

**FREEWAY OPERATIONS STUDIES  
WORK ORDER # 22  
CONTRACT No. (86) 06-03-A3-AG  
(58545P5007)**

**FOR**

**IH 30 EB TO SB CONNECTION TO US 287**

**IH 30 WB BETWEEN HENDERSON AND SUMMIT**

**SUBMITTED BY  
TRAFFIC ENGINEERS, INC.  
FORT WORTH, TEXAS  
SEPTEMBER 1986**

**TRAFFIC ENGINEERS, INC.**

TABLE OF CONTENTS

	<u>PAGE NO.</u>
INTRODUCTION . . . . .	1
IH 30 EASTBOUND TO SOUTHBOUND CONNECTION TO US 287	
A. STUDY LOCATION . . . . .	2
B. PROBLEM/TASK STATEMENT . . . . .	2
C. DATA COLLECTION . . . . .	2
D. OBSERVATIONS/ANALYSIS . . . . .	2
E. CONCLUSIONS AND RECOMMENDATIONS . . . . .	9
F. APPENDIX	
1986 24-Hour Counts	
IH 30 WESTBOUND BETWEEN HENDERSON AND SUMMIT	
A. STUDY LOCATION . . . . .	11
B. PROBLEM/TASK STATEMENT . . . . .	11
C. DATA COLLECTION . . . . .	11
D. OBSERVATIONS/ANALYSIS . . . . .	11
E. CONCLUSIONS AND RECOMMENDATIONS . . . . .	16
F. APPENDIX	
24-Hour Approach Counts	
Peak Hour Turning Movement Counts	
24-Hour Area Ramp Counts	

LIST OF FIGURES

FIGURE NO.

PAGE NO.

IH 30 EASTBOUND TO SOUTHBOUND CONNECTION TO US 287

1	STUDY LOCATION. . . . .	3
2	COLLISION DIAGRAM . . . . .	4
3	STUDY AREA AND 24 HOUR COUNTS . . . . .	5
4	PEAK HOUR WEAVING PATTERNS. . . . .	6
5	EXISTING AND PROPOSED SIGNING . . . . .	8

IH 30 WESTBOUND BETWEEN HENDERSON  
AND SUMMIT AVENUE

6	STUDY LOCATION. . . . .	12
7	STUDY AREA AND 24 HOUR COUNTS . . . . .	13
8	TURNING MOVEMENT COUNTS . . . . .	14
9	COLLISION DIAGRAM . . . . .	15
10	EXISTING GEOMETRICS AND RECOMMENDED IMPROVEMENTS. . . . .	17

LIST OF TABLES

TABLE NO.

PAGE NO.

IH 30 EASTBOUND TO SOUTHBOUND CONNECTION TO US 287

1 IMPROVEMENT COST ESTIMATE . . . . . 10

IH 30 WESTBOUND BETWEEN HENDERSON  
AND SUMMIT AVENUE

2 IMPROVEMENT COST ESTIMATE . . . . . 19

## INTRODUCTION

For freeways and expressways to operate safely and efficiently, interchanges with arterial streets and other freeways must be properly designed. Interchange ramp systems must allow traffic to move from one facility to the other without disruption of high speed traffic flow on adjacent freeways and with the utmost convenience to the motorist. Ramp systems must provide for the safe weaving, deceleration and acceleration required for traffic to move from one facility to another. Signing and markings must guide the motorist to reach his destination safely. When safety or operations' problems occur at interchanges, these elements must be analyzed to determine the cause of the problem.

This work order is a study of two locations, identified by the FSIP identification process, which experience ramp related safety problems.

IH 30 EB TO SB CONNECTION TO US 287

## FREEWAY OPERATIONS STUDY

### IH 30 Eastbound to Southbound Connection to US 287

#### A. Study Location

The subject location is the exit and related ramp system from eastbound IH 30 to southbound US 287 (Figure 1). The situation is complicated by ramps to both eastbound and westbound US 80 (Lancaster Avenue). The study location on IH 30 is only 0.4 miles east of the on ramps from northbound and southbound IH 35.

#### B. Problem/Task Statement

The eastbound to southbound connection between IH 30 and US 287 presents the potential for safety and operational problems due to the geometrics and driver load that exist. It is the objective of this work order to identify existing safety and traffic flow problems and to recommend actions to correct or alleviate those problems.

#### C. Data Collection

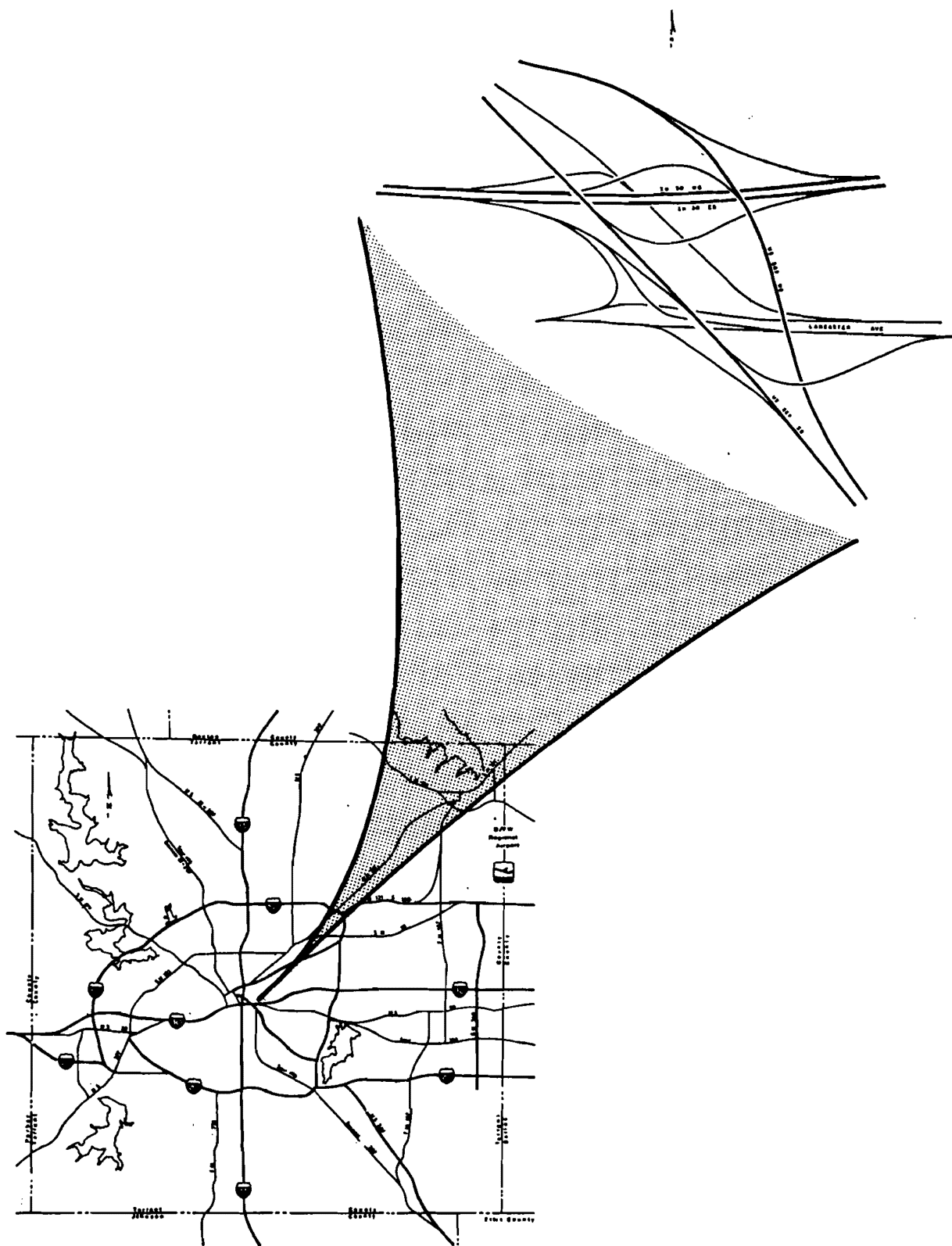
In order to identify and analyze problems associated with this ramp system, traffic accident and count data were obtained. Accident data (Figure 2) was collected for IH 30 near the exit to US 287, and on all of the off ramps to US 287 and US 80 (Lancaster Ave).

Twenty four hour traffic counts (Figure 3) were made on the off ramps to US 287 southbound and to US 80 (Lancaster Ave) eastbound and westbound. In addition, a PM peak hour weaving study (Figure 4) was made on the multiple lane section of the IH 30 eastbound off ramp to US 287/US 80 to determine lane changing movements during heavy traffic conditions.

#### D. Observations/Analysis

An analysis of the accidents showed a significant problem only at or just west of the gore area of the eastbound IH 30 exit to US 287/US 80. Few accidents were found within the ramps to US 287 or US 80 or at on ramp termini at US 287.

Twenty (20) of the twenty-two (22) total accidents identified occurred at the IH 30 exit gore (Figure 2). Of these, twelve (12) occurred during daytime, off peak periods. The remaining accidents were divided among the AM peak (3), PM peak (2), and at night (3). Most of the daytime accidents were rear end or sideswipe collisions.



TRAFFIC ENGINEERS, INC.  
HOUSTON • AUSTIN • FORT WORTH

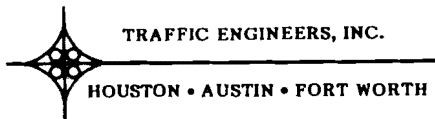
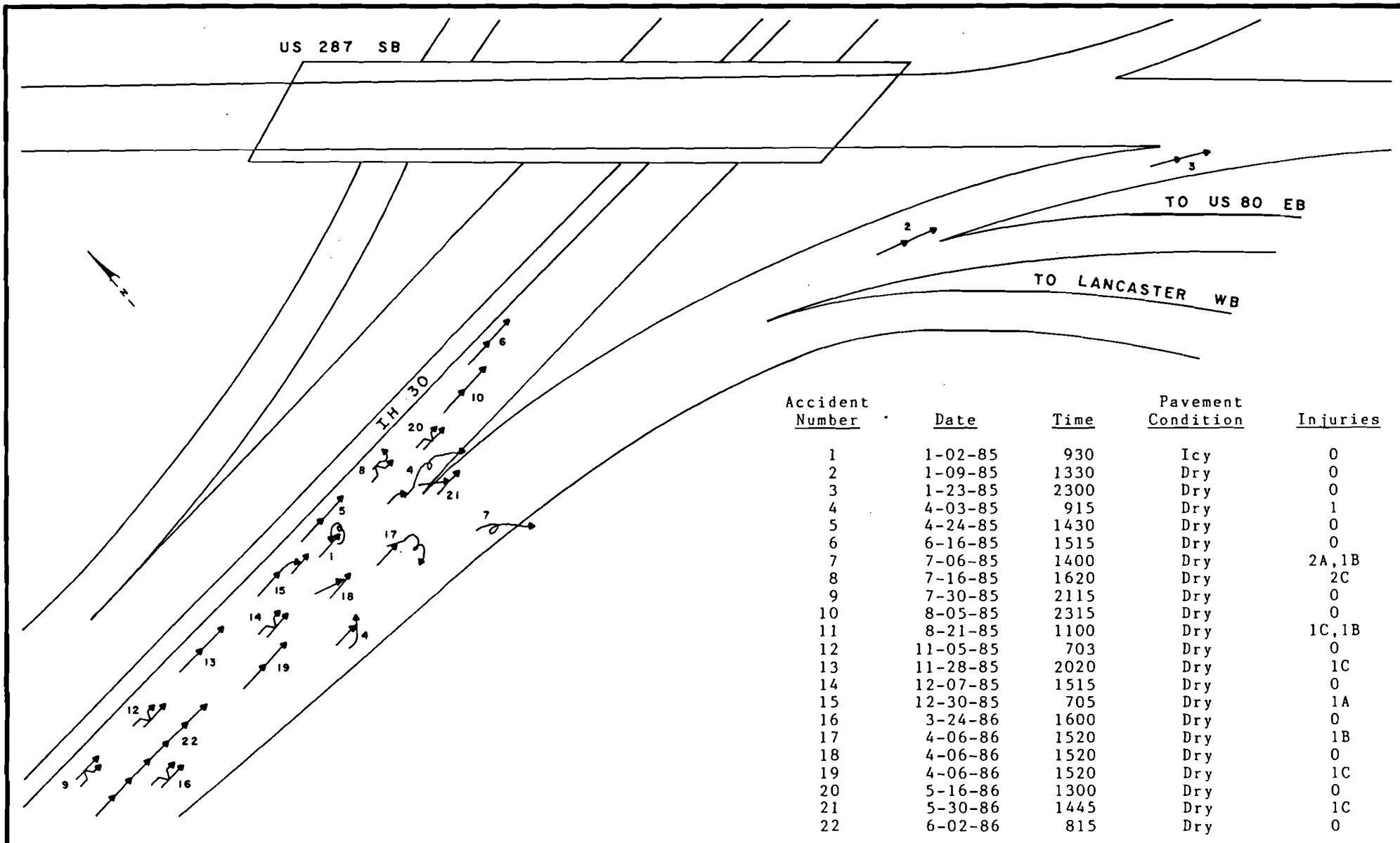
## STUDY LOCATION

