

**S.H.121/183 AT CENTRAL DRIVE ORIGIN-DESTINATION SURVEY**

**Technical Memorandum**

**9339D**

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## CENTRAL DRIVE ORIGIN-DESTINATION SURVEY

An origin-destination survey was conducted at the State Highway (S.H.) 121/183 westbound frontage road approach to the Central Drive intersection. The purpose of the survey was to help determine what possible effects the closing of the Central Drive exit from S.H. 121/183 Westbound might have on surrounding exit ramps and intersections. The survey consisted of an area map and eight questions. The survey instrument is shown in Figure B1.

Initial plans were to survey only those people using the westbound Central Drive exit. However, due to possible liability problems related to surveying on an exit ramp, the survey site was moved forward to the westbound approach at the Central Drive intersection. Figure B2 shows the survey set up at the intersection. Surveyors were instructed to walk between the lanes and pass out the survey cards only when the signal for the westbound approach was red. Upon green, the surveyors quickly moved to the side of the road and made their way back to the beginning point at the intersection. During the survey time, no traffic was stopped due to surveys being handed out.

The origin-destination survey was conducted during the PM peak period on November 23, 1987. The survey ran from 4:00 PM to 5:30 PM, missing part of the actual peak hour (4:45 - 5:45 PM) for safety reasons because of darkness. Surveys were numbered and sequenced by 15-minutes to allow determination of when each card was distributed and in which lane.

At the start time of the survey (4:00 PM) a six car accident took place on the S.H. 121/183 westbound mainlanes just past the Central Drive exit gore. This accident, although quickly moved to the inside shoulder, stacked traffic both on S.H. 121 and S.H. 183. The back-up only slightly affected the Central Drive exit volume and the westbound frontage road volume. Therefore, it is felt that the accident had no significant bearing on the results of the survey.

As well as conducting the origin-destination survey, T.T.I. took slides and a video-tape of the survey operation.

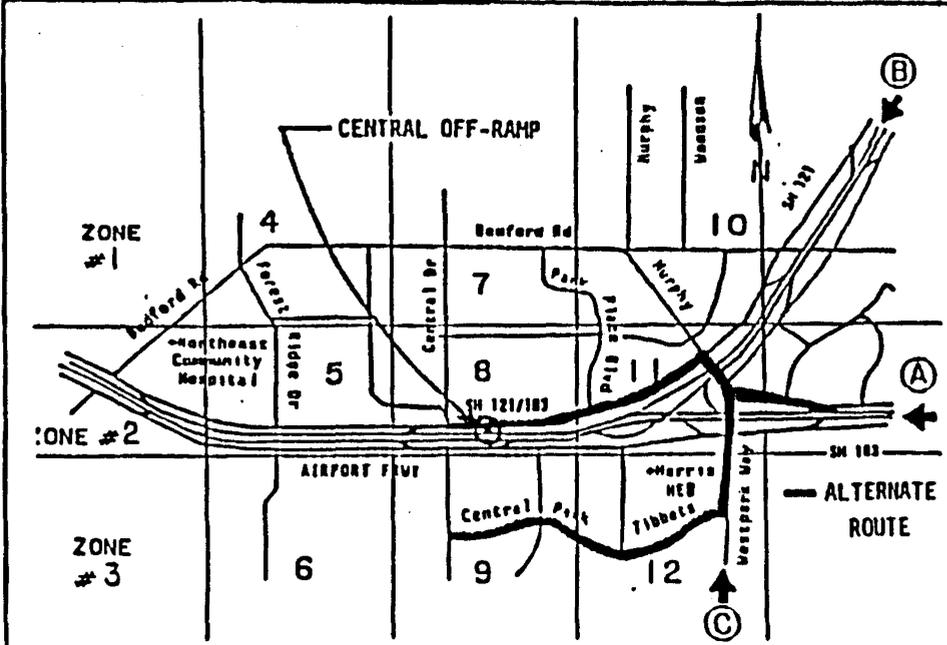
Dear Motorist:

We need your help in a special study being conducted on SH 183 and SH 121. The purpose of the study is to determine the most effective ways of improving traffic flow and safety on both freeways in the short term and over the next few years.

As you may be aware, the Central Drive westbound exit ramp from SH 183/121 is highly congested during the evening peak period. In an effort to reduce congestion at this exit ramp, alternate routes have been improved which may save you time. Try using the westbound Murphy exit, as shown on the map, and either approach Central via the frontage road; or use the southern route along Westpark Way, Tibbets and Central Park.

