45			
Vol.	11	549	0	43	4	0	337	26	0	
Total	560			47			363			
PHF	0.925			0.766			0.919			

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/29/99 to 08:45 on 04/29/99

Time	07:15			07:15			07:15			
Vol.	35	2037	0:15	95	19	0	1229	81	0	
Pct.	1.6	98.3	0.0	83.3	16.6	0.0	93.8	6.1	0.0	
Total	2072			114			1310			
High	07:15			07:45			07:45			
Vol.	11	549	0	35	5	0	337	26	0	
Total	560			40			363			
PHF	0.925			0.712			0.902			

Weather :
Counted by:
NORTH/STH :US 183
EAST/WEST :Discovery

Alliance-Texas Engineering Company
3939 Bee Cave Road Suite 200-C
Austin, TX 78745
(512) 347-1126

Study Name: 183DIS_P
Site Code : 00000000
Start Date: 04/29/99
Page : 1

Vehicle group 1

Start Time	US 183 Southbound Left	Thru	Other	Apprch. Total	Discovery Westbound Left	Right	Other	Apprch. Total	US 183 Northbound Thru	Right	Other	Apprch. Total	Intrvl. Total
04/29/99													
16:00	13	340	0	353	68	20	0	88	473	30	0	503	944
16:15	19	315	0	334	66	26	0	92	532	32	0	564	990
16:30	14	312	0	326	67	27	0	94	499	40	0	539	959
16:45	9	336	0	345	74	27	0	101	532	45	0	577	1023
Hour	55	1303	0	1358	275	100	0	375	2036	147	0	2183	3916
17:00	12	353	0	365	82	45	0	127	561	43	0	604	1096
17:15	13	390	0	403	79	56	0	135	529	45	0	574	1112
17:30	14	362	0	376	87	46	0	133	552	37	0	589	1098
17:45	15	354	0	369	74	54	0	128	531	27	0	558	1055
Hour	54	1459	0	1513	322	201	0	523	2173	152	0	2325	4361
Total	109	2762	0	2871	597	301	0	898	4209	299	0	4508	8277
% Apr.	3.7	96.2	-	-	66.4	33.5	-	-	93.3	6.6	-	-	-
% Int.	1.3	33.3	-	-	7.2	3.6	-	-	50.8	3.6	-	-	-

Peak Hour Analysis By Individual Approach for the Period: 16:00 on 04/29/99 to 17:45 on 04/29/99

Time	17:00			17:00			16:45			
Vol.	54	1459	0	322	201	0	2174	170	0	
Pct.	3.5	96.4	0.0	61.5	38.4	0.0	92.7	7.2	0.0	
Total	1513			523			2344			
High	17:15			17:15			17:00			
Vol.	13	390	0	79	56	0	561	43	0	
Total	403			135			604			
PHF	0.939			0.969			0.970			

Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 04/29/99 to 17:45 on 04/29/99

Time	17:00			17:00			17:00			
Vol.	54	1459	0:00	322	201	0	2173	152	0	
Pct.	3.5	96.4	0.0	61.5	38.4	0.0	93.4	6.5	0.0	
Total	1513			523			2325			
High	17:15			17:15			17:00			
Vol.	13	390	0	79	56	0	561	43	0	
Total	403			135			604			
PHF	0.939			0.969			0.962			

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Callahans - north entrance
Location Code 21319
Jurisdiction ..... cedar park, tx
Recorder Set 07/12/99 23:08
Recording Start ... 07/13/99 01:00
Recording End 07/14/99 01:00
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 9
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Tuesday 07/13/99 Channel: 1

0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	0100	Totals
4	0	8	0	3	7	22	20	48	71	111	204	168	118	90	100	84	104	98	82	42	6	7	3	1400
0	0	2	0	0	3	0	3	11	21	26	41	39	37	27	27	20	27	32	26	10	5	2	2	
3	0	0	0	0	4	6	9	7	16	32	54	41	36	20	23	29	29	20	13	8	0	2	0	
1	0	2	0	3	0	7	3	15	18	21	51	45	18	17	28	20	18	16	15	13	0	3	0	
0	0	4	0	0	0	9	5	15	16	32	58	43	27	26	22	15	30	30	28	11	1	0	1	