IH 30 EB TO SB CONNECTION TO US 287

FORT WORTH, TEXAS

FIGURE 1

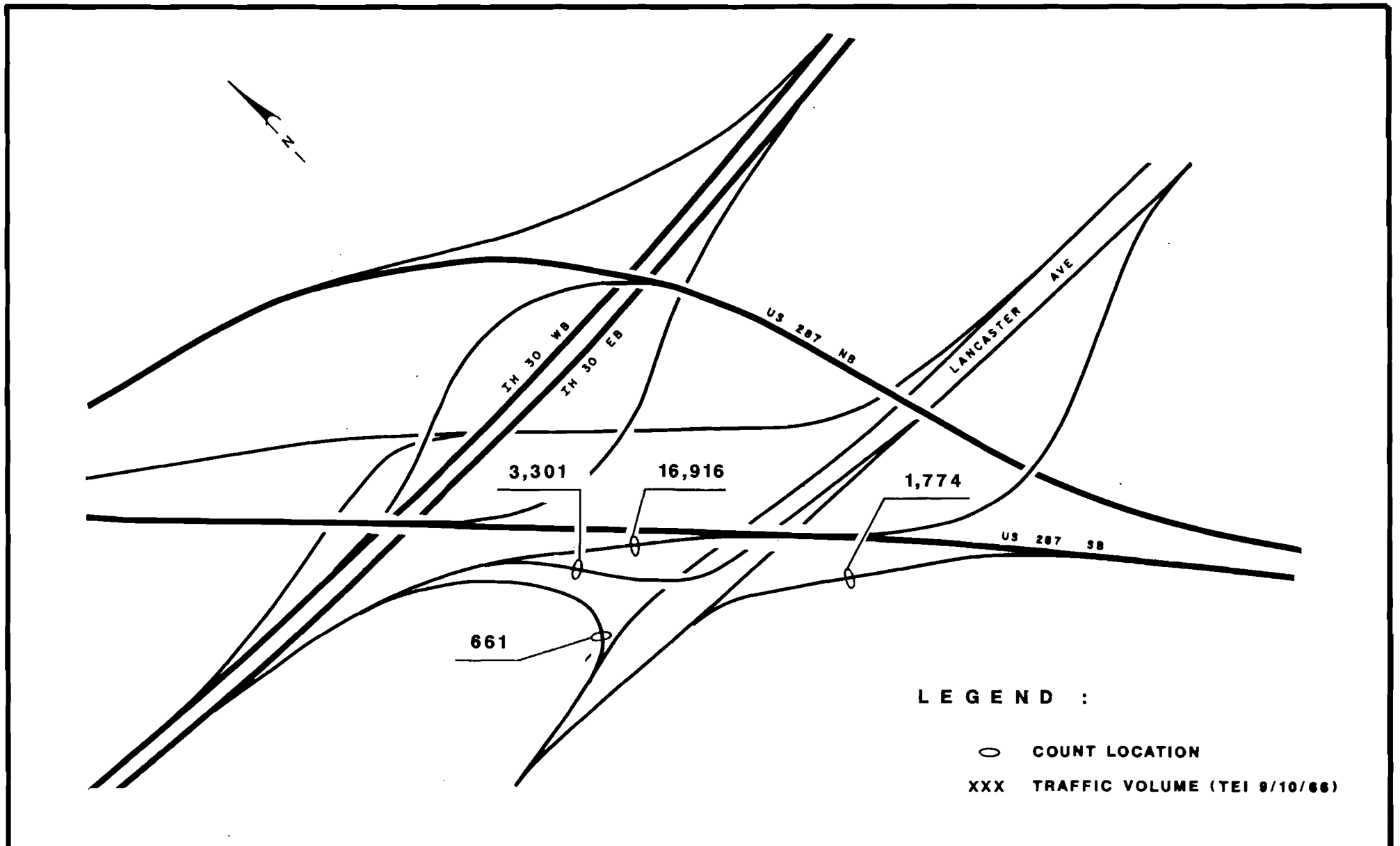





## COLLISION DIAGRAM

IH 30 EB TO SB CONNECTION TO US 287

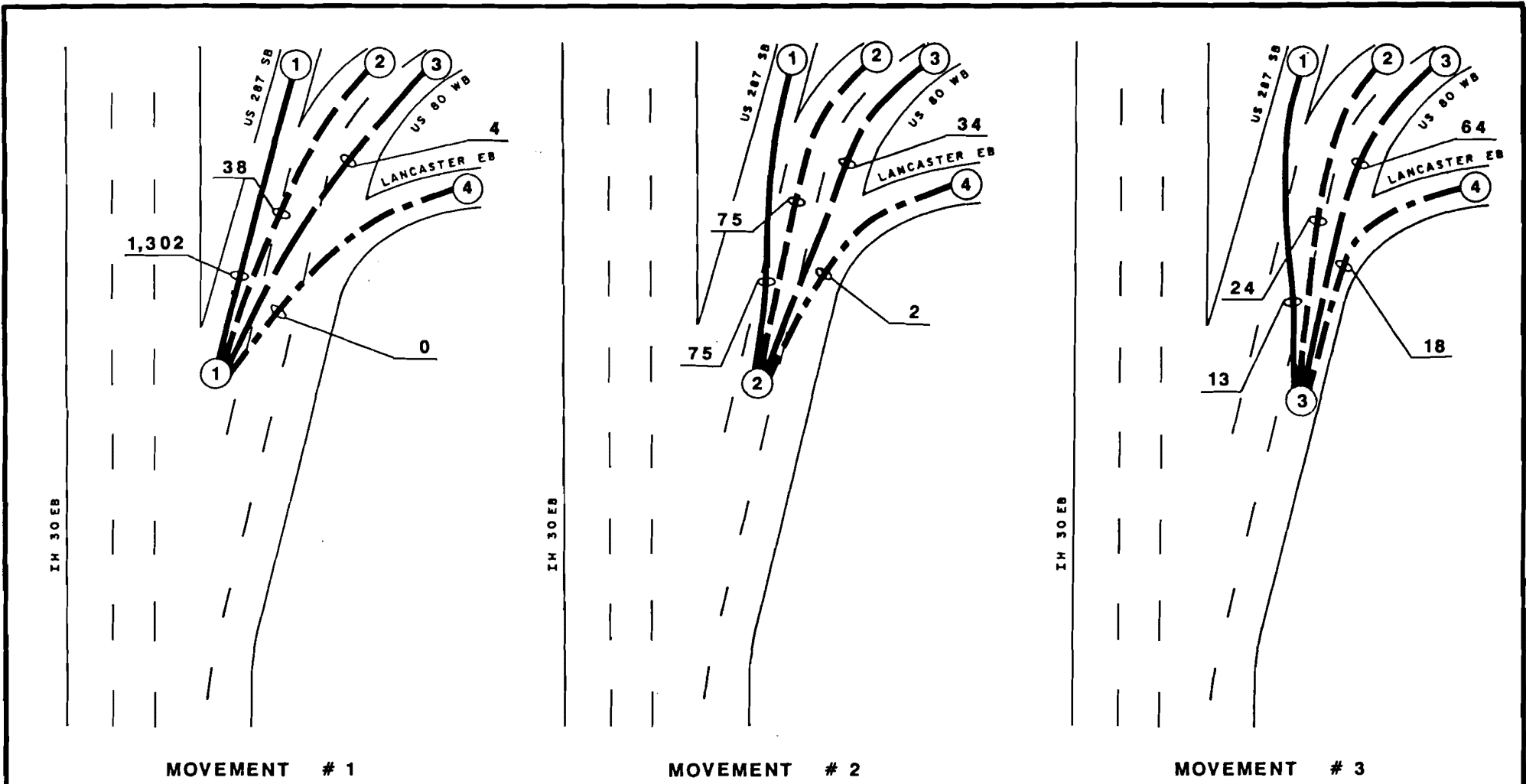
FORT WORTH, TEXAS



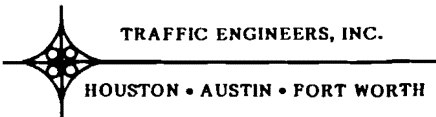

**TRAFFIC ENGINEERS, INC.**  
 HOUSTON • AUSTIN • FORT WORTH

**STUDY AREA AND 24 HOUR COUNTS**  
**IH 30 EB TO SB CONNECTION TO US 287**  
**FORT WORTH, TEXAS**

FIGURE 3



NOTE : RAMP TO SB 287 BACKS UP TO IH 30 5:05-5:15 PM  
 DATA COLLECTED 9/11/86



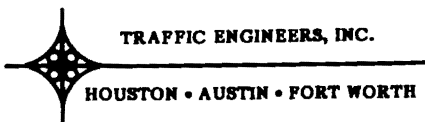
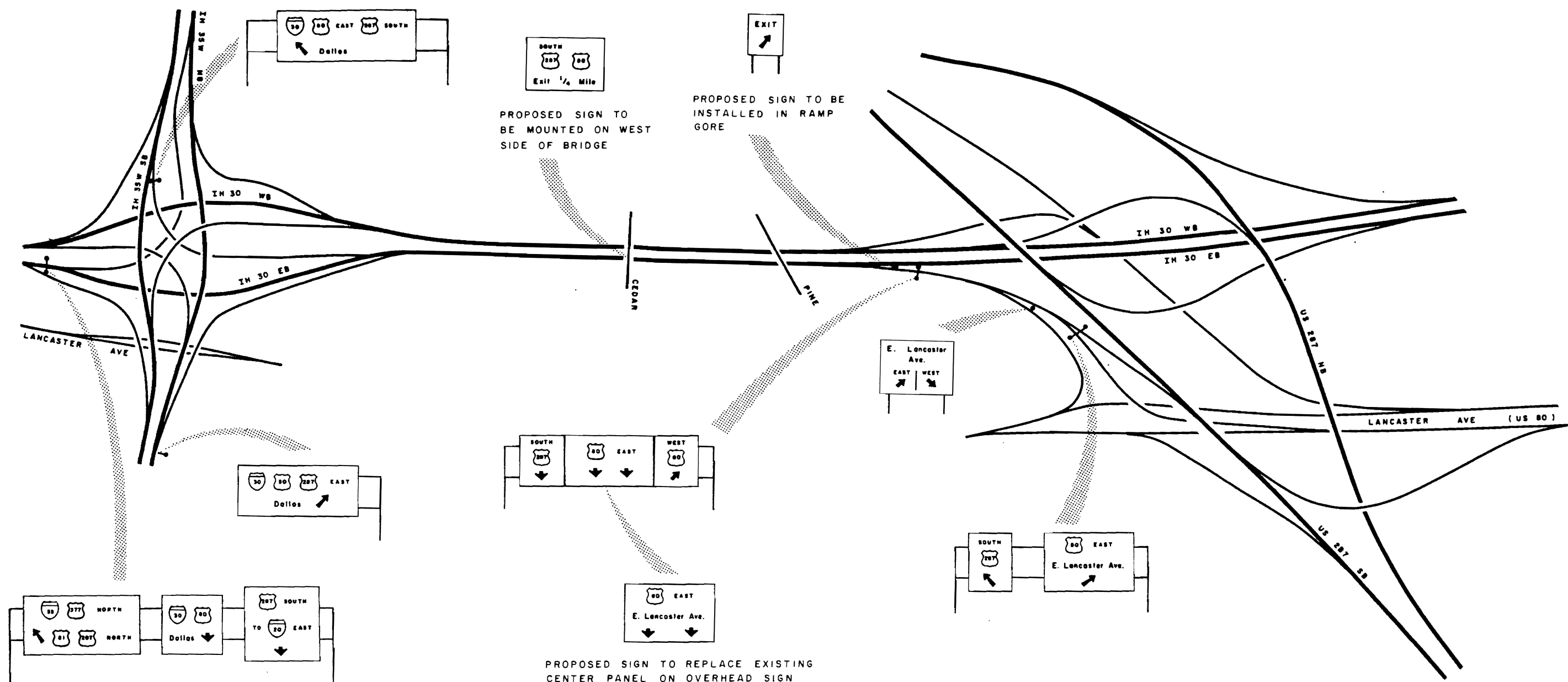
**PEAK HOUR WEAVING PATTERNS**  
**IH 30 EB TO SB CONNECTION TO US 287**  
**FORT WORTH, TEXAS**

FIGURE 4

The large number of daytime, off peak accidents can likely be attributed to driver uncertainty and indecision. Field observations and several trips on different approaches to this area showed two probable causes:

1. Existing signing (Figure 5) for the US 287/US 80 exit may be inadequate. Signs are well placed on the main ramp lanes at the gore area to direct drivers to southbound US 287, eastbound US 80, and westbound US 80. However, no signs are present on IH 30 in advance of the interchange to indicate an upcoming exit. As shown in Figure 5, signs are placed on IH 35, both northbound and southbound, as well as on eastbound IH 30 west of the IH 35 interchange to direct drivers to southbound US 287 via eastbound IH 30. However, once this traffic reaches IH 30 east of IH 35, there is no additional indication of the necessity to exit from IH 30 until the gore area signing can be seen. An unfamiliar or partially familiar driver who followed US 287 signing through the IH 35 and IH 30 interchange could be faced with a hasty and possibly very hazardous decision when he or she unexpectedly realized the need to exit IH 30 in order to reach to US 287 or US 80.
2. Since the former ramp connection from southbound IH 35 directly to southbound US 287 is closed, traffic desiring to use US 287 has been rerouted temporarily to US 287 via eastbound IH 30. This movement requires a difficult movement for motorists who enter IH 30 from the left and must weave across the heavily travelled main lanes to exit to the right at US 287 approximately 1,700 feet to the east. Test runs through this area showed this weave to be extremely difficult even for a familiar, aggressive motorist. During the PM peak two attempts to make this weave were unsuccessful.

Traffic volume counts made on the off ramps to US 287 and US 80 (Lancaster Ave) showed a disproportionate distribution relative to the number of lanes provided on the ramps. The single lane ramp to southbound US 287 carried 16,916 vehicles in a 24 hour period, including a peak PM hour of 1,795 vehicles. In comparison, the two lane ramp to eastbound US 80 carried only 3,031 vehicles in 24 hours, and the single lane ramp to westbound US 80 carried only 661 vehicles. The heavy volume on the ramp to southbound US 287 created queuing in a single lane back to the IH 30 through lanes during the PM peak hour. The lack of traffic demand in adjacent lanes servicing US 80 during the same period caused a significant amount of lane changing on the off ramp. Vehicles would use the empty off ramp lanes to eastbound US 80 and make last second maneuvers into the southbound US 287 ramp (Figure 4).



## EXISTING AND PROPOSED SIGNING

### IH 30 EB TO SB CONNECTION TO US 287

FORT WORTH, TEXAS

FIGURE 5

## E. Conclusions and Recommendations

Based on the analyses and field observations, several conclusions were reached regarding the safety and operations with the eastbound IH 30 to southbound US 287 connection.

1. There is a significant accident problem only at the exit point from IH 30. Factors contributing to this problem include:

- a) The lack of advance exit signing for eastbound IH 30 traffic advising of the US 287/US 80 exit;
- b) The difficult left to right weave required for southbound IH 35 traffic to reach the US 287/US 80 exit.

2. Traffic volume on the single lane ramp from eastbound IH 30 to southbound US 287 exceeds ramp end capacity during part of the PM peak hour. This is demonstrated by observed backups to the main lanes on IH 30 and by the fact that the 24 hour traffic volume of 16,916 already exceeds the 1999 estimated volume of 13,550.

Although the proposed new interchange of IH 35 and IH 30 will correct signing deficiencies on IH 30 at US 287/US 80 and will eliminate the difficult left to right weave for southbound IH 35 to US 287/US 80 traffic, interim measures should be taken to alleviate the current safety problem. Specifically, an additional exit guide sign should be installed to alert IH 30 motorists of the upcoming exit to US 287/US 80 (Figure 5).

Additionally, a connection is under construction on IH 35 at US 287 to provide a temporary replacement of the old connection for southbound IH 35 traffic to southbound US 287 while the new IH 35 and IH 30 interchange is under construction. Completion of this connection will permit the removal of the existing unsafe southbound IH 35 to southbound US 287 situation which exists. In the construction of the new IH 35 and IH 30 interchange, consideration must be given to constructing a two lane ramp connection from eastbound IH 30 to southbound US 287 rather than the single lane as is proposed. The current demand of almost 17,000 vehicles per day already exceeds the capacity of the proposed single lane ramp connection to southbound US 287.

The total cost of the recommended signing improvements is estimated to be \$1,750. A detailed cost estimate is shown in Table 1.

TABLE 1

IMPROVEMENT COST ESTIMATE

IH 30 EASTBOUND TO SOUTHBOUND CONNECTION TO US 287

Signing Improvements

ITEM	ITEM PESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	Advance Guide Sign	1		\$1,000.00	\$1,000.00
2	Gore "Exit" Sign	1		250.00	250.00
3	"Lancaster Ave" Panel	1		200.00	<u>200.00</u>
				SUBTOTAL	\$1,450.00
				10% MOB	<u>145.00</u>
				SUBTOTAL	\$1,595.00
				10% ENG.	155.00
				TOTAL	\$1,750.00

**APPENDIX**



## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB 130 off-ramp to SB US 287 Ft Worth, TX

FILENAME: FW6SU287

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: DG/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE
12:00	*	*	*	63	*	63	*	*	63
12:15	*	*	*	62	*	62	*	*	62
12:30	*	*	*	65	*	65	*	*	65
12:45	*	0	*	0	103	313	*	0	103 313
1:00	*	*	*	69	*	69	*	*	69
1:15	*	*	*	48	*	48	*	*	48
1:30	*	*	*	41	*	41	*	*	41
1:45	*	0	*	0	42	200	*	0	42 200
2:00	*	*	*	34	*	34	*	*	34
2:15	*	*	*	23	*	23	*	*	23
2:30	*	*	*	27	*	27	*	*	27
2:45	*	0	*	0	24	108	*	0	24 108
3:00	*	*	*	20	*	20	*	*	20
3:15	*	*	*	29	*	29	*	*	29
3:30	*	*	*	39	*	39	*	*	39
3:45	*	0	*	0	16	104	*	0	16 104
4:00	*	*	*	32	*	32	*	*	32
4:15	*	*	*	21	*	21	*	*	21
4:30	*	*	*	29	*	29	*	*	29
4:45	*	0	*	0	30	112	*	0	30 112
5:00	*	*	*	29	*	29	*	*	29
5:15	*	*	*	45	*	45	*	*	45
5:30	*	*	*	38	*	38	*	*	38
5:45	*	0	*	0	84	196	*	0	84 196
6:00	*	*	*	81	*	81	*	*	81
6:15	*	*	*	120	*	120	*	*	120
6:30	*	*	*	174	*	174	*	*	174
6:45	*	0	*	0	202	577	*	0	202 577
7:00	*	*	*	230	*	230	*	*	230
7:15	*	*	*	206	*	206	*	*	206
7:30	*	*	*	251	*	251	*	*	251
7:45	*	0	*	0	256	943	*	0	256 943
8:00	*	*	*	232	*	232	*	*	232
8:15	*	*	*	208	*	208	*	*	208
8:30	*	*	*	187	*	187	*	*	187
8:45	*	0	*	0	192	819	*	0	192 819
9:00	*	*	*	177	*	177	*	*	177
9:15	*	*	*	176	*	176	*	*	176
9:30	*	*	*	179	*	179	*	*	179
9:45	*	0	*	0	175	707	*	0	175 707
10:00	*	*	*	175	*	175	*	*	175
10:15	*	*	*	156	*	156	*	*	156
10:30	*	*	*	176	*	176	*	*	176
10:45	*	0	*	0	180	687	*	0	180 687
11:00	*	*	*	189	*	189	*	*	189
11:15	*	*	*	176	*	176	*	*	176
11:30	*	*	*	208	*	208	*	*	208
11:45	*	0	*	0	212	785	*	0	212 785
AM TOTALS	0	0	0	5551	0	5551	0	0	5551
PEAK HOUR BEGINS	*	*	*	7:30	*	7:30	*	*	7:30
VOLUME	*	*	*	947	*	947	*	*	947
PHF	*	*	*	0.92	*	0.92	*	*	0.92