Your answers and timely return of the completed questionnaire will provide valuable information on current and future travel patterns. Future projects can then be designed to meet your travel needs.

Please tear along the perforation and return the bottom half.



B2

No 2303

1. Did you use the Central Drive exit ramp on this trip? (yes or no) \_\_\_\_\_
2. If YES, would you consider use of another ramp voluntarily in order to avoid congestion? (yes or no) \_\_\_\_\_
3. If the Central Drive exit were closed temporarily, would you use (circle one):
  - a. the Westpark/Murphy exit from SH 183 (east of Central)
  - b. the Bedford Road exit from SH 183/121 (west of Central)
  - c. the Murphy exit from SH 121 (north and east of Central)
  - d. Other (specify): \_\_\_\_\_

Referring to the map above:

4. Are you coming from A, B, C, or other? \_\_\_\_\_
5. In which zone # is your destination? (circle one) | 2 3 4 5 6 7 8 9 10 11 12
6. To reach your destination, are you going to use (circle one):
 

a. Central Drive	c. Forest Ridge
b. Westbound entrance ramp to SH 121/183	d. Other (Please indicate) _____
7. How many days per week do you make this trip? \_\_\_\_\_
8. Additional comments are welcome. \_\_\_\_\_



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FIGURE B I

CENTRAL DRIVE O/D SURVEY



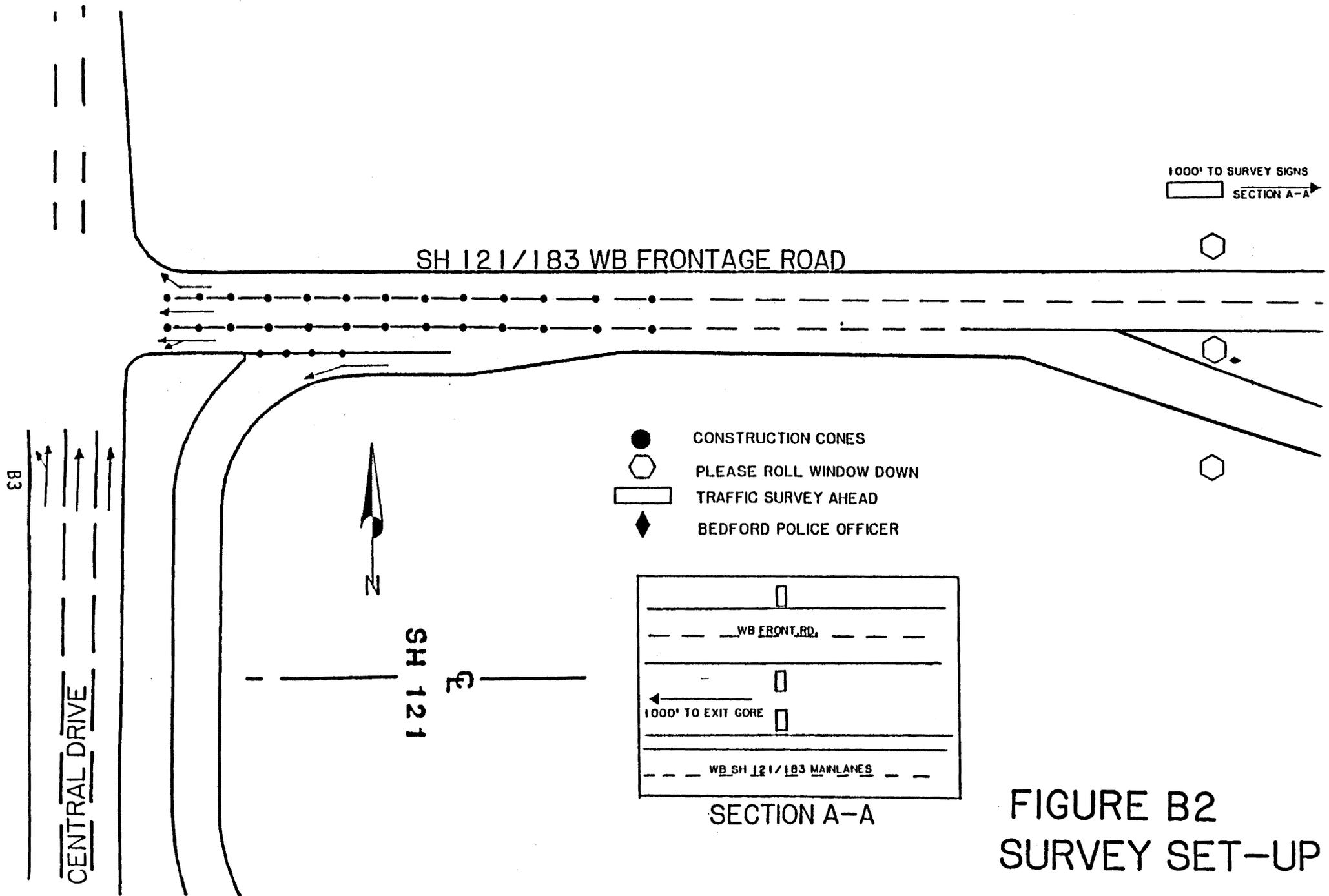


FIGURE B2  
SURVEY SET-UP

## SURVEY SAMPLE SIZE

During the survey time period (4:00 - 5:30 PM), 1,400 survey cards were distributed. Of those 1,400 cards, 516 cards were distributed to vehicles directly from the Central Drive exit ramp. T.T.I. received 285 cards in the mail, a 20 percent return rate. 182 cards of the 285 returned were sent in by ramp users. This produces a return rate of 35% for the motorists using the Central Drive exit.

The sample size was broken down further by analyzing the peak hour (4:30-5:30 PM) for the survey time period. A total of 1,023 survey cards were distributed with a total of 389 survey cards distributed to actual ramp users during the peak hour. A return rate of 20% was experienced as a whole, based upon 203 surveys being returned for the time period of 4:30 to 5:30 PM. The Central Drive exit ramp users provided a peak hour return rate of 45% based upon 174 surveys returned by ramp users during that same time period. The total sample size of the ramp during the peak period is 28% of the total ramp volume. This value comes from the 174 surveys returned from ramp users divided by the actual ramp volume of 624 vehicles per hour (vph) during the peak hour of the survey period.