AM Peak Hour ..... 11:00 to 12:00 (111 vehicles)
AM Peak Hour Factor 86.7%
PM Peak Hour ..... 12:00 to 13:00 (204 vehicles)
PM Peak Hour Factor 87.9%

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Texaco - south entrance
Location Code 21318
Jurisdiction ..... Cedar Park, Tx
Recorder Set 07/12/99 23:44
Recording Start ... 07/13/99 01:00
Recording End 07/14/99 01:30
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 8
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Tuesday 07/13/99 Channel: 1

0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	0100	Totals
0	0	2	2	8	43	67	122	97	80	65	63	84	79	70	60	64	65	68	42	41	17	4	4	1147
0	0	0	0	7	14	19	32	20	8	7	7	10	10	22	14	6	16	11	9	12	11	0	4	
0	0	0	0	0	13	12	43	25	20	11	17	24	8	12	22	19	11	26	14	23	6	0	0	
0	0	0	2	0	6	15	25	38	25	23	28	24	22	11	18	20	22	11	7	6	0	2	0	
0	0	2	0	1	10	21	22	14	27	24	11	26	39	25	6	19	16	20	12	0	0	2	0	

AM Peak Hour ..... 08:00 to 09:00 (122 vehicles)
AM Peak Hour Factor 70.9%
PM Peak Hour ..... 14:30 to 15:30 (95 vehicles)
PM Peak Hour Factor 60.9%

Wednesday 07/14/99 Channel: 1

0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	0100	Totals
2																								2
0																								
2																								

AM Peak Hour ..... 01:00 to 01:30 (2 vehicles)
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... N/A
PM Peak Hour Factor ..... N/A

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Pet Connection - North Entrance
Location Code 2018-1
Jurisdiction ..... Cedar Park, Tx
Recorder Set 02/03/99 05:07
Recording Start ... 07/13/99 01:00
Recording End 07/14/99 01:00
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 6
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Tuesday 07/13/99 Channel: 1

0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	0100	Totals
6	8	5	12	25	40	96	69	67	64	48	37	40	56	51	24	37	48	49	21	18	14	7	8	850
2	0	0	5	5	12	9	18	23	28	20	9	9	14	20	4	7	12	16	7	5	1	5	2	
3	3	0	1	6	8	22	9	10	9	14	14	14	10	9	12	11	12	15	3	3	2	1	2	
0	1	1	0	7	12	40	36	10	6	10	10	8	17	15	2	6	11	10	6	8	5	1	3	
1	4	4	6	7	8	25	6	24	21	4	4	9	15	7	6	13	13	8	5	2	6	0	1	

AM Peak Hour ..... 07:15 to 08:15 (105 vehicles)
AM Peak Hour Factor 65.6%
PM Peak Hour ..... 14:15 to 15:15 (62 vehicles)
PM Peak Hour Factor 77.5%

0 0

0
0

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... N/A
PM Peak Hour Factor ..... N/A

1

0
1

AM Peak Hour ..... 01:00 to 01:30 (1 vehicles)
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... N/A
PM Peak Hour Factor ..... N/A

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... City Hall Exit - North
Location Code 213115
Jurisdiction ..... Cedar Park, Tx
Recorder Set 07/13/99 23:04
Recording Start ... 07/14/99 00:00
Recording End 07/16/99 14:30
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 15
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Wednesday 07/14/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	0	4	9	5	13	27	51	47	60	69	103	64	84	91	85	23	9	14	15	3	0	776
0	0	0	0	4	0	0	2	7	19	19	16	26	25	19	16	20	24	4	3	2	3	0	0	
0	0	0	0	0	1	3	2	9	16	14	14	19	24	19	12	23	28	6	0	2	5	0	0	
0	0	0	0	0	3	0	5	5	15	9	21	10	18	11	26	29	21	5	2	3	2	1	0	
0	0	0	0	0	5	2	4	6	1	5	9	14	36	15	30	19	12	8	4	7	5	2	0	

AM Peak Hour ..... 11:00 to 12:00 (60 vehicles)
AM Peak Hour Factor 71.4%
PM Peak Hour ..... 13:00 to 14:00 (103 vehicles)
PM Peak Hour Factor 71.5%