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB I30 off-ramp to SB US 287 Ft Worth, TX

FILENAME: FM6SU287

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: DG/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE					
12:00	*	*	*	229	*	229	*	*	229					
12:15	*	*	*	243	*	243	*	*	243					
12:30	*	*	*	195	*	195	*	*	195					
12:45	*	0	*	0	*	0	197	864	*	0	*	0	197	864
1:00	*	*	*	202	*	202	*	*	202					
1:15	*	*	*	201	*	201	*	*	201					
1:30	*	*	*	195	*	195	*	*	195					
1:45	*	0	*	0	*	0	205	803	*	0	*	0	205	803
2:00	*	*	*	221	*	221	*	*	221					
2:15	*	*	*	269	*	269	*	*	269					
2:30	*	*	*	239	*	239	*	*	239					
2:45	*	0	*	0	*	0	259	988	*	0	*	0	259	988
3:00	*	*	*	256	*	256	*	*	256					
3:15	*	*	*	253	*	253	*	*	253					
3:30	*	*	*	305	*	305	*	*	305					
3:45	*	0	*	0	*	0	329	1143	*	0	*	0	329	1143
4:00	*	*	*	394	*	394	*	*	394					
4:15	*	*	*	417	*	417	*	*	417					
4:30	*	*	*	428	*	428	*	*	428					
4:45	*	0	*	0	*	0	447	1686	*	0	*	0	447	1686
5:00	*	*	*	440	*	440	*	*	440					
5:15	*	*	*	434	*	434	*	*	434					
5:30	*	*	*	474	*	474	*	*	474					
5:45	*	0	*	0	*	0	401	1749	*	0	*	0	401	1749
6:00	*	*	*	418	*	418	*	*	418					
6:15	*	*	*	334	*	334	*	*	334					
6:30	*	*	*	311	*	311	*	*	311					
6:45	*	0	*	0	*	0	235	1298	*	0	*	0	235	1298
7:00	*	*	*	214	*	214	*	*	214					
7:15	*	*	*	217	*	217	*	*	217					
7:30	*	*	*	204	*	204	*	*	204					
7:45	*	0	*	0	*	0	142	777	*	0	*	0	142	777
8:00	*	*	*	179	*	179	*	*	179					
8:15	*	*	*	166	*	166	*	*	166					
8:30	*	*	*	175	*	175	*	*	175					
8:45	*	0	*	0	*	0	143	663	*	0	*	0	143	663
9:00	*	*	*	117	*	117	*	*	117					
9:15	*	*	*	183	*	183	*	*	183					
9:30	*	*	*	140	*	140	*	*	140					
9:45	*	0	*	0	*	0	142	582	*	0	*	0	142	582
10:00	*	*	*	123	*	123	*	*	123					
10:15	*	*	*	136	*	136	*	*	136					
10:30	*	*	*	102	*	102	*	*	102					
10:45	*	0	*	0	8	8	115	476	*	0	*	0	62	423
11:00	*	*	119	98	*	109	*	*	109					
11:15	*	*	98	120	*	109	*	*	109					
11:30	*	*	102	*	*	102	*	*	102					
11:45	*	0	*	0	66	385	*	218	*	0	*	0	66	386
PM TOTALS	0	0	393	11247	0	11361	0	0	11361					
PEAK HOUR BEGINS	*	*	11:00	4:45	*	4:45	*	*	4:45					
VOLUME	*	*	385	1795	*	1795	*	*	1795					
PHF	*	*	0.81	0.95	*	0.95	*	*	0.95					

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22  
 LOCATION: EB I30 off-ramp to WB Lancaster Ft Worth, TX  
 WEATHER: Dry  
 OPERATOR: DG/CW

CORRECTION FACTOR: 1.00

FILENAME: FW6WBLAN  
 WEDNESDAY SEPTEMBER 10, 1986

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE					
12:00	*	*	*	0	*	*	*	*	*					
12:15	*	*	*	5	*	5	*	*	5					
12:30	*	*	*	1	*	1	*	*	1					
12:45	*	0	*	0	*	0	6	*	0	*	0	*	6	
1:00	*	*	*	2	*	2	*	*	2					
1:15	*	*	*	0	*	*	*	*	*					
1:30	*	*	*	4	*	4	*	*	4					
1:45	*	0	*	0	*	0	6	*	0	*	0	*	6	
2:00	*	*	*	0	*	*	*	*	*					
2:15	*	*	*	0	*	*	*	*	*					
2:30	*	*	*	0	*	*	*	*	*					
2:45	*	0	*	0	*	0	0	*	0	*	0	*	0	
3:00	*	*	*	0	*	*	*	*	*					
3:15	*	*	*	0	*	*	*	*	*					
3:30	*	*	*	4	*	4	*	*	4					
3:45	*	0	*	0	*	0	4	*	0	*	0	*	4	
4:00	*	*	*	3	*	3	*	*	3					
4:15	*	*	*	0	*	*	*	*	*					
4:30	*	*	*	3	*	3	*	*	3					
4:45	*	0	*	0	*	0	6	*	0	*	0	*	6	
5:00	*	*	*	6	*	6	*	*	6					
5:15	*	*	*	2	*	2	*	*	2					
5:30	*	*	*	5	*	5	*	*	5					
5:45	*	0	*	0	*	0	6	19	*	0	*	0	6	19
6:00	*	*	*	3	*	3	*	*	3					
6:15	*	*	*	7	*	7	*	*	7					
6:30	*	*	*	5	*	5	*	*	5					
6:45	*	0	*	0	*	0	15	30	*	0	*	0	15	30
7:00	*	*	*	9	*	9	*	*	9					
7:15	*	*	*	9	*	9	*	*	9					
7:30	*	*	*	23	*	23	*	*	23					
7:45	*	0	*	0	*	0	15	56	*	0	*	0	15	56
8:00	*	*	*	25	*	25	*	*	25					
8:15	*	*	*	19	*	19	*	*	19					
8:30	*	*	*	10	*	10	*	*	10					
8:45	*	0	*	0	*	0	14	68	*	0	*	0	14	68
9:00	*	*	*	11	*	11	*	*	11					
9:15	*	*	*	2	*	2	*	*	2					
9:30	*	*	*	9	*	9	*	*	9					
9:45	*	0	*	0	*	0	21	43	*	0	*	0	21	43
10:00	*	*	*	7	*	7	*	*	7					
10:15	*	*	*	9	*	9	*	*	9					
10:30	*	*	*	9	*	9	*	*	9					
10:45	*	0	*	0	*	0	6	31	*	0	*	0	6	31
11:00	*	*	*	22	*	22	*	*	22					
11:15	*	*	*	14	*	14	*	*	14					
11:30	*	*	*	22	*	22	*	*	22					
11:45	*	0	*	0	*	0	10	68	*	0	*	0	10	68
AM TOTALS	0	0	0	337	0	337	0	0	337					
PEAK HOUR BEGINS	*	*	*	7:30	*	7:30	*	*	7:30					
VOLUME	*	*	*	82	*	82	*	*	82					
PHF	*	*	*	0.82	*	0.82	*	*	0.82					

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB I30 off-ramp to WB Lancaster Ft Worth, TX

FILENAME: FW6WBLAN

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: D6/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE			
12:00	*	*	*	8	*	8	*	*	8			
12:15	*	*	*	21	*	21	*	*	21			
12:30	*	*	*	8	*	8	*	*	8			
12:45	*	0	*	0	*	9	46	*	9	46		
1:00	*	*	*	18	*	18	*	*	18			
1:15	*	*	*	14	*	14	*	*	14			
1:30	*	*	*	10	*	10	*	*	10			
1:45	*	0	*	0	*	6	48	*	6	48		
2:00	*	*	*	15	*	15	*	*	15			
2:15	*	*	*	16	*	16	*	*	16			
2:30	*	*	*	7	*	7	*	*	7			
2:45	*	0	*	0	*	12	50	*	12	50		
3:00	*	*	*	12	*	12	*	*	12			
3:15	*	*	*	5	*	5	*	*	5			
3:30	*	*	*	14	*	14	*	*	14			
3:45	*	0	*	0	*	12	43	*	12	43		
4:00	*	*	*	10	*	10	*	*	10			
4:15	*	*	*	6	*	6	*	*	6			
4:30	*	*	*	8	*	8	*	*	8			
4:45	*	0	*	0	*	8	32	*	8	32		
5:00	*	*	*	11	*	11	*	*	11			
5:15	*	*	*	2	*	2	*	*	2			
5:30	*	*	*	1	*	1	*	*	1			
5:45	*	0	*	0	*	8	22	*	8	22		
6:00	*	*	*	5	*	5	*	*	5			
6:15	*	*	*	7	*	7	*	*	7			
6:30	*	*	*	6	*	6	*	*	6			
6:45	*	0	*	0	*	1	19	*	1	19		
7:00	*	*	*	7	*	7	*	*	7			
7:15	*	*	*	5	*	5	*	*	5			
7:30	*	*	*	5	*	5	*	*	5			
7:45	*	0	*	0	*	2	19	*	2	19		
8:00	*	*	*	2	*	2	*	*	2			
8:15	*	*	*	8	*	8	*	*	8			
8:30	*	*	*	3	*	3	*	*	3			
8:45	*	0	*	0	*	0	13	*	0	13		
9:00	*	*	*	3	*	3	*	*	3			
9:15	*	*	*	4	*	4	*	*	4			
9:30	*	*	*	4	*	4	*	*	4			
9:45	*	0	*	0	*	1	12	*	1	12		
10:00	*	*	*	0	*	*	*	*	*			
10:15	*	*	6	6	*	6	*	*	6			
10:30	*	*	3	1	*	2	*	*	2			
10:45	*	0	*	0	2	11	2	9	*	0	2	10
11:00	*	*	2	5	*	4	*	*	4			
11:15	*	*	2	0	*	2	*	*	2			
11:30	*	*	2	*	*	2	*	*	2			
11:45	*	0	*	0	2	8	*	5	*	0	2	10
PM TOTALS	0	0	19	318	0	324	0	0	324			
PEAK HOUR BEGINS	*	*	10:15	12:15	*	12:15	*	*	12:15			
VOLUME	*	*	13	56	*	56	*	*	56			
PHF	*	*	0.54	0.67	*	0.67	*	*	0.67			

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22 0

CORRECTION FACTOR: 1.00

LOCATION: EB Lancaster Off-Ramp to US 287 (Southbound to US 287)

FILENAME: FW6SB287

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: DG/CM

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE	
12:00	*	*	*	9	*	9	*	*	9	
12:15	*	*	*	0	*	*	*	*	*	
12:30	*	*	*	10	*	10	*	*	10	
12:45	*	0	*	0	4	23	*	0	4	23
1:00	*	*	*	5	*	5	*	*	5	
1:15	*	*	*	3	*	3	*	*	3	
1:30	*	*	*	3	*	3	*	*	3	
1:45	*	0	*	0	1	12	*	0	1	12
2:00	*	*	*	3	*	3	*	*	3	
2:15	*	*	*	2	*	2	*	*	2	
2:30	*	*	*	7	*	7	*	*	7	
2:45	*	0	*	0	5	17	*	0	5	17
3:00	*	*	*	1	*	1	*	*	1	
3:15	*	*	*	0	*	*	*	*	*	
3:30	*	*	*	0	*	*	*	*	*	
3:45	*	0	*	0	0	1	*	0	*	1
4:00	*	*	*	1	*	1	*	*	1	
4:15	*	*	*	1	*	1	*	*	1	
4:30	*	*	*	3	*	3	*	*	3	
4:45	*	0	*	0	1	6	*	0	1	6
5:00	*	*	*	1	*	1	*	*	1	
5:15	*	*	*	5	*	5	*	*	5	
5:30	*	*	*	4	*	4	*	*	4	
5:45	*	0	*	0	2	12	*	0	2	12
6:00	*	*	*	6	*	6	*	*	6	
6:15	*	*	*	5	*	5	*	*	5	
6:30	*	*	*	7	*	7	*	*	7	
6:45	*	0	*	0	9	27	*	0	9	27
7:00	*	*	*	17	*	17	*	*	17	
7:15	*	*	*	21	*	21	*	*	21	
7:30	*	*	*	8	*	8	*	*	8	
7:45	*	0	*	0	17	63	*	0	17	63
8:00	*	*	*	31	*	31	*	*	31	
8:15	*	*	*	29	*	29	*	*	29	
8:30	*	*	*	21	*	21	*	*	21	
8:45	*	0	*	0	20	101	*	0	20	101
9:00	*	*	*	15	*	15	*	*	15	
9:15	*	*	*	15	*	15	*	*	15	
9:30	*	*	*	13	*	13	*	*	13	
9:45	*	0	*	0	22	65	*	0	22	65
10:00	*	*	*	13	*	13	*	*	13	
10:15	*	*	*	12	*	12	*	*	12	
10:30	*	*	*	19	*	19	*	*	19	
10:45	*	0	*	0	11	55	*	0	11	55
11:00	*	*	*	18	*	18	*	*	18	
11:15	*	*	*	16	*	16	*	*	16	
11:30	*	*	*	12	*	12	*	*	12	
11:45	*	0	*	0	25	71	*	0	25	71
AM TOTALS		0	0	0	453	0	453	0	0	453
PEAK HOUR BEGINS	*	*	*	8:00	*	8:00	*	*	8:00	
VOLUME	*	*	*	101	*	101	*	*	101	
PHF	*	*	*	0.81	*	0.81	*	*	0.81	

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22 0

CORRECTION FACTOR: 1.00

LOCATION: EB Lancaster Off-Ramp to US 287 (Southbound to US 287)

FILENAME: FM6SB287

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: DG/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE					
12:00	*	*	*	24	*	24	*	*	24					
12:15	*	*	*	25	*	25	*	*	25					
12:30	*	*	*	21	*	21	*	*	21					
12:45	*	0	*	0	*	0	18	88	*	0	*	0	18	88
1:00	*	*	*	16	*	16	*	*	16					
1:15	*	*	*	22	*	22	*	*	22					
1:30	*	*	*	16	*	16	*	*	16					
1:45	*	0	*	0	*	0	18	72	*	0	*	0	18	72
2:00	*	*	*	28	*	28	*	*	28					
2:15	*	*	*	20	*	20	*	*	20					
2:30	*	*	*	20	*	20	*	*	20					
2:45	*	0	*	0	*	0	31	99	*	0	*	0	31	99
3:00	*	*	*	35	*	35	*	*	35					
3:15	*	*	*	34	*	34	*	*	34					
3:30	*	*	*	29	*	29	*	*	29					
3:45	*	0	*	0	*	0	49	147	*	0	*	0	49	147
4:00	*	*	*	37	*	37	*	*	37					
4:15	*	*	*	32	*	32	*	*	32					
4:30	*	*	*	48	*	48	*	*	48					
4:45	*	0	*	0	*	0	63	180	*	0	*	0	63	180
5:00	*	*	*	74	*	74	*	*	74					
5:15	*	*	*	133	*	133	*	*	133					
5:30	*	*	*	95	*	95	*	*	95					
5:45	*	0	*	0	*	0	66	368	*	0	*	0	66	368
6:00	*	*	*	35	*	35	*	*	35					
6:15	*	*	*	34	*	34	*	*	34					
6:30	*	*	*	34	*	34	*	*	34					
6:45	*	0	*	0	*	0	14	117	*	0	*	0	14	117
7:00	*	*	*	20	*	20	*	*	20					
7:15	*	*	*	13	*	13	*	*	13					
7:30	*	*	*	15	*	15	*	*	15					
7:45	*	0	*	0	*	0	11	59	*	0	*	0	11	59
8:00	*	*	*	13	*	13	*	*	13					
8:15	*	*	*	12	*	12	*	*	12					
8:30	*	*	*	11	*	11	*	*	11					
8:45	*	0	*	0	*	0	20	56	*	0	*	0	20	56
9:00	*	*	*	12	*	12	*	*	12					
9:15	*	*	*	23	*	23	*	*	23					
9:30	*	*	*	15	*	15	*	*	15					
9:45	*	0	*	0	*	0	11	61	*	0	*	0	11	61
10:00	*	*	*	10	*	10	*	*	10					
10:15	*	*	*	10	*	10	*	*	10					
10:30	*	*	*	9	*	9	*	*	9					
10:45	*	0	*	0	*	0	11	40	*	0	*	0	11	40
11:00	*	*	3	11	*	7	*	*	7					
11:15	*	*	13	15	*	14	*	*	14					
11:30	*	*	5	6	*	6	*	*	6					
11:45	*	0	*	0	7	28	*	32	*	0	*	0	7	34
PM TOTALS		0	0	28	1319	0	1321	0	0	1321				
PEAK HOUR BEGINS	*	*	11:00	5:00	*	5:00	*	*	5:00					
VOLUME	*	*	28	368	*	368	*	*	368					
PHF	*	*	0.54	0.69	*	0.69	*	*	0.69					