## SURVEY ANALYSIS

Analysis of the returned surveys was done by using the main frame computer at Texas A&M University and a program called Statistical Analysis System (SAS). The survey questions were each given a column assignment and the answer for the question was given a numeric value for input purposes. These numeric values are shown in Figure B3. A list of additional comments can be found in Table B1. After complete input of all returned surveys, SAS was used to sort the data in the following ways: 1) all questions sorted by whether or not they used the Central Drive exit ramp; 2) questions 1,2,4 and 6 sorted by whether or not the motorists used the Central Drive exit, their origins, and if they make this trip from 4 to 7 days per week; and 3) questions 5 and 6 and lane usage sorted by origin. These three different sets of sorted data can be found in Appendix B1. A complete survey summary sorted by origin can be found in Appendix B2.

TABLE B1. ADDITIONAL COMMENTS

1. Better traffic control between S.H. 121 and S.H. 183
2. Re-open Murphy entrance ramp to S.H. 121
3. Two Lanes on S.H. 121 to merge with S.H. 183
4. Move Central exit ramp back
5. Open Murphy Road exit from S.H. 121
6. Exit ramp from Forest Ridge
7. Stop sign on frontage road
8. Improve lane designations on westbound frontage road at Central
9. Construct a westbound entrance ramp before Westpark on SH 183

COLUMNS - 1-4  
No 2300

COL.

5 1. Did you use the Central Drive exit ramp on this trip? (yes or no) yes = 1 no = 2

6 2. If YES, would you consider use of another ramp voluntarily in order to avoid congestion? (yes or no) yes = 1 no = 2

7 3. If the Central Drive exit were closed temporarily, would you use (circle one):  
a. the Westpark/Murphy exit from SH 183 (east of Central) a = 1  
b. the Bedford Road exit from SH 183/121 (west of Central) b = 2  
c. the Murphy exit from SH 121 (north and east of Central) c = 3  
d. Other (specify): \_\_\_\_\_ d = 4

Referring to the map above:

8 4. Are you coming from A, B, C, or other? A = 1 B = 2 C = 3 other = 3

9-105. In which zone # is your destination? (circle one) 1 2 3 4 5 6 7 8 9 10 11 12.