Thursday 07/15/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	2	0	2	2	2	3	14	23	47	64	82	66	82	44	69	94	90	28	27	18	9	8	0	776
0	0	0	0	2	0	1	1	6	11	18	22	23	20	20	31	19	45	11	5	2	0	3	0	
0	0	0	0	0	0	0	0	6	18	14	10	12	25	2	15	18	21	6	12	6	4	3	0	
0	0	0	0	0	2	0	5	4	8	21	22	12	17	6	8	31	11	2	4	10	2	0	0	
0	2	0	2	0	0	2	8	7	10	11	28	19	20	16	15	26	13	9	6	0	3	2	0	

AM Peak Hour ..... 11:00 to 12:00 (82 vehicles)
AM Peak Hour Factor 73.2%
PM Peak Hour ..... 16:30 to 17:30 (123 vehicles)
PM Peak Hour Factor 68.3%

Friday 07/16/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	3	1	1	17	27	45	93	73	76	70	98	60										564
0	0	0	0	1	0	3	2	4	22	26	13	17	14	24										
0	0	0	1	0	0	6	8	12	16	16	24	9	24	36										
0	0	0	0	0	1	4	10	19	26	18	15	17	46											
0	0	0	2	0	0	4	7	10	29	13	24	27	14											

AM Peak Hour ..... 09:15 to 10:15 (97 vehicles)
AM Peak Hour Factor 83.6%
PM Peak Hour ..... 13:30 to 14:30 (120 vehicles)
PM Peak Hour Factor 65.2%

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Parts Connection (Both Entrances)
Location Code 213113
Jurisdiction ..... Cedar Park, Tx
Recorder Set 07/13/99 23:28
Recording Start ... 07/14/99 00:00
Recording End 07/16/99 14:15
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 13
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Wednesday 07/14/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
6	1	0	0	0	2	2	22	20	24	35	18	25	27	34	48	57	18	22	28	6	6	6	1	408
0	0	0	0	0	0	0	3	3	1	4	6	10	10	5	10	7	4	7	9	3	4	2	0	
0	0	0	0	0	2	2	2	11	6	12	9	4	7	9	14	15	0	2	12	1	2	0	0	
4	1	0	0	0	0	0	5	4	3	9	1	6	4	9	12	17	6	6	3	0	0	0	0	
2	0	0	0	0	0	0	12	2	14	10	2	5	6	11	12	18	8	7	4	2	0	4	1	

AM Peak Hour ..... 09:45 to 10:45 (39 vehicles)
AM Peak Hour Factor 69.6%
PM Peak Hour ..... 16:00 to 17:00 (57 vehicles)
PM Peak Hour Factor 79.2%

Thursday 07/15/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
6	0	0	0	0	2	3	9	34	47	27	51	31	28	35	34	35	28	12	21	10	0	4	0	417
0	0	0	0	0	2	0	0	3	18	7	12	13	4	7	7	2	13	2	4	3	0	2	0	
0	0	0	0	0	0	2	1	7	6	10	8	5	8	17	11	4	6	3	6	5	0	0	0	
3	0	0	0	0	0	0	1	16	12	9	11	3	11	5	12	11	6	5	9	2	0	2	0	
3	0	0	0	0	0	1	7	8	11	1	20	10	5	6	4	18	3	2	2	0	0	0	0	

AM Peak Hour ..... 11:00 to 12:00 (51 vehicles)
AM Peak Hour Factor 63.8%
PM Peak Hour ..... 16:30 to 17:30 (48 vehicles)
PM Peak Hour Factor 66.7%

Friday 07/16/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	1	0	3	0	0	11	8	32	31	39	48	28	33	9										243
0	1	0	0	0	0	4	0	3	4	9	2	7	12	9										
0	0	0	0	0	0	5	4	7	13	8	6	10	6											
0	0	0	1	0	0	2	4	10	6	12	27	9	4											
0	0	0	2	0	0	0	0	12	8	10	13	2	11											

AM Peak Hour ..... 11:00 to 12:00 (48 vehicles)
AM Peak Hour Factor 44.4%
PM Peak Hour ..... 12:15 to 13:15 (33 vehicles)
PM Peak Hour Factor 68.8%