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB 130 off-ramp to EB Lancaster Ft Worth, TX

FILENAME: FW6EBLAN

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: DG/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE	
12:00	*	*	*	10	*	10	*	*	10	
12:15	*	*	*	14	*	14	*	*	14	
12:30	*	*	*	9	*	9	*	*	9	
12:45	*	0	*	0	*	6	39	*	6	39
1:00	*	*	*	8	*	8	*	*	8	
1:15	*	*	*	9	*	9	*	*	9	
1:30	*	*	*	7	*	7	*	*	7	
1:45	*	0	*	0	*	7	31	*	7	31
2:00	*	*	*	5	*	5	*	*	5	
2:15	*	*	*	9	*	9	*	*	9	
2:30	*	*	*	3	*	3	*	*	3	
2:45	*	0	*	0	*	6	23	*	6	23
3:00	*	*	*	2	*	2	*	*	2	
3:15	*	*	*	2	*	2	*	*	2	
3:30	*	*	*	0	*	*	*	*	*	
3:45	*	0	*	0	*	4	8	*	4	8
4:00	*	*	*	3	*	3	*	*	3	
4:15	*	*	*	3	*	3	*	*	3	
4:30	*	*	*	4	*	4	*	*	4	
4:45	*	0	*	0	*	2	12	*	2	12
5:00	*	*	*	6	*	6	*	*	6	
5:15	*	*	*	3	*	3	*	*	3	
5:30	*	*	*	11	*	11	*	*	11	
5:45	*	0	*	0	*	11	31	*	11	31
6:00	*	*	*	19	*	19	*	*	19	
6:15	*	*	*	23	*	23	*	*	23	
6:30	*	*	*	40	*	40	*	*	40	
6:45	*	0	*	0	*	50	132	*	50	132
7:00	*	*	*	65	*	65	*	*	65	
7:15	*	*	*	40	*	40	*	*	40	
7:30	*	*	*	63	*	63	*	*	63	
7:45	*	0	*	0	*	75	243	*	75	243
8:00	*	*	*	78	*	78	*	*	78	
8:15	*	*	*	65	*	65	*	*	65	
8:30	*	*	*	51	*	51	*	*	51	
8:45	*	0	*	0	*	53	247	*	53	247
9:00	*	*	*	72	*	72	*	*	72	
9:15	*	*	*	28	*	28	*	*	28	
9:30	*	*	*	48	*	48	*	*	48	
9:45	*	0	*	0	*	46	194	*	46	194
10:00	*	*	*	55	*	55	*	*	55	
10:15	*	*	*	51	*	51	*	*	51	
10:30	*	*	*	48	*	48	*	*	48	
10:45	*	0	*	0	*	33	187	*	33	187
11:00	*	*	*	40	*	40	*	*	40	
11:15	*	*	*	44	*	44	*	*	44	
11:30	*	*	*	45	*	45	*	*	45	
11:45	*	0	*	0	*	34	163	*	34	163
AM TOTALS	0	0	0	1310	0	1310	0	0	1310	
PEAK HOUR BEGINS	*	*	*	7:30	*	7:30	*	*	7:30	
VOLUME	*	*	*	281	*	281	*	*	281	
PHF	*	*	*	0.90	*	0.90	*	*	0.90	

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB 130 off-ramp to EB Lancaster Ft Worth, TX

FILENAME: FW6EBLAN

WEATHER: Dry

WEDNESDAY SEPTEMBER 10, 1986

OPERATOR: D6/CW

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE			
12:00	*	*	*	63	*	63	*	*	63			
12:15	*	*	*	63	*	63	*	*	63			
12:30	*	*	*	36	*	36	*	*	36			
12:45	*	0	*	0	48	210	*	0	48	210		
1:00	*	*	*	54	*	54	*	*	54			
1:15	*	*	*	39	*	39	*	*	39			
1:30	*	*	*	51	*	51	*	*	51			
1:45	*	0	*	0	50	194	*	0	50	194		
2:00	*	*	*	60	*	60	*	*	60			
2:15	*	*	*	63	*	63	*	*	63			
2:30	*	*	*	55	*	55	*	*	55			
2:45	*	0	*	0	44	222	*	0	44	222		
3:00	*	*	*	54	*	54	*	*	54			
3:15	*	*	*	64	*	64	*	*	64			
3:30	*	*	*	56	*	56	*	*	56			
3:45	*	0	*	0	58	232	*	0	58	232		
4:00	*	*	*	67	*	67	*	*	67			
4:15	*	*	*	57	*	57	*	*	57			
4:30	*	*	*	47	*	47	*	*	47			
4:45	*	0	*	0	46	217	*	0	46	217		
5:00	*	*	*	63	*	63	*	*	63			
5:15	*	*	*	35	*	35	*	*	35			
5:30	*	*	*	29	*	29	*	*	29			
5:45	*	0	*	0	41	168	*	0	41	168		
6:00	*	*	*	31	*	31	*	*	31			
6:15	*	*	*	30	*	30	*	*	30			
6:30	*	*	*	32	*	32	*	*	32			
6:45	*	0	*	0	29	122	*	0	29	122		
7:00	*	*	*	21	*	21	*	*	21			
7:15	*	*	*	29	*	29	*	*	29			
7:30	*	*	*	36	*	36	*	*	36			
7:45	*	0	*	0	12	98	*	0	12	98		
8:00	*	*	*	12	*	12	*	*	12			
8:15	*	*	*	15	*	15	*	*	15			
8:30	*	*	*	32	*	32	*	*	32			
8:45	*	0	*	0	24	83	*	0	24	83		
9:00	*	*	*	20	*	20	*	*	20			
9:15	*	*	*	21	*	21	*	*	21			
9:30	*	*	*	24	*	24	*	*	24			
9:45	*	0	*	0	14	79	*	0	14	79		
10:00	*	*	*	17	*	17	*	*	17			
10:15	*	*	*	20	*	20	*	*	20			
10:30	*	*	*	14	*	14	*	*	14			
10:45	*	0	*	0	18	18	11	62	*	0	15	66
11:00	*	*	14	12	*	13	*	*	13			
11:15	*	*	5	*	*	5	*	*	5			
11:30	*	*	7	*	*	7	*	*	7			
11:45	*	0	*	0	5	31	*	12	*	0	5	30
PM TOTALS	0	0	49	1699	0	1721	0	0	1721			
PEAK HOUR BEGINS	*	*	10:45	3:15	*	3:15	*	*	3:15			
VOLUME	*	*	44	245	*	245	*	*	245			
PHF	*	*	0.61	0.91	*	0.91	*	*	0.91			



**IH 30 WB BETWEEN HENDERSON AND SUMMIT**

## FREEWAY OPERATIONS STUDY

### IH 30 Westbound between Henderson and Summit

#### A. Study Location

The subject location is on westbound IH 30 between the on ramp from Henderson Avenue (SH 199) and the off ramp to Ballinger Avenue. These are two closely spaced ramps within a heavily travelled portion of IH 30 just west of downtown Fort Worth (Figure 6).

#### B. Problem/Task Statement

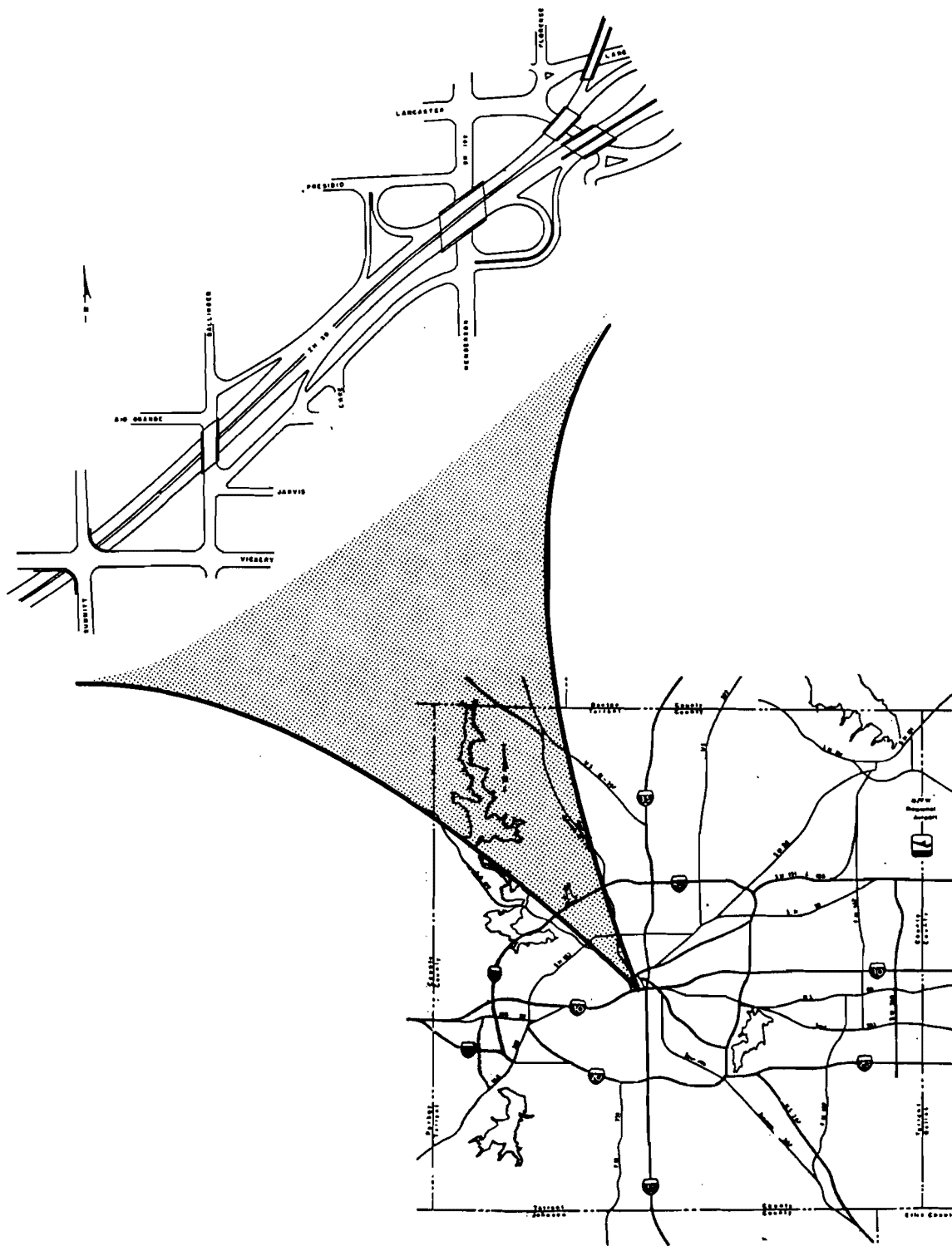
The section of westbound IH 30 between Henderson Ave and Ballinger/Summit Ave experiences safety and operations' problems due to the short distance between the on ramp from Henderson and the off ramp to Ballinger/Summit. The problem is complicated by horizontal curvature and other on/off ramps just east of the study location. It is the objective of this study to define safety and operations' problems present and to recommend corrective measures.

#### C. Data Collection

Twenty-four (24) hour machine traffic counts were taken on the Henderson and Ballinger/Summit ramps and at selected other locations (Figure 7). A peak hour turning movement count was conducted at the intersection of the Ballinger off ramp with Ballinger Avenue (Figure 8). Accident data was collected for the study section including westbound IH 30 accidents and intersection accidents for the Ballinger off ramp (Figure 9).

#### D. Observations/Analysis

Geometrics at the study location are restricted. Only 275 feet are available for weaving, acceleration, and deceleration movements for westbound IH 30 traffic and ramp traffic between the Henderson on ramp and the off ramp to Ballinger. This minimal length severely limits weaving capabilities, particularly for entering traffic from the Henderson on ramp. During peak traffic periods on ramp traffic must stop and wait for a significant gap in westbound IH 30 traffic before entering the freeway, rather than accelerating to freeway speeds and merging with IH 30 traffic as normally expected.

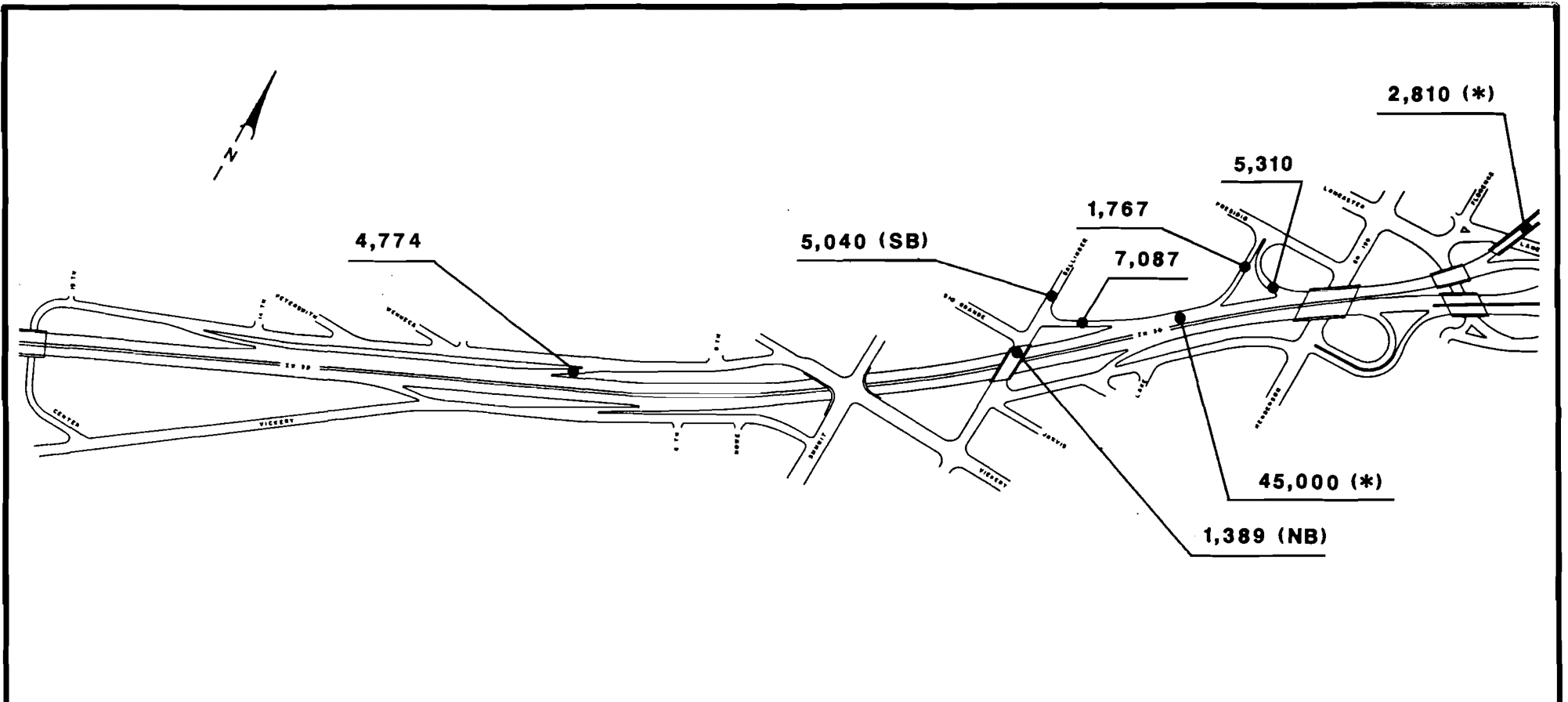


TRAFFIC ENGINEERS, INC.  
HOUSTON • AUSTIN • FORT WORTH

## STUDY LOCATION

IH 30 WB BETWEEN HENDERSON AND SUMMIT  
FORT WORTH, TEXAS

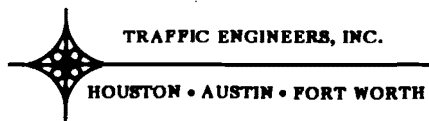
FIGURE 6



**LEGEND :**

X,XXX 24 HOUR VOLUME (TEI 9/86)