11 6. To reach your destination, are you going to use (circle one):  
a. Central Drive a = 1  
b. Westbound entrance ramp to SH 121/183 b = 2  
c. Forest Ridge c = 3  
d. Other (Please Indicate) d = 4

12 7. How many days per week do you make this trip? 1 - 7 days 8- less than once a week

13-158. Additional comments are welcome. 1 - 9

B6

FIGURE B3  
SAS INPUT PARAMETERS

## **SURVEY RESULTS**

### **Central Drive Exit Ramp Users**

#### **Potential Diversion**

The survey showed that of the 182 cards returned by ramp users 60% of the motorists came from S.H. 183 and 40% of the motorists came from S.H. 121. Of the 182 surveyed ramp users, 77% of them would voluntarily divert to avoid congestion. However, follow-up counts have not detected a decrease in volume on the ramp or an increase on other routes.

If the Central Drive exit ramp were closed, the survey showed that 62% of the S.H. 183 ramp users would divert to the Westpark/Murphy exit and 27% would divert to the Bedford Road exit. The remaining 11% of S.H. 183 ramp users would use some other exit. The survey also showed that 34% of the S.H. 121 ramp users would divert to the Bedford Road exit and 52% would divert to the S.H. 121 Murphy Road exit. The remaining 14% would divert to such facilities as Harwood.

Final tabulations of the survey showed that 30% of the ramp traffic would divert to the Bedford Road exit from S.H. 183/121, 37% would divert to the Westpark/Murphy exit from S.H. 183, 21% would divert to the Murphy exit from S.H. 121, and 12% would divert off of S.H. 121 to other facilities such as Harwood.

#### **Destination**

The survey also showed that 44% of the ramp users from S.H. 183 travel through to use Forest Ridge Drive, while 24% and 32% turn right and left, respectively, on Central.

Those using the ramp from S.H. 121 indicated that 37% travel through the Central Drive intersection with 52% turning left and 11% turning right onto Central.

Final tabulations on the ramp users shows that 40% of the total ramp volume travel through to Forest Ridge, 19% turn right on Central Drive heading north, and 41% turn left heading south on Central Drive.

### Central Drive Non-Ramp Users

#### Origin

The frontage road non-ramp users are comprised of 58% making local trips around the Central Drive area, 7% travelling from the north on the S.H. 121 frontage road and 35% from the east on the S.H. 183 frontage road. A large majority of these motorists at one time used the Murphy entrance to S.H. 121 before it was closed.

#### Destination

The survey showed that 80% of the daily non-ramp users coming from the east travel through the Central Drive intersection, with 6% turning left onto Central and 14% turning right. The small number of non-ramp users coming from the north split with 50% of them travelling through the intersection, 13% turning left onto Central Drive, and the remaining 37% travelling north on Central Drive by turning right. Local motorist traffic turns out to be 11% turning right on Central Drive heading north, 5% turning left on Central Drive heading south, 84% travelling through. In total, 71% of the non-ramp users travel through the Central Drive intersection, 22% turn right to head north on Central Drive, and 7% turn left and head south on Central Drive.

## OVERALL SURVEY SUMMARY

Overall, based on survey results, it was found that 77% of the ramp users would consider voluntarily diverting to one of the suggested alternate routes in order to avoid congestion. However, to date no significant diversion has occurred probably due to lack of unsignalized capacity on alternate routes.

According to the survey results, demand for the through movement on the westbound approach is higher than actual volume count. The survey shows that 50% (711 vph) of the approach traffic would like to travel through the Central Drive intersection, 18% (235 vph) would like to turn right and the remaining 32% (455 vph) would like to turn left onto Central Drive or make a U-turn. However, actual turning movement counts (11/16/87) show that 27% (391 vph) are turning right onto Central Drive, 39% (557 vph) are travelling through the intersection, and 34% (482 vph) are turning left onto Central Drive or making a U-turn. This shows that the demand for the through movement is greater than the actual capacity that exists at the approach, and many of these vehicles are making a right turn since extra capacity exists for this movement. This may be exacerbating the ramp queuing since many vehicles block the ramp temporarily while awaiting a chance to break through the standing queue for the through movement and reach the free right turn.