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Firestone - North Entrance
Location Code 213144
Jurisdiction ..... Cedar Park, Tx
Recorder Set 07/14/99 21:11
Recording Start ... 07/15/99 00:00
Recording End 07/16/99 13:45
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 4
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Thursday 07/15/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
2	2	0	0	0	4	0	2	18	16	6	2	6	10	11	11	4	3	10	6	11	5	12	4	145
0	2	0	0	0	0	0	0	9	6	2	0	4	6	0	3	0	0	6	0	5	1	4	0	
0	0	0	0	0	2	0	0	0	4	0	2	0	4	0	3	0	3	2	0	3	2	3	0	
2	0	0	0	0	2	0	0	1	6	0	0	2	0	6	3	2	0	2	2	3	0	1	3	
0	0	0	0	0	0	0	2	8	0	4	0	0	0	5	2	2	0	0	4	0	2	4	1	

AM Peak Hour ..... 08:45 to 09:45 (24 vehicles)
AM Peak Hour Factor 75.0%
PM Peak Hour ..... 14:30 to 15:30 (17 vehicles)
PM Peak Hour Factor 70.8%

Friday 07/16/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	0	0	0	0	8	16	8	6	3	13	2											56
0	0	0	0	0	0	0	0	3	3	2	0	0	2											
0	0	0	0	0	0	0	3	0	0	0	1	2	0											
0	0	0	0	0	0	0	2	10	0	2	2	4	0											
0	0	0	0	0	0	0	3	3	5	2	0	7												

AM Peak Hour ..... 07:45 to 08:45 (16 vehicles)
AM Peak Hour Factor 40.0%
PM Peak Hour ..... 12:15 to 13:15 (15 vehicles)
PM Peak Hour Factor 53.6%

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 29 1995 08:54:16) Copyright 1990-1993 Mitron

Location ..... Chiropractor - North Entrance
Location Code 21315
Jurisdiction ..... Cedar Park, Tx
Recorder Set 07/13/99 23:22
Recording Start ... 07/14/99 00:00
Recording End 07/16/99 14:15
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 5
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Wednesday 07/14/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	0	0	0	2	13	22	23	15	47	29	35	37	33	21	17	18	10	2	7	0	0	331
0	0	0	0	0	0	0	4	11	7	1	16	4	8	12	5	2	7	7	6	0	2	0	0	
0	0	0	0	0	0	0	3	5	0	6	5	13	18	4	19	5	2	4	1	2	2	0	0	
0	0	0	0	0	0	2	1	4	6	6	18	1	8	8	7	7	3	5	1	0	3	0	0	
0	0	0	0	0	0	0	5	2	10	2	8	11	1	13	2	7	5	2	2	0	0	0	0	

AM Peak Hour ..... 11:00 to 12:00 (47 vehicles)
AM Peak Hour Factor 65.3%
PM Peak Hour ..... 12:45 to 13:45 (45 vehicles)
PM Peak Hour Factor 62.5%

Thursday 07/15/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	0	0	0	3	13	52	37	26	27	30	21	24	43	17	33	27	2	4	0	0	0	359
0	0	0	0	0	0	0	6	6	3	2	12	9	6	8	12	3	9	4	0	0	0	0	0	
0	0	0	0	0	0	0	5	18	10	1	3	8	0	11	17	11	10	8	1	0	0	0	0	
0	0	0	0	0	0	3	0	21	13	7	6	7	7	3	7	2	4	10	0	4	0	0	0	
0	0	0	0	0	0	0	2	7	11	16	6	6	8	2	7	1	10	5	1	0	0	0	0	

AM Peak Hour ..... 08:00 to 09:00 (52 vehicles)
AM Peak Hour Factor 61.9%
PM Peak Hour ..... 15:00 to 16:00 (43 vehicles)
PM Peak Hour Factor 63.2%

Friday 07/16/99 Channel: 1

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
0	0	0	0	0	0	7	20	49	22	30	25	39	25	0										217
0	0	0	0	0	0	0	3	8	5	3	2	4	8	0										
0	0	0	0	0	0	1	4	15	6	9	13	14	12											
0	0	0	0	0	0	2	3	13	2	11	9	8	2											
0	0	0	0	0	0	4	10	13	9	7	1	13	3											

AM Peak Hour ..... 08:00 to 09:00 (49 vehicles)
AM Peak Hour Factor 81.7%
PM Peak Hour ..... 12:15 to 13:15 (43 vehicles)
PM Peak Hour Factor 76.8%

14

14
0
0
0

AM Peak Hour ..... 00:00 to 00:15 (14 vehicles)
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... N/A
PM Peak Hour Factor ..... N/A