(\*) COUNT BY OTHERS (85)

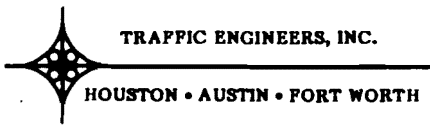
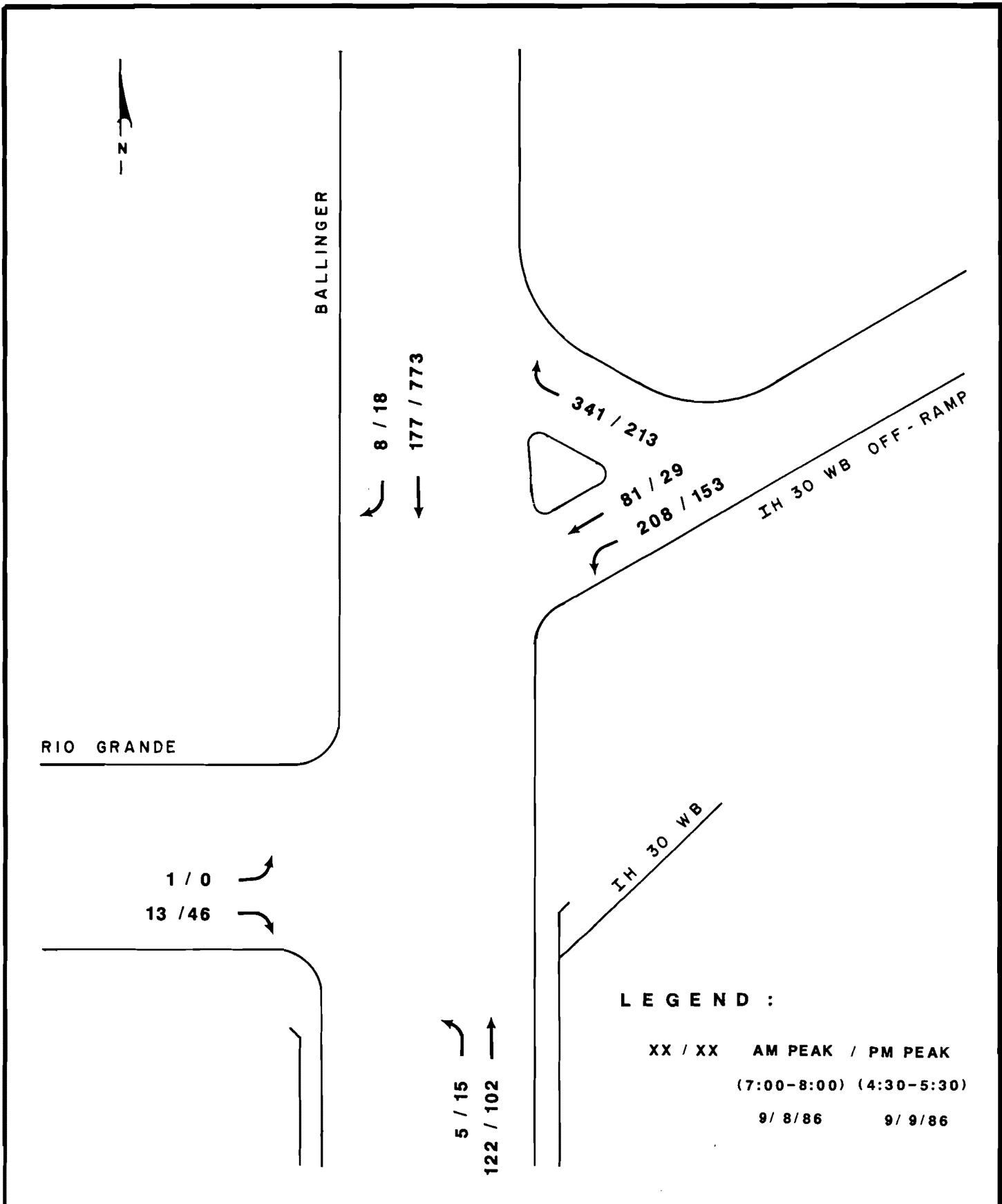


**STUDY AREA AND 24 HOUR COUNTS**

**IH 30 WB BETWEEN HENDERSON AND SUMMIT**

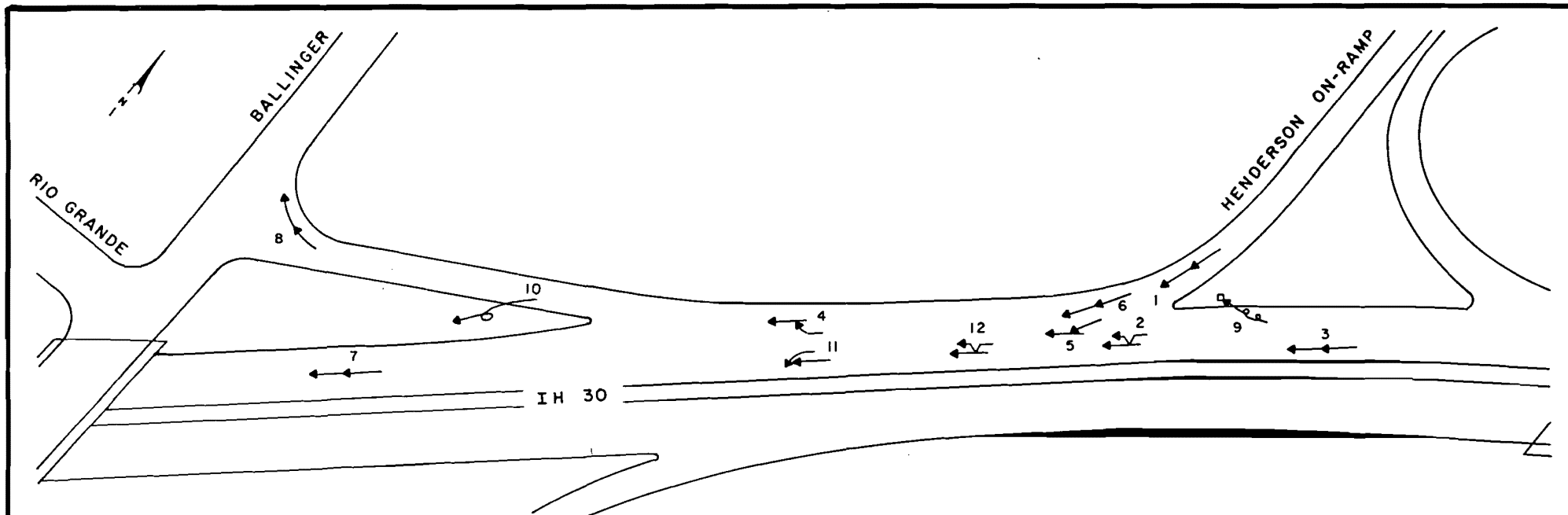
FORT WORTH, TEXAS

FIGURE 7

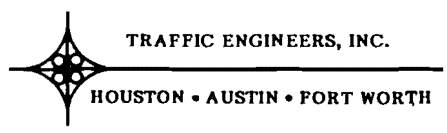


**TURNING MOVEMENT COUNTS**  
**IH 30 WB BETWEEN HENDERSON AND SUMMIT**  
**FORT WORTH, TEXAS**

FIGURE 8



<u>Accident Number</u>	<u>Date</u>	<u>Time</u>	<u>Pavement Condition</u>	<u>Injuries</u>
1	3-04-85	1600	Dry	0
2	3-05-85	1855	Dry	0
3	4-16-85	1805	Dry	0
4	5-02-85	800	Dry	0
5	5-11-85	100	Dry	0
6	8-21-85	1650	Dry	0
7	11-08-85	1730	Dry	0
8	12-18-85	855	Dry	0
9	1-03-86	300	Dry	0
10	6-19-86	2110	Dry	0
11	6-23-86	920	Dry	0
12	6-23-86	920	Dry	0



**COLLISION DIAGRAM**  
**IH 30 WB BETWEEN HENDERSON AND SUMMIT**  
**FORT WORTH, TEXAS**

FIGURE 9

An analysis of the accident history of the study location confirmed the observed safety problem at the Henderson on ramp. Twelve (12) accidents occurred in 1985 and the first six months of 1986. Of these, seven (7) involved on ramp vehicles from Henderson. These were all either rear end collisions on the ramp itself or sideswipes involving on ramp vehicles and westbound IH 30 through vehicles. The remaining five (5) accidents showed no particular location or pattern.

The second problem at the study location is the short off ramp to Ballinger. As shown in **Figure 10**, this ramp is only 230 feet in length from the gore area to the stop line at Ballinger Avenue. This short length causes westbound IH 30 exiting vehicles to decelerate before they reach the exit point. This is particularly true when several vehicles are already queued on the ramp from the stop sign at Ballinger Avenue.

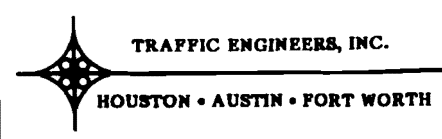
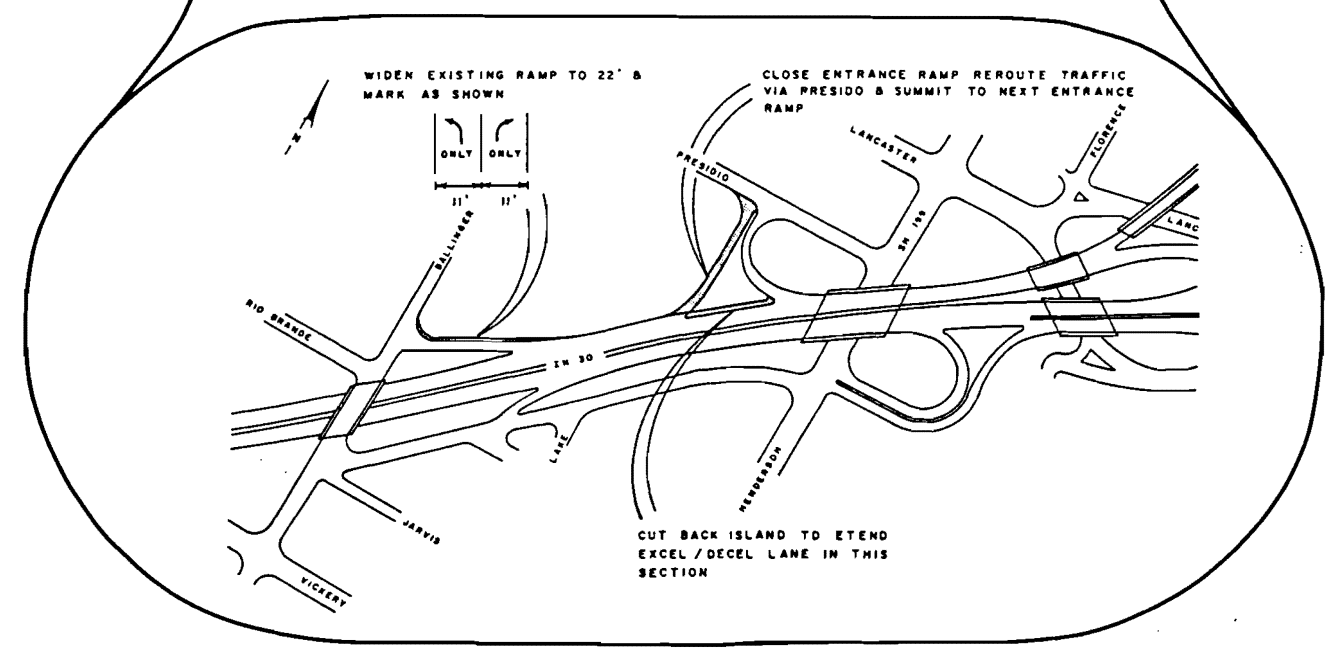
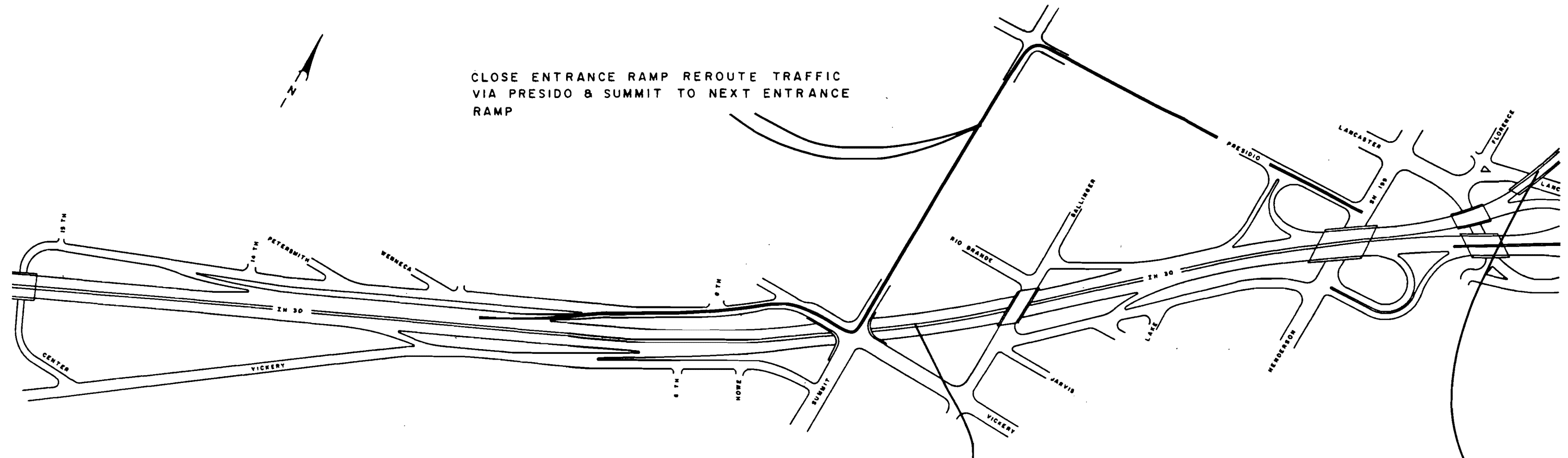
Although few accidents have happened on the off ramp to Ballinger Avenue, traffic queuing on the ramp at times interferes with westbound IH 30 through traffic and creates a potential safety problem. This situation could be alleviated by reducing intersection delay at Ballinger Avenue for off ramp traffic or by providing for additional vehicle queuing on the ramp itself. Field observations under various traffic conditions indicate that off ramp delays at Ballinger Avenue are already very short and the queuing problem is primarily due to heavy off ramp traffic and peaking characteristics. Signalization would not alleviate this situation. Additional vehicular storage is needed on the ramp itself.

#### **E. Conclusions and Recommendations**

The close proximity of the Henderson on ramp and Ballinger off ramp combined with their limited geometrics have created two unsafe conditions. An accident problem already exists with the Henderson on ramp. This is due to the lack of an adequate acceleration lane for this ramp. A potential problem is also developing for the Ballinger off ramp. This is caused by off ramp vehicles queuing back toward the main lanes of westbound IH 30.