# APPENDIX B I

## QUESTION 1: USE OF CENTRAL

CENTRAL/SH 121 O-D SURVEY

TABLE OF VOLUNT BY USE\_CENT

VOLUNT		USE_CENT		TOTAL
FREQUENCY	PERCENT	YES	NO	
ROW PCT	COL PCT			
YES	169	6	175	
	76.13	2.70	78.83	
	96.57	3.43		
	78.24	100.00		
NO	47	0	47	
	21.17	0.00	21.17	
	100.00	0.00		
	21.76	0.00		
TOTAL	216	6	222	
	97.30	2.70	100.00	

FREQUENCY MISSING = 64

TABLE OF CLOSED BY USE\_CENT

CLOSED		USE_CENT		TOTAL
FREQUENCY	PERCENT	YES	NO	
ROW PCT	COL PCT			
1	88	20	108	
	35.77	8.13	43.90	
	81.48	18.52		
	41.31	60.61		
2	67	5	72	
	27.24	2.03	29.27	
	93.06	6.94		
	31.46	15.15		
3	32	6	38	
	13.01	2.44	15.45	
	84.21	15.79		
	15.02	18.18		
4	26	2	28	
	10.57	0.81	11.38	
	92.86	7.14		
	12.21	6.06		
TOTAL	213	33	246	
	86.59	13.41	100.00	

FREQUENCY MISSING = 40

CENTRAL/SH 121 O-D SURVEY

TABLE OF ORIGIN BY USE\_CENT

ORIGIN	USE_CENT		TOTAL
	YES	NO	
FREQUENCY			
PERCENT			
ROW PCT			
COL PCT			
SH 183 FROM THE	129	24	153
	45.26	8.42	53.68
	84.31	15.69	
	59.45	35.29	
SH 121 FROM THE	88	5	93
	30.88	1.75	32.63
	94.62	5.38	
	40.55	7.35	
LOCAL COMMUTER A	0	39	39
	0.00	13.68	13.68
	0.00	100.00	
	0.00	57.35	
TOTAL	217	68	285
	76.14	23.86	100.00

FREQUENCY MISSING = 1

CENTRAL/SH 121 O-D SURVEY

TABLE OF DESTIN BY USE\_CENT

DESTIN	USE_CENT		TOTAL
	YES	NO	
1	15	23	38
	5.40	8.27	13.67
	39.47	60.53	
	7.01	35.94	
2	5	14	19
	1.80	5.04	6.83
	26.32	73.68	
	2.34	21.88	
3	16	6	22
	5.76	2.16	7.91
	72.73	27.27	
	7.48	9.38	
4	10	2	12
	3.60	0.72	4.32
	83.33	16.67	
	4.67	3.13	
5	15	6	21
	5.40	2.16	7.55
	71.43	28.57	
	7.01	9.38	
6	67	6	73
	24.10	2.16	26.26
	91.78	8.22	
	31.31	9.38	
7	14	0	14
	5.04	0.00	5.04
	100.00	0.00	
	6.54	0.00	
8	19	4	23
	6.83	1.44	8.27
	82.61	17.39	
	8.88	6.25	
9	46	1	47
	16.55	0.36	16.91
	97.87	2.13	
	21.50	1.56	
10	2	0	2
	0.72	0.00	0.72
	100.00	0.00	
	0.93	0.00	
11	1	2	3
	0.36	0.72	1.08
	33.33	66.67	
	0.47	3.13	
12	4	0	4
	1.44	0.00	1.44
	100.00	0.00	
	1.87	0.00	
TOTAL	214	64	278
	76.98	23.02	100.00

FREQUENCY MISSING = 8

CENTRAL/SH 121 O-D SURVEY

TABLE OF ARTERIAL BY USE\_CENT

ARTERIAL	USE_CENT		TOTAL
	YES	NO	
FREQUENCY			
PERCENT			
ROW PCT			
COL PCT			
CENTRAL DR	129	19	148
	46.07	6.79	52.86
	87.16	12.84	
	60.00	29.23	
WB ENT TO SH 121	9	27	36
	3.21	9.64	12.86
	25.00	75.00	
	4.19	41.54	
FOREST RIDGE	60	7	67
	21.43	2.50	23.93
	89.55	10.45	
	27.91	10.77	
OTHER	17	12	29
	6.07	4.29	10.36
	58.62	41.38	
	7.91	18.46	
TOTAL	215	65	280
	76.79	23.21	100.00