Although permanent solutions to these problems are planned in the proposed widening and rebuilding of IH 30 in this area, several interim actions are recommended as shown in **Figure 10**. These recommendations are:

1. Close and remove the on ramp to IH 30 at Henderson Avenue (SH 199). As an interim measure, users of the ramp should be routed via Presidio and Summit to the next on ramp to IH 30 just west of Summit Avenue. Although this could add as many as 179 vehicles to the existing peak hour traffic of 588 on this ramp, ramp geometrics are adequate to carry this added traffic load. Field observations confirmed that considerable excess capacity exists on the ramp.



**EXISTING GEOMETRICS AND RECOMMENDED IMPROVEMENTS**  
**IH 30 WB BETWEEN HENDERSON AND SUMMIT**  
 FORT WORTH, TEXAS

FIGURE 10



2. Extend the existing deceleration lane to the Ballinger off ramp an additional 275 feet to the east.
3. Widen the Ballinger off ramp from 19.5 to 22 feet and mark the ramp for two lanes of traffic. Designate one lane for left turns and one lane for right turns at Ballinger Avenue.

The total cost of the improvements is estimated to be \$23,350. A detailed cost estimate is shown in Table 2.

TABLE 2

IMPROVEMENT COST ESTIMATE

IH 30 WESTBOUND TO BETWEEN HENDERSON  
AND SUMMIT

Ramp Modifications

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	Ramp Pavement	450	S.Y.	\$ 24.00	\$10,800.00
2	Remove Old Ramp Pavement	1500	S.Y.	3.00	4,500.00
3	Curb and Gutter	500	L.F.	7.00	3,500.00
4	Signing & Pavement Markings	1.0	L.S	500.00	<u>500.00</u>
				SUBTOTAL	\$19,300.00
				10% MOB	<u>1,930.00</u>
				SUBTOTAL	\$21,230.00
				10% ENG.	2,120.00
				TOTAL	\$23,350.00

**APPENDIX**

AMBAL.DO

19:07:50

09/08/87

LOCATION IDENTIFIER:

I30WB OFF-RAMP AT BALLINGER

JOB/CONDITIONS DESCRIPTION:

SUNNY AND DRY

CW

APPROACH TALLY SETUP:

NORTH keys z a q 1

EAST keys 3 4 5 6

SOUTH keys = [ ; .

WEST keys m n b v

TALLY STARTING TIME: 07:00:00

RAM: 5069

TALLY # 1 FROM: 07:00 TO: 07:15

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH\* 2 36 0 0 38

EAST \* 57 13 52 0 122

SOUTH\* 0 17 1 0 18

WEST \* 5 1 0 0 6

TOTAL\* 64 67 53 0 184

RAM: 4798

TALLY # 2 FROM: 07:15 TO: 07:30

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH\* 3 48 0 0 51

EAST \* 79 23 56 0 158

SOUTH\* 0 25 0 0 25

WEST \* 2 0 0 0 2

TOTAL\* 84 96 56 0 236

RAM: 4542

TALLY # 3 FROM: 07:30 TO: 07:45

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH\* 1 52 0 0 53

EAST \* 87 18 44 0 149

SOUTH\* 0 28 3 0 31

WEST \* 2 0 0 0 2

TOTAL\* 90 98 47 0 235

RAM: 4286

TALLY # 4 FROM: 07:45 TO: 08:00

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH\* 2 41 0 0 43

EAST \* 118 27 56 0 201

SOUTH\* 0 52 1 0 53

WEST \* 4 0 0 0 4

TOTAL\* 124 120 57 0 301

4 INTERVAL PEAK MOVES: 956 ENDING @ 08:00

RAM: 4019

TERMINATED

TOTAL TALLY COUNTS

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH\* 8 177 0 0 185

EAST \* 341 81 208 0 630

SOUTH\* 0 122 5 0 127

WEST \* 13 1 0 0 14

TOTAL\* 362 381 213 0 956

4 INTERVAL PEAK MOVES: 956 ENDING @ 08:00

File AMBAL.DO closed @ 08:05:30

FMBAL.DD

10:24:34

09/09/87

LOCATION IDENTIFIER:

I30WB OFF-RAMP AT BALLINGER

JOB/CONDITIONS DESCRIPTION:

SUNNY AND DRY

CW

APPROACH TALLY SETUP:

NORTH keys z a q 1

EAST keys 3 4 5 6

SOUTH keys = [ ; .

WEST keys m n b v

TALLY STARTING TIME: 16:30:00

-----RAM: 3187

TALLY # 1 FROM: 16:30 TO: 16:45

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH*	4	152	0	0	156
EAST *	51	8	48	0	107
SOUTH*	0	18	5	0	23
WEST *	6	0	0	0	6
TOTAL*	61	178	53	0	292

-----RAM: 2921

TALLY # 2 FROM: 16:45 TO: 17:00

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH*	6	225	1	0	232
EAST *	63	11	32	0	106
SOUTH*	0	19	2	0	21
WEST *	6	0	0	0	6
TOTAL*	75	255	35	0	365

-----RAM: 2665

TALLY # 3 FROM: 17:00 TO: 17:15

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH*	7	225	1	0	233
EAST *	41	5	33	0	79
SOUTH*	0	28	5	0	33
WEST *	25	0	0	0	25
TOTAL*	73	258	39	0	370

-----RAM: 2409

TALLY # 4 FROM: 17:15 TO: 17:30

MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH*	1	171	0	0	172
EAST *	58	5	40	0	103
SOUTH*	0	37	3	0	40
WEST *	9	0	0	0	9
TOTAL*	68	213	43	0	324

4 INTERVAL PEAK MOVES: 1351 ENDING @ 17:30

-----RAM: 2142

TERMINATED

TOTAL TALLY COUNTS

6MOVES\*RIGHT\*\*THRU\*\*LEFT\*\*SPEC\*TOTAL\*

NORTH*	18	773	2	0	793
EAST *	213	29	153	0	395
SOUTH*	0	102	15	0	117
WEST *	46	0	0	0	46
TOTAL*	277	904	170	0	1351

4 INTERVAL PEAK MOVES: 1351 ENDING @ 17:30

File FMBAL.DD closed @ 17:32:14

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: IH 30 Entrance Ramp, West of Ballinger

FILENAME: 22IH30WB

WEATHER: Dry

MONDAY SEPTEMBER 15, 1986

OPERATOR: CW/IJ

HOUR BEGINS	MONDAY 15	TUESDAY 16	WEDNESDAY 17	THURSDAY 18	FRIDAY 19	WEEKDAY AVERAGE	SATURDAY 20	SUNDAY 21	7 DAY AVERAGE
12:00	*	7	*	*	*	7	*	*	7
12:15	*	7	*	*	*	7	*	*	7
12:30	*	5	*	*	*	5	*	*	5
12:45	*	0 2	21	*	0	* 0	*	0	2 21
1:00	*	4	*	*	*	4	*	*	4
1:15	*	3	*	*	*	3	*	*	3
1:30	*	2	*	*	*	2	*	*	2
1:45	*	0 4	13	*	0	* 0	*	0	4 13
2:00	*	2	*	*	*	2	*	*	2
2:15	*	4	*	*	*	4	*	*	4
2:30	*	4	*	*	*	4	*	*	4
2:45	*	0 5	15	*	0	* 0	*	0	5 15
3:00	*	0	*	*	*	*	*	*	*
3:15	*	2	*	*	*	2	*	*	2
3:30	*	1	*	*	*	1	*	*	1
3:45	*	0 1	4	*	0	* 0	*	0	1 4
4:00	*	2	*	*	*	2	*	*	2
4:15	*	3	*	*	*	3	*	*	3
4:30	*	1	*	*	*	1	*	*	1
4:45	*	0 3	9	*	0	* 0	*	0	3 9
5:00	*	1	*	*	*	1	*	*	1
5:15	*	4	*	*	*	4	*	*	4
5:30	*	2	*	*	*	2	*	*	2
5:45	*	0 3	10	*	0	* 0	*	0	3 10
6:00	*	9	*	*	*	9	*	*	9
6:15	*	16	*	*	*	16	*	*	16
6:30	*	21	*	*	*	21	*	*	21
6:45	*	0 19	65	*	0	* 0	*	0	19 65
7:00	*	33	*	*	*	33	*	*	33
7:15	*	37	*	*	*	37	*	*	37
7:30	*	51	*	*	*	51	*	*	51
7:45	*	0 75	196	*	0	* 0	*	0	75 196
8:00	*	57	*	*	*	57	*	*	57
8:15	*	72	*	*	*	72	*	*	72
8:30	*	40	*	*	*	40	*	*	40
8:45	*	0 46	215	*	0	* 0	*	0	46 215
9:00	*	52	*	*	*	52	*	*	52
9:15	*	49	*	*	*	49	*	*	49
9:30	*	68	*	*	*	68	*	*	68
9:45	*	0 83	252	*	0	* 0	*	0	83 252
10:00	*	66	*	*	*	66	*	*	66
10:15	*	51	*	*	*	51	*	*	51
10:30	*	80	*	*	*	80	*	*	80
10:45	*	0 70	267	*	0	* 0	*	0	70 267
11:00	*	63	*	*	*	63	*	*	63
11:15	*	89	*	*	*	89	*	*	89
11:30	*	121	*	*	*	121	*	*	121
11:45	*	0 109	382	*	0	* 0	*	0	109 382
AM TOTALS	0	1449	0	0	0	1449	0	0	1449
PEAK HOUR BEGINS	*	11:00	*	*	*	11:00	*	*	11:00
VOLUME	*	382	*	*	*	382	*	*	382
PHF	*	0.79	*	*	*	0.79	*	*	0.79

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: IH 30 Entrance Ramp, West of Ballinger

FILENAME: 22IH30WB

WEATHER: Dry

MONDAY SEPTEMBER 15, 1986

OPERATOR: CW/IJ

HR BEGINS	MONDAY 15	TUESDAY 16	WEDNESDAY 17	THURSDAY 18	FRIDAY 19	WEEKDAY AVERAGE	SATURDAY 20	SUNDAY 21	7 DAY AVERAGE			
12:00	*	117	*	*	*	117	*	*	117			
12:15	*	97	*	*	*	97	*	*	97			
12:30	*	65	*	*	*	65	*	*	65			
12:45	*	0 87	366	*	0	*	0	*	0	87	366	
1:00	*	96	*	*	*	96	*	*	96			
1:15	*	84	*	*	*	84	*	*	84			
1:30	*	75	*	*	*	75	*	*	75			
1:45	*	0 78	333	*	0	*	0	*	0	78	333	
2:00	*	107	*	*	*	107	*	*	107			
2:15	*	97	*	*	*	97	*	*	97			
2:30	*	91	*	*	*	91	*	*	91			
2:45	*	0 84	379	*	0	*	0	*	0	84	379	
3:00	*	122	*	*	*	122	*	*	122			
3:15	*	105	*	*	*	105	*	*	105			
3:30	*	141	*	*	*	141	*	*	141			
3:45	*	0 110	478	*	0	*	0	*	0	110	478	
4:00	*	135	*	*	*	135	*	*	135			
4:15	*	121	*	*	*	121	*	*	121			
4:30	*	164	*	*	*	164	*	*	164			
4:45	*	0 142	562	*	0	*	0	*	0	142	562	
5:00	*	161	*	*	*	161	*	*	161			
5:15	*	127	*	*	*	127	*	*	127			
5:30	*	98	*	*	*	98	*	*	98			
5:45	*	0 73	459	*	0	*	0	*	0	73	459	
6:00	*	69	*	*	*	69	*	*	69			
6:15	*	58	*	*	*	58	*	*	58			
6:30	*	45	*	*	*	45	*	*	45			
6:45	*	0 75	247	*	0	*	0	*	0	75	247	
7:00	*	42	*	*	*	42	*	*	42			
7:15	*	41	*	*	*	41	*	*	41			
7:30	*	44	*	*	*	44	*	*	44			
7:45	36	36	27	154	*	0	*	0	*	0	32	159
8:00	34	0	*	*	*	34	*	*	34			
8:15	32	0	*	*	*	32	*	*	32			
8:30	46	*	*	*	*	46	*	*	46			
8:45	35	147	*	0	*	0	*	0	*	0	35	147
9:00	29	*	*	*	*	29	*	*	29			
9:15	26	*	*	*	*	26	*	*	26			
9:30	18	*	*	*	*	18	*	*	18			
9:45	16	89	*	0	*	0	*	0	*	0	16	89
10:00	14	*	*	*	*	14	*	*	14			
10:15	13	*	*	*	*	13	*	*	13			
10:30	25	*	*	*	*	25	*	*	25			
10:45	6	58	*	0	*	0	*	0	*	0	6	58
11:00	18	*	*	*	*	18	*	*	18			
11:15	13	*	*	*	*	13	*	*	13			
11:30	8	*	*	*	*	8	*	*	8			
11:45	9	48	*	0	*	0	*	0	*	0	9	48
PM TOTALS	378	2978	0	0	0	3325	0	0	3325			
PEAK HOUR BEGINS	7:45	4:30	*	*	*	4:30	*	*	4:30			
VOLUME	148	594	*	*	*	594	*	*	594			
PHF	0.80	0.91	*	*	*	0.91	*	*	0.91			

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB I 30 Off-Ramp @ Hen./Summit Ft Worth, TX

FILENAME: 22IH30EB

WEATHER: Dry

MONDAY SEPTEMBER 15, 1986

OPERATOR: CW/13

HR BEGINS	MONDAY 15	TUESDAY 16	WEDNESDAY 17	THURSDAY 18	FRIDAY 19	WEEKDAY AVERAGE	SATURDAY 20	SUNDAY 21	7 DAY AVERAGE
12:00	*	5	*	*	*	5	*	*	5
12:15	*	11	*	*	*	11	*	*	11
12:30	*	6	*	*	*	6	*	*	6
12:45	*	0 5	27	*	0	* 0	*	0	5 27
1:00	*	5	*	*	*	5	*	*	5
1:15	*	6	*	*	*	6	*	*	6
1:30	*	12	*	*	*	12	*	*	12
1:45	*	0 5	28	*	0	* 0	*	0	5 28
2:00	*	2	*	*	*	2	*	*	2
2:15	*	4	*	*	*	4	*	*	4
2:30	*	7	*	*	*	7	*	*	7
2:45	*	0 6	19	*	0	* 0	*	0	6 19
3:00	*	3	*	*	*	3	*	*	3
3:15	*	3	*	*	*	3	*	*	3
3:30	*	6	*	*	*	6	*	*	6
3:45	*	0 7	19	*	0	* 0	*	0	7 19
4:00	*	15	*	*	*	15	*	*	15
4:15	*	14	*	*	*	14	*	*	14
4:30	*	7	*	*	*	7	*	*	7
4:45	*	0 9	45	*	0	* 0	*	0	9 45
5:00	*	9	*	*	*	9	*	*	9
5:15	*	31	*	*	*	31	*	*	31
5:30	*	14	*	*	*	14	*	*	14
5:45	*	0 36	90	*	0	* 0	*	0	36 90
6:00	*	54	*	*	*	54	*	*	54
6:15	*	86	*	*	*	86	*	*	86
6:30	*	72	*	*	*	72	*	*	72
6:45	*	0 105	317	*	0	* 0	*	0	105 317
7:00	*	101	*	*	*	101	*	*	101
7:15	*	118	*	*	*	118	*	*	118
7:30	*	150	*	*	*	150	*	*	150
7:45	*	0 123	492	*	0	* 0	*	0	123 492
8:00	*	126	*	*	*	126	*	*	126
8:15	*	113	*	*	*	113	*	*	113
8:30	*	111	*	*	*	111	*	*	111
8:45	*	0 100	450	*	0	* 0	*	0	100 450
9:00	*	106	*	*	*	106	*	*	106
9:15	*	85	*	*	*	85	*	*	85
9:30	*	102	*	*	*	102	*	*	102
9:45	*	0 108	401	*	0	* 0	*	0	108 401
10:00	*	96	*	*	*	96	*	*	96
10:15	*	86	*	*	*	86	*	*	86
10:30	*	103	*	*	*	103	*	*	103
10:45	*	0 83	368	*	0	* 0	*	0	83 368
11:00	*	91	*	*	*	91	*	*	91
11:15	*	87	*	*	*	87	*	*	87
11:30	*	71	*	*	*	71	*	*	71
11:45	*	0 92	341	*	0	* 0	*	0	92 341
AM TOTALS	0	2597	0	0	0	2597	0	0	2597
PEAK HOUR BEGINS	*	7:15	*	*	*	7:15	*	*	7:15
VOLUME	*	517	*	*	*	517	*	*	517
PHF	*	0.86	*	*	*	0.86	*	*	0.86



15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: Work Order 22

CORRECTION FACTOR: 1.00

LOCATION: EB I 30 Off-Ramp @ Hen./Summit Ft worth, TX

FILENAME: 22IH30EB

WEATHER: Dry

MONDAY SEPTEMBER 15, 1986

OPERATOR: CW/IJ

HR	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEKDAY	SATURDAY	SUNDAY	7 DAY	
BEGINS	15	16	17	18	19	AVERAGE	20	21	AVERAGE	
12:00	*	94	*	*	*	94	*	*	94	
12:15	*	80	*	*	*	80	*	*	80	
12:30	*	92	*	*	*	92	*	*	92	
12:45	*	0	84	350	*	0	*	0	84	350
1:00	*	85	*	*	*	85	*	*	85	
1:15	*	82	*	*	*	82	*	*	82	
1:30	*	79	*	*	*	79	*	*	79	
1:45	*	0	85	331	*	0	*	0	85	331
2:00	*	91	*	*	*	91	*	*	91	
2:15	*	103	*	*	*	103	*	*	103	
2:30	*	80	*	*	*	80	*	*	80	
2:45	*	0	80	354	*	0	*	0	80	354
3:00	*	79	*	*	*	79	*	*	79	
3:15	*	86	*	*	*	86	*	*	86	
3:30	*	85	*	*	*	85	*	*	85	
3:45	*	0	96	346	*	0	*	0	96	346
4:00	*	59	*	*	*	59	*	*	59	
4:15	*	67	*	*	*	67	*	*	67	
4:30	*	70	*	*	*	70	*	*	70	
4:45	*	0	71	267	*	0	*	0	71	267
5:00	*	69	*	*	*	69	*	*	69	
5:15	*	62	*	*	*	62	*	*	62	
5:30	*	76	*	*	*	76	*	*	76	
5:45	*	0	67	274	*	0	*	0	67	274
6:00	*	65	*	*	*	65	*	*	65	
6:15	*	67	*	*	*	67	*	*	67	
6:30	*	52	*	*	*	52	*	*	52	
6:45	*	0	88	272	*	0	*	0	88	272
7:00	*	53	*	*	*	53	*	*	53	
7:15	27	53	*	*	*	40	*	*	40	
7:30	34	*	*	*	*	34	*	*	34	
7:45	58	119	*	106	*	0	*	0	58	185
8:00	20	*	*	*	*	20	*	*	20	
8:15	27	*	*	*	*	27	*	*	27	
8:30	26	*	*	*	*	26	*	*	26	
8:45	33	106	*	0	*	0	*	0	33	106
9:00	21	*	*	*	*	21	*	*	21	
9:15	22	*	*	*	*	22	*	*	22	
9:30	27	*	*	*	*	27	*	*	27	
9:45	17	87	*	0	*	0	*	0	17	87
10:00	27	*	*	*	*	27	*	*	27	
10:15	23	*	*	*	*	23	*	*	23	
10:30	17	*	*	*	*	17	*	*	17	
10:45	22	89	*	0	*	0	*	0	22	89
11:00	13	*	*	*	*	13	*	*	13	
11:15	15	*	*	*	*	15	*	*	15	
11:30	12	*	*	*	*	12	*	*	12	
11:45	12	52	*	0	*	0	*	0	12	52
PM TOTALS	453	2300	0	0	0	2713	0	0	2713	
PEAK HOUR BEGINS	7:15	1:45	*	*	*	1:45	*	*	1:45	
VOLUME	139	359	*	*	*	359	*	*	359	
PHF	0.60	0.87	*	*	*	0.87	*	*	0.87	

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WORK ORDER 22

CORRECTION FACTOR: 1.00

LOCATION: IH 30 WB ON-RAMP @ HENDERSON FT WORTH, TX

FILENAME: FW6WBHEN

WEATHER: DRY

MONDAY SEPTEMBER 8, 1986

OPERATOR: CW/HM

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE	
12:00	*	7	*	*	*	7	*	*	7	
12:15	*	5	*	*	*	5	*	*	5	
12:30	*	1	*	*	*	1	*	*	1	
12:45	*	0	14	*	0	* 0	* 0	* 0	1 14	
1:00	*	3	*	*	*	3	*	*	3	
1:15	*	6	*	*	*	6	*	*	6	
1:30	*	0	*	*	*	*	*	*	*	
1:45	*	0	10	*	0	* 0	* 0	* 0	1 10	
2:00	*	2	*	*	*	2	*	*	2	
2:15	*	4	*	*	*	4	*	*	4	
2:30	*	3	*	*	*	3	*	*	3	
2:45	*	0	10	*	0	* 0	* 0	* 0	1 10	
3:00	*	0	*	*	*	*	*	*	*	
3:15	*	2	*	*	*	2	*	*	2	
3:30	*	3	*	*	*	3	*	*	3	
3:45	*	0	5	*	0	* 0	* 0	* 0	* 5	
4:00	*	1	*	*	*	1	*	*	1	
4:15	*	2	*	*	*	2	*	*	2	
4:30	*	2	*	*	*	2	*	*	2	
4:45	*	0	6	*	0	* 0	* 0	* 0	1 6	
5:00	*	2	*	*	*	2	*	*	2	
5:15	*	1	*	*	*	1	*	*	1	
5:30	*	0	*	*	*	*	*	*	*	
5:45	*	0	4	*	0	* 0	* 0	* 0	1 4	
6:00	*	6	*	*	*	6	*	*	6	
6:15	*	1	*	*	*	1	*	*	1	
6:30	*	3	*	*	*	3	*	*	3	
6:45	*	0	16	*	0	* 0	* 0	* 0	6 16	
7:00	*	9	*	*	*	9	*	*	9	
7:15	*	4	*	*	*	4	*	*	4	
7:30	*	5	*	*	*	5	*	*	5	
7:45	*	0	14	32	*	0	* 0	* 0	14 32	
8:00	*	14	*	*	*	14	*	*	14	
8:15	*	15	*	*	*	15	*	*	15	
8:30	*	13	*	*	*	13	*	*	13	
8:45	*	0	25	67	*	0	* 0	* 0	25 67	
9:00	*	23	*	*	*	23	*	*	23	
9:15	*	22	*	*	*	22	*	*	22	
9:30	*	25	*	*	*	25	*	*	25	
9:45	*	0	22	92	*	0	* 0	* 0	22 92	
10:00	*	22	*	*	*	22	*	*	22	
10:15	*	32	*	*	*	32	*	*	32	
10:30	*	32	*	*	*	32	*	*	32	
10:45	*	0	37	123	*	0	* 0	* 0	37 123	
11:00	*	32	*	*	*	32	*	*	32	
11:15	*	40	*	*	*	40	*	*	40	
11:30	*	31	*	*	*	31	*	*	31	
11:45	*	0	36	139	*	0	* 0	* 0	36 139	
AM TOTALS		0	518	0	0	0	518	0	0	518
PEAK HOUR BEGINS	*	10:30	*	*	*	10:30	*	*	10:30	
VOLUME	*	141	*	*	*	141	*	*	141	
PHF	*	0.88	*	*	*	0.88	*	*	0.88	

15 MINUTE, 1 CHANNEL VEHICLE COUNT  
CORRECTION FACTOR: 1.00

REFERENCE: WORK ORDER 22

LOCATION: IH 30 WB DN-RAMP @ HENDERSON FT WORTH, TX

WEATHER: DRY

OPERATOR: CW/HM

FILENAME: FW6WBHEN

MONDAY SEPTEMBER 8, 1986

HR	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEKDAY	SATURDAY	SUNDAY	7 DAY	
BEGINS	8	9	10	11	12	AVERAGE	13	14	AVERAGE	
12:00	*	42	*	*	*	42	*	*	42	
12:15	*	43	*	*	*	43	*	*	43	
12:30	*	28	*	*	*	28	*	*	28	
12:45	*	0	32	145	*	0	*	0	32	145
1:00	*	42	*	*	*	42	*	*	42	
1:15	*	37	*	*	*	37	*	*	37	
1:30	*	28	*	*	*	28	*	*	28	
1:45	*	0	37	144	*	0	*	0	37	144
2:00	*	38	*	*	*	38	*	*	38	
2:15	*	23	*	*	*	23	*	*	23	
2:30	*	23	*	*	*	23	*	*	23	
2:45	*	0	34	118	*	0	*	0	34	118
3:00	*	35	*	*	*	35	*	*	35	
3:15	*	34	*	*	*	34	*	*	34	
3:30	*	33	*	*	*	33	*	*	33	
3:45	*	0	42	144	*	0	*	0	42	144
4:00	*	37	*	*	*	37	*	*	37	
4:15	*	48	*	*	*	48	*	*	48	
4:30	*	41	*	*	*	41	*	*	41	
4:45	*	0	38	164	*	0	*	0	38	164
5:00	*	52	*	*	*	52	*	*	52	
5:15	*	51	*	*	*	51	*	*	51	
5:30	*	54	*	*	*	54	*	*	54	
5:45	6	6	*	157	*	0	*	0	6	163
6:00	39	*	*	*	*	39	*	*	39	
6:15	37	*	*	*	*	37	*	*	37	
6:30	25	*	*	*	*	25	*	*	25	
6:45	27	128	*	0	*	0	*	0	27	128
7:00	17	*	*	*	*	17	*	*	17	
7:15	19	*	*	*	*	19	*	*	19	
7:30	23	*	*	*	*	23	*	*	23	
7:45	20	79	*	0	*	0	*	0	20	79
8:00	26	*	*	*	*	26	*	*	26	
8:15	17	*	*	*	*	17	*	*	17	
8:30	8	*	*	*	*	8	*	*	8	
8:45	14	65	*	0	*	0	*	0	14	65
9:00	19	*	*	*	*	19	*	*	19	
9:15	17	*	*	*	*	17	*	*	17	
9:30	15	*	*	*	*	15	*	*	15	
9:45	8	59	*	0	*	0	*	0	8	59
10:00	7	*	*	*	*	7	*	*	7	
10:15	9	*	*	*	*	9	*	*	9	
10:30	3	*	*	*	*	3	*	*	3	
10:45	6	25	*	0	*	0	*	0	6	25
11:00	2	*	*	*	*	2	*	*	2	
11:15	6	*	*	*	*	6	*	*	6	
11:30	5	*	*	*	*	5	*	*	5	
11:45	2	15	*	0	*	0	*	0	2	15
PM TOTALS	377	872	0	0	0	1249	0	0	1249	
PEAK HOUR BEGINS	6:00	4:45	*	*	*	4:45	*	*	4:45	
VOLUME	128	195	*	*	*	195	*	*	195	
PHF	0.82	0.90	*	*	*	0.90	*	*	0.90	

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WO 22

CORRECTION FACTOR: 1.00

LOCATION: IH 30 WB OFF-RAMP @ BALLINGER/ SUMMIT

FILENAME: FW68ASM

WEATHER: DRY

MONDAY SEPTEMBER 8, 1986

OPERATOR: CW/HM

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE	
12:00	*	15	*	*	*	15	*	*	15	
12:15	*	20	*	*	*	20	*	*	20	
12:30	*	12	*	*	*	12	*	*	12	
12:45	*	0 5	52	*	0 *	5 52	*	0 *	5 52	
1:00	*	11	*	*	*	11	*	*	11	
1:15	*	8	*	*	*	8	*	*	8	
1:30	*	1	*	*	*	1	*	*	1	
1:45	*	0 6	26	*	0 *	6 26	*	0 *	6 26	
2:00	*	1	*	*	*	1	*	*	1	
2:15	*	3	*	*	*	3	*	*	3	
2:30	*	4	*	*	*	4	*	*	4	
2:45	*	0 5	13	*	0 *	5 13	*	0 *	5 13	
3:00	*	8	*	*	*	8	*	*	8	
3:15	*	4	*	*	*	4	*	*	4	
3:30	*	6	*	*	*	6	*	*	6	
3:45	*	0 4	22	*	0 *	4 22	*	0 *	4 22	
4:00	*	2	*	*	*	2	*	*	2	
4:15	*	3	*	*	*	3	*	*	3	
4:30	*	10	*	*	*	10	*	*	10	
4:45	*	0 17	32	*	0 *	17 32	*	0 *	17 32	
5:00	*	11	*	*	*	11	*	*	11	
5:15	*	9	*	*	*	9	*	*	9	
5:30	*	15	*	*	*	15	*	*	15	
5:45	*	0 23	58	*	0 *	23 58	*	0 *	23 58	
6:00	*	48	*	*	*	48	*	*	48	
6:15	*	66	*	*	*	66	*	*	66	
6:30	*	103	*	*	*	103	*	*	103	
6:45	*	0 141	358	*	0 *	141 358	*	0 *	141 358	
7:00	*	150	*	*	*	150	*	*	150	
7:15	*	121	*	*	*	121	*	*	121	
7:30	*	152	*	*	*	152	*	*	152	
7:45	*	0 152	575	*	0 *	152 575	*	0 *	152 575	
8:00	*	212	*	*	*	212	*	*	212	
8:15	*	210	*	*	*	210	*	*	210	
8:30	*	215	*	*	*	215	*	*	215	
8:45	*	0 172	809	*	0 *	172 809	*	0 *	172 809	
9:00	*	167	*	*	*	167	*	*	167	
9:15	*	147	*	*	*	147	*	*	147	
9:30	*	123	*	*	*	123	*	*	123	
9:45	*	0 113	550	*	0 *	113 550	*	0 *	113 550	
10:00	*	116	*	*	*	116	*	*	116	
10:15	*	115	*	*	*	115	*	*	115	
10:30	*	118	*	*	*	118	*	*	118	
10:45	*	0 105	454	*	0 *	105 454	*	0 *	105 454	
11:00	*	121	*	*	*	121	*	*	121	
11:15	*	107	*	*	*	107	*	*	107	
11:30	*	118	*	*	*	118	*	*	118	
11:45	*	0 118	464	*	0 *	118 464	*	0 *	118 464	
AM TOTALS		0	3413	0	0	0	3413	0	0	3413
PEAK HOUR BEGINS	*	8:00	*	*	*	8:00	*	*	8:00	
VOLUME	*	809	*	*	*	809	*	*	809	
PHF	*	0.94	*	*	*	0.94	*	*	0.94	

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WD 22

CORRECTION FACTOR: 1.00

LOCATION: IH 30 WB OFF-RAMP @ BALLINGER/ SUMMIT

FILENAME: FM6BASM

WEATHER: DRY

MONDAY SEPTEMBER 8, 1986

OPERATOR: CW/HM

HR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE		
12:00	*	105	*	*	*	105	*	*	105		
12:15	*	102	*	*	*	102	*	*	102		
12:30	*	98	*	*	*	98	*	*	98		
12:45	*	0 107	412	*	0	*	0	*	0 107	412	
1:00	*	115	*	*	*	115	*	*	115		
1:15	*	112	*	*	*	112	*	*	112		
1:30	*	131	*	*	*	131	*	*	131		
1:45	*	0 153	511	*	0	*	0	*	0 153	511	
2:00	*	163	*	*	*	163	*	*	163		
2:15	*	137	*	*	*	137	*	*	137		
2:30	*	152	*	*	*	152	*	*	152		
2:45	*	0 127	579	*	0	*	0	*	0 127	579	
3:00	*	129	*	*	*	129	*	*	129		
3:15	*	119	*	*	*	119	*	*	119		
3:30	*	129	*	*	*	129	*	*	129		
3:45	*	0 96	473	*	0	*	0	*	0 96	473	
4:00	*	120	*	*	*	120	*	*	120		
4:15	*	83	*	*	*	83	*	*	83		
4:30	*	110	*	*	*	110	*	*	110		
4:45	*	0 102	415	*	0	*	0	*	0 102	415	
5:00	*	107	*	*	*	107	*	*	107		
5:15	*	73	*	*	*	73	*	*	73		
5:30	*	102	*	*	*	102	*	*	102		
5:45	*	0 89	371	*	0	*	0	*	0 89	371	
6:00	*	82	*	*	*	82	*	*	82		
6:15	30	*	*	*	*	30	*	*	30		
6:30	75	*	*	*	*	75	*	*	75		
6:45	65	170	*	82	*	0	*	0	*	0 65	252
7:00	73	*	*	*	*	73	*	*	73		
7:15	61	*	*	*	*	61	*	*	61		
7:30	45	*	*	*	*	45	*	*	45		
7:45	54	233	*	0	*	0	*	0	*	0 54	233
8:00	50	*	*	*	*	50	*	*	50		
8:15	34	*	*	*	*	34	*	*	34		
8:30	32	*	*	*	*	32	*	*	32		
8:45	24	140	*	0	*	0	*	0	*	0 24	140
9:00	24	*	*	*	*	24	*	*	24		
9:15	14	*	*	*	*	14	*	*	14		
9:30	21	*	*	*	*	21	*	*	21		
9:45	24	83	*	0	*	0	*	0	*	0 24	83
10:00	20	*	*	*	*	20	*	*	20		
10:15	41	*	*	*	*	41	*	*	41		
10:30	58	*	*	*	*	58	*	*	58		
10:45	30	149	*	0	*	0	*	0	*	0 30	149
11:00	21	*	*	*	*	21	*	*	21		
11:15	18	*	*	*	*	18	*	*	18		
11:30	16	*	*	*	*	16	*	*	16		
11:45	1	56	*	0	*	0	*	0	*	0 1	56
PM TOTALS	831	2843	0	0	0	3674	0	0	3674		
PEAK HOUR BEGINS	6:30	1:45	*	*	*	1:45	*	*	1:45		
VOLUME	274	605	*	*	*	605	*	*	605		
PHF	0.91	0.93	*	*	*	0.93	*	*	0.93		