FREQUENCY MISSING = 6

CENTRAL/SH 121 O-D SURVEY

TABLE OF DAYS BY USE\_CENT

DAYS	USE_CENT		TOTAL
	YES	NO	
1	8 2.81 66.67 3.69	4 1.40 33.33 5.88	12 4.21
2	9 3.16 81.82 4.15	2 0.70 18.18 2.94	11 3.86
3	12 4.21 80.00 5.53	3 1.05 20.00 4.41	15 5.26
4	8 2.81 80.00 3.69	2 0.70 20.00 2.94	10 3.51
5	119 41.75 72.12 54.84	46 16.14 27.88 67.65	165 57.89
6	33 11.58 76.74 15.21	10 3.51 23.26 14.71	43 15.09
7	23 8.07 95.83 10.60	1 0.35 4.17 1.47	24 8.42
8	5 1.75 100.00 2.30	0 0.00 0.00 0.00	5 1.75
TOTAL	217 76.14	68 23.86	285 100.00

FREQUENCY MISSING = 1

CENTRAL/SH 121 O-D SURVEY

TABLE OF TIME BY USE\_CENT

TIME	USE_CENT		TOTAL
	YES	NO	
1600	19	10	29
	7.45	3.92	11.37
	65.52	34.48	
	9.60	17.54	
1615	16	5	21
	6.27	1.96	8.24
	76.19	23.81	
	8.08	8.77	
1630	34	10	44
	13.33	3.92	17.25
	77.27	22.73	
	17.17	17.54	
1645	28	9	37
	10.98	3.53	14.51
	75.68	24.32	
	14.14	15.79	
1700	50	19	69
	19.61	7.45	27.06
	72.46	27.54	
	25.25	33.33	
1715	51	3	54
	20.00	1.18	21.18
	94.44	5.56	
	25.76	5.26	
1730	0	1	1
	0.00	0.39	0.39
	0.00	100.00	
	0.00	1.75	
TOTAL	198	57	255
	77.65	22.35	100.00

FREQUENCY MISSING = 31

CENTRAL/SH 121 O-D SURVEY

TABLE OF LANE BY USE\_CENT

LANE	USE_CENT		TOTAL
	YES	NO	
1	37	3	40
	14.51	1.18	15.69
	92.50	7.50	
	18.69	5.26	
2	101	0	101
	39.61	0.00	39.61
	100.00	0.00	
	51.01	0.00	
3	40	35	75
	15.69	13.73	29.41
	53.33	46.67	
	20.20	61.40	
4	20	19	39
	7.84	7.45	15.29
	51.28	48.72	
	10.10	33.33	
TOTAL	198	57	255
	77.65	22.35	100.00

FREQUENCY MISSING = 31

LANE 1 - U-TURNS\*

LANE 2 - LEFT TURNS\*

LANE 3 - THRU

LANE 4 - RIGHT TURNS

\* - AT 4:30 PM LANE 1 BECAME LEFTS & LANE 2 BECAME THE RAMP

CENTRAL/SH 121 O-D SURVEY

TABLE OF COMMENT BY USE\_CENT

COMMENT	USE_CENT		TOTAL
	YES	NO	
FREQUENCY			
PERCENT			
ROW PCT			
COL PCT			
BETTER TRAFFIC C	7	0	7
	8.86	0.00	8.86
	100.00	0.00	
	11.86	0.00	
RE-OPEN MURPHY E	3	15	18
	3.80	18.99	22.78
	16.67	83.33	
	5.08	75.00	
TWO LANES FOR SH	8	0	8
	10.13	0.00	10.13
	100.00	0.00	
	13.56	0.00	
MOVE CENTRAL EXI	9	0	9
	11.39	0.00	11.39
	100.00	0.00	
	15.25	0.00	
OPEN MURPHY EXIT	6	1	7
	7.59	1.27	8.86
	85.71	14.29	
	10.17	5.00	
NEED EXIT RAMP F	16	1	17
	20.25	1.27	21.52
	94.12	5.88	
	27.12	5.00	
STOP SIGN ON FRO	2	0	2
	2.53	0.00	2.53
	100.00	0.00	
	3.39	0.00	
POOR LANE DESIGN	8	1	9
	10.13	1.27	11.39
	88.89	11.11	
	13.56	5.00	
ENTRY BEFORE MUR	0	2	2
	0.00	2.53	2.53
	0.00	100.00	
	0.00	10.00	
TOTAL	59	20	79
	74.68	25.32	100.00