## 15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WORK ORDER 22

CORRECTION FACTOR: 1.00

LOCATION: NB BALLINGER @ IH 30 FT WDRTH, TX

FILENAME: FN6NBBAL

WEATHER: DRY

TUESDAY SEPTEMBER 9, 1986

OPERATOR: CW

HR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE
12:00	*	*	0	*	*	*	*	*	*
12:15	*	*	0	*	*	*	*	*	*
12:30	*	*	2	*	*	2	*	*	2
12:45	*	0	* 0	0 2	* 0	* 0	*	0	* 0
1:00	*	*	0	*	*	*	*	*	*
1:15	*	*	0	*	*	*	*	*	*
1:30	*	*	1	*	*	1	*	*	1
1:45	*	0	* 0	0 1	* 0	* 0	*	0	* 0
2:00	*	*	2	*	*	2	*	*	2
2:15	*	*	0	*	*	*	*	*	*
2:30	*	*	0	*	*	*	*	*	*
2:45	*	0	* 0	0 2	* 0	* 0	*	0	* 0
3:00	*	*	0	*	*	*	*	*	*
3:15	*	*	0	*	*	*	*	*	*
3:30	*	*	1	*	*	1	*	*	1
3:45	*	0	* 0	1 2	* 0	* 0	1	2	* 0
4:00	*	*	0	*	*	*	*	*	*
4:15	*	*	0	*	*	*	*	*	*
4:30	*	*	0	*	*	*	*	*	*
4:45	*	0	* 0	0 0	* 0	* 0	*	0	* 0
5:00	*	*	2	*	*	2	*	*	2
5:15	*	*	3	*	*	3	*	*	3
5:30	*	*	2	*	*	2	*	*	2
5:45	*	0	* 0	5 12	* 0	* 0	5	12	* 0
6:00	*	*	5	*	*	5	*	*	5
6:15	*	*	11	*	*	11	*	*	11
6:30	*	*	7	*	*	7	*	*	7
6:45	*	0	* 0	17 40	* 0	* 0	17	40	* 0
7:00	*	*	13	*	*	13	*	*	13
7:15	*	*	23	*	*	23	*	*	23
7:30	*	*	40	*	*	40	*	*	40
7:45	*	0	* 0	39 115	* 0	* 0	39	115	* 0
8:00	*	*	43	*	*	43	*	*	43
8:15	*	32	34	*	*	33	*	*	33
8:30	*	25	27	*	*	26	*	*	26
8:45	*	0	29 86	* 104	* 0	* 0	29	131	* 0
9:00	*	36	*	*	*	36	*	*	36
9:15	*	26	*	*	*	26	*	*	26
9:30	*	22	*	*	*	22	*	*	22
9:45	*	0	18 102	* 0	* 0	* 0	18	102	* 0
10:00	*	18	*	*	*	18	*	*	18
10:15	*	19	*	*	*	19	*	*	19
10:30	*	24	*	*	*	24	*	*	24
10:45	*	0	29 90	* 0	* 0	* 0	29	90	* 0
11:00	*	26	*	*	*	26	*	*	26
11:15	*	26	*	*	*	26	*	*	26
11:30	*	21	*	*	*	21	*	*	21
11:45	*	0	27 100	* 0	* 0	* 0	27	100	* 0
AM TOTALS	0	378	278	0	0	597	0	0	597
PEAK HOUR BEGINS	*	8:15	7:30	*	*	7:30	*	*	7:30
VOLUME	*	122	156	*	*	155	*	*	155
PHF	*	0.85	0.91	*	*	0.90	*	*	0.90

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WORK ORDER 22

CORRECTION FACTOR: 1.00

LOCATIDN: NB BALLINGER @ IH 30 FT WORTH, TX

FILENAME: FW6NBBAL

WEATHER: DRY

TUESDAY SEPTEMBER 9, 1986

OPERATOR: CW

HR	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEKDAY	SATURDAY	SUNDAY	7 DAY		
BEGINS	8	9	10	11	12	AVERAGE	13	14	AVERAGE		
12:00	*	36	*	*	*	36	*	*	36		
12:15	*	28	*	*	*	28	*	*	28		
12:30	*	26	*	*	*	26	*	*	26		
12:45	*	0 34	124	*	0	*	0	*	0	34	124
1:00	*	38	*	*	*	38	*	*	38		
1:15	*	22	*	*	*	22	*	*	22		
1:30	*	23	*	*	*	23	*	*	23		
1:45	*	0 24	107	*	0	*	0	*	0	24	107
2:00	*	30	*	*	*	30	*	*	30		
2:15	*	34	*	*	*	34	*	*	34		
2:30	*	23	*	*	*	23	*	*	23		
2:45	*	0 26	113	*	0	*	0	*	0	26	113
3:00	*	23	*	*	*	23	*	*	23		
3:15	*	48	*	*	*	48	*	*	48		
3:30	*	26	*	*	*	26	*	*	26		
3:45	*	0 35	132	*	0	*	0	*	0	35	132
4:00	*	30	*	*	*	30	*	*	30		
4:15	*	20	*	*	*	20	*	*	20		
4:30	*	25	*	*	*	25	*	*	25		
4:45	*	0 25	100	*	0	*	0	*	0	25	100
5:00	*	31	*	*	*	31	*	*	31		
5:15	*	31	*	*	*	31	*	*	31		
5:30	*	24	*	*	*	24	*	*	24		
5:45	*	0 20	106	*	0	*	0	*	0	20	106
6:00	*	8	*	*	*	8	*	*	8		
6:15	*	4	*	*	*	4	*	*	4		
6:30	*	9	*	*	*	9	*	*	9		
6:45	*	0 7	28	*	0	*	0	*	0	7	28
7:00	*	12	*	*	*	12	*	*	12		
7:15	*	9	*	*	*	9	*	*	9		
7:30	*	3	*	*	*	3	*	*	3		
7:45	*	0 6	30	*	0	*	0	*	0	6	30
8:00	*	7	*	*	*	7	*	*	7		
8:15	*	3	*	*	*	3	*	*	3		
8:30	*	6	*	*	*	6	*	*	6		
8:45	*	0 3	19	*	0	*	0	*	0	3	19
9:00	*	3	*	*	*	3	*	*	3		
9:15	*	4	*	*	*	4	*	*	4		
9:30	*	4	*	*	*	4	*	*	4		
9:45	*	0 3	14	*	0	*	0	*	0	3	14
10:00	*	1	*	*	*	1	*	*	1		
10:15	*	2	*	*	*	2	*	*	2		
10:30	*	3	*	*	*	3	*	*	3		
10:45	*	0 4	10	*	0	*	0	*	0	4	10
11:00	*	3	*	*	*	3	*	*	3		
11:15	*	2	*	*	*	2	*	*	2		
11:30	*	2	*	*	*	2	*	*	2		
11:45	*	0 2	9	*	0	*	0	*	0	2	9
PM TOTALS		0	792	0	0	0	792	0	0	792	
PEAK HOUR BEGINS	*	3:15	*	*	*	3:15	*	*	3:15		
VOLUME	*	139	*	*	*	139	*	*	139		
PHF	*	0.72	*	*	*	0.72	*	*	0.72		

15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WD 22 0  
 LOCATION: SB BALLINGER @ IH 30  
 WEATHER: DRY  
 OPERATOR: CW/HM

CORRECTION FACTOR: 1.00  
 NEAR WB OFF-RAMP

FILENAME: FW6SBBAL  
 MONDAY SEPTEMBER 8, 1986

HR	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEKDAY	SATURDAY	SUNDAY	7 DAY	
BEGINS	8	9	10	11	12	AVERAGE	13	14	AVERAGE	
12:00	*	10	*	*	*	10	*	*	10	
12:15	*	6	*	*	*	6	*	*	6	
12:30	*	3	*	*	*	3	*	*	3	
12:45	*	0 2	21	*	0 *	0 2	21	*	0 *	2 21
1:00	*	5	*	*	*	5	*	*	5	
1:15	*	3	*	*	*	3	*	*	3	
1:30	*	1	*	*	*	1	*	*	1	
1:45	*	0 2	11	*	0 *	0 2	11	*	0 *	2 11
2:00	*	0	*	*	*	0	*	*	0	
2:15	*	3	*	*	*	3	*	*	3	
2:30	*	2	*	*	*	2	*	*	2	
2:45	*	0 1	6	*	0 *	0 1	6	*	0 *	1 6
3:00	*	3	*	*	*	3	*	*	3	
3:15	*	5	*	*	*	5	*	*	5	
3:30	*	1	*	*	*	1	*	*	1	
3:45	*	0 3	12	*	0 *	0 3	12	*	0 *	3 12
4:00	*	0	*	*	*	0	*	*	0	
4:15	*	0	*	*	*	0	*	*	0	
4:30	*	0	*	*	*	0	*	*	0	
4:45	*	0 4	4	*	0 *	0 4	4	*	0 *	4 4
5:00	*	2	*	*	*	2	*	*	2	
5:15	*	4	*	*	*	4	*	*	4	
5:30	*	5	*	*	*	5	*	*	5	
5:45	*	0 5	16	*	0 *	0 5	16	*	0 *	5 16
6:00	*	9	*	*	*	9	*	*	9	
6:15	*	9	*	*	*	9	*	*	9	
6:30	*	17	*	*	*	17	*	*	17	
6:45	*	0 23	58	*	0 *	0 23	58	*	0 *	23 58
7:00	*	31	*	*	*	31	*	*	31	
7:15	*	43	*	*	*	43	*	*	43	
7:30	*	50	*	*	*	50	*	*	50	
7:45	*	0 53	177	*	0 *	0 53	177	*	0 *	53 177
8:00	*	44	*	*	*	44	*	*	44	
8:15	*	74	*	*	*	74	*	*	74	
8:30	*	56	*	*	*	56	*	*	56	
8:45	*	0 50	224	*	0 *	0 50	224	*	0 *	50 224
9:00	*	63	*	*	*	63	*	*	63	
9:15	*	95	*	*	*	95	*	*	95	
9:30	*	97	*	*	*	97	*	*	97	
9:45	*	0 95	350	*	0 *	0 95	350	*	0 *	95 350
10:00	*	102	*	*	*	102	*	*	102	
10:15	*	92	*	*	*	92	*	*	92	
10:30	*	96	*	*	*	96	*	*	96	
10:45	*	0 101	391	*	0 *	0 101	391	*	0 *	101 391
11:00	*	115	*	*	*	115	*	*	115	
11:15	*	99	*	*	*	99	*	*	99	
11:30	*	110	*	*	*	110	*	*	110	
11:45	*	0 113	437	*	0 *	0 113	437	*	0 *	113 437
AM TOTALS	0	1707	0	0	0	1707	0	0	1707	
PEAK HOUR BEGINS	*	11:00	*	*	*	11:00	*	*	11:00	
VOLUME	*	437	*	*	*	437	*	*	437	
PHF	*	0.95	*	*	*	0.95	*	*	0.95	



15 MINUTE, 1 CHANNEL VEHICLE COUNT

REFERENCE: WD 22 0

CORRECTION FACTOR: 1.00

LOCATION: SB BALLINGER @ IH 30 NEAR WB OFF-RAMP

FILENAME: FW6SBBAL

WEATHER: DRY

MONDAY SEPTEMBER 8, 1986

OPERATOR: CW/HM

HOUR BEGINS	MONDAY 8	TUESDAY 9	WEDNESDAY 10	THURSDAY 11	FRIDAY 12	WEEKDAY AVERAGE	SATURDAY 13	SUNDAY 14	7 DAY AVERAGE
12:00	*	138	*	*	*	138	*	*	138
12:15	*	120	*	*	*	120	*	*	120
12:30	*	134	*	*	*	134	*	*	134
12:45	* 0	98 490	* 0	* 0	* 0	98 490	* 0	* 0	98 490
1:00	*	74	*	*	*	74	*	*	74
1:15	*	68	*	*	*	68	*	*	68
1:30	*	79	*	*	*	79	*	*	79
1:45	* 0	69 290	* 0	* 0	* 0	69 290	* 0	* 0	69 290
2:00	*	77	*	*	*	77	*	*	77
2:15	*	74	*	*	*	74	*	*	74
2:30	*	79	*	*	*	79	*	*	79
2:45	* 0	73 303	* 0	* 0	* 0	73 303	* 0	* 0	73 303
3:00	*	94	*	*	*	94	*	*	94
3:15	*	125	*	*	*	125	*	*	125
3:30	*	127	*	*	*	127	*	*	127
3:45	* 0	77 423	* 0	* 0	* 0	77 423	* 0	* 0	77 423
4:00	*	76	*	*	*	76	*	*	76
4:15	*	112	*	*	*	112	*	*	112
4:30	*	120	*	*	*	120	*	*	120
4:45	* 0	157 465	* 0	* 0	* 0	157 465	* 0	* 0	157 465
5:00	*	226	*	*	*	226	*	*	226
5:15	*	242	*	*	*	242	*	*	242
5:30	*	161	*	*	*	161	*	*	161
5:45	* 0	137 766	* 0	* 0	* 0	137 766	* 0	* 0	137 766
6:00	*	*	*	*	*	*	*	*	*
6:15	85	*	*	*	*	85	*	*	85
6:30	66	*	*	*	*	66	*	*	66
6:45	38 189	* 0	* 0	* 0	* 0	38 189	* 0	* 0	38 189
7:00	41	*	*	*	*	41	*	*	41
7:15	43	*	*	*	*	43	*	*	43
7:30	39	*	*	*	*	39	*	*	39
7:45	34 157	* 0	* 0	* 0	* 0	34 157	* 0	* 0	34 157
8:00	29	*	*	*	*	29	*	*	29
8:15	28	*	*	*	*	28	*	*	28
8:30	20	*	*	*	*	20	*	*	20
8:45	7 84	* 0	* 0	* 0	* 0	7 84	* 0	* 0	7 84
9:00	14	*	*	*	*	14	*	*	14
9:15	22	*	*	*	*	22	*	*	22
9:30	19	*	*	*	*	19	*	*	19
9:45	16 71	* 0	* 0	* 0	* 0	16 71	* 0	* 0	16 71
10:00	14	*	*	*	*	14	*	*	14
10:15	15	*	*	*	*	15	*	*	15
10:30	11	*	*	*	*	11	*	*	11
10:45	13 53	* 0	* 0	* 0	* 0	13 53	* 0	* 0	13 53
11:00	10	*	*	*	*	10	*	*	10
11:15	12	*	*	*	*	12	*	*	12
11:30	10	*	*	*	*	10	*	*	10
11:45	10 42	* 0	* 0	* 0	* 0	10 42	* 0	* 0	10 42
PM TOTALS	596	2737	0	0	0	3333	0	0	3333
PEAK HOUR BEGINS	6:15	4:45	*	*	*	4:45	*	*	4:45
VOLUME	230	786	*	*	*	786	*	*	786
PHF	0.68	0.81	*	*	*	0.81	*	*	0.81