FREQUENCY MISSING = 1065

## QUESTION 4: ORIGIN

CENTRAL/SH 121 O-D SURVEY

TABLE OF DESTIN BY ORIGIN

DESTIN	ORIGIN			TOTAL
	SH 183 F ROM THE	SH 121 F ROM THE	LOCAL CO MMUTER A	
FREQUENCY PERCENT ROW PCT COL PCT				
1	16 5.76 42.11 10.88	5 1.80 13.16 5.38	17 6.12 44.74 44.74	38 13.67
2	8 2.88 42.11 5.44	1 0.36 5.26 1.08	10 3.60 52.63 26.32	19 6.83
3	11 3.96 50.00 7.48	8 2.88 36.36 8.60	3 1.08 13.64 7.89	22 7.91
4	10 3.60 83.33 6.80	2 0.72 16.67 2.15	0 0.00 0.00 0.00	12 4.32
5	16 5.76 76.19 10.88	4 1.44 19.05 4.30	1 0.36 4.76 2.63	21 7.55
6	42 15.11 57.53 28.57	30 10.79 41.10 32.26	1 0.36 1.37 2.63	73 26.26
7	10 3.60 71.43 6.80	4 1.44 28.57 4.30	0 0.00 0.00 0.00	14 5.04
8	12 4.32 52.17 8.16	8 2.88 34.78 8.60	3 1.08 13.04 7.89	23 8.27
9	18 6.47 38.30 12.24	28 10.07 59.57 30.11	1 0.36 2.13 2.63	47 16.91
10	2 0.72 100.00 1.36	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.72
11	0 0.00 0.00 0.00	1 0.36 33.33 1.08	2 0.72 66.67 5.26	3 1.08
12	2 0.72 50.00 1.36	2 0.72 50.00 2.15	0 0.00 0.00 0.00	4 1.44
TOTAL	147 52.88	93 33.45	38 13.67	278 100.00

FREQUENCY MISSING = 8

CENTRAL/SH 121 O-D SURVEY

TABLE OF ARTERIAL BY ORIGIN

ARTERIAL	ORIGIN			TOTAL
	SH 183 F ROM THE	SH 121 F ROM THE	LOCAL CO MMUTER A	
CENTRAL DR	80	57	10	147
	28.67	20.43	3.58	52.69
	54.42	38.78	6.80	
	53.33	62.64	26.32	
WB ENT TO SH 121	14	4	18	36
	5.02	1.43	6.45	12.90
	38.89	11.11	50.00	
	9.33	4.40	47.37	
FOREST RIDGE	41	24	2	67
	14.70	8.60	0.72	24.01
	61.19	35.82	2.99	
	27.33	26.37	5.26	
OTHER	15	6	8	29
	5.38	2.15	2.87	10.39
	51.72	20.69	27.59	
	10.00	6.59	21.05	
TOTAL	150	91	38	279
	53.76	32.62	13.62	100.00

FREQUENCY MISSING = 7

CENTRAL/SH 121 O-D SURVEY

TABLE OF LANE BY ORIGIN

LANE	ORIGIN			TOTAL
	SH 183 F ROM THE	SH 121 F ROM THE	LOCAL CO MMUTER A	
1	21	18	0	39
	8.27	7.09	0.00	15.35
	53.85	46.15	0.00	
	15.79	21.43	0.00	
2	54	47	0	101
	21.26	18.50	0.00	39.76
	53.47	46.53	0.00	
	40.60	55.95	0.00	
3	41	9	25	75
	16.14	3.54	9.84	29.53
	54.67	12.00	33.33	
	30.83	10.71	67.57	
4	17	10	12	39
	6.69	3.94	4.72	15.35
	43.59	25.64	30.77	
	12.78	11.90	32.43	
TOTAL	133	84	37	254
	52.36	33.07	14.57	100.00

FREQUENCY MISSING = 32

LANE 1 - U-TURNS\*

LANE 2 - LEFT TURNS\*

LANE 3 - THRU

LANE 4 - RIGHT TURNS

\* - AT 4:30 PM LANE 1 BECAME LEFTS & LANE 2 BECAME THE RAMP

QUESTIONS 1, 4, AND 7

SURVEY SORTED BY QUESTIONS 1,4, & 7

1. Question 1 is Yes, Question 4 is A, and Question 7 is 4-7 days.
2. Question 1 is Yes, Question 4 is B, and Question 7 is 4-7 days.
3. Question 1 is No, Question 4 is A, and Question 7 is 4-7 days.
4. Question 1 is No, Question 4 is B, and Question 7 is 4-7 days.
5. Question 1 is No, Question 4 is C, and Question 7 is 4-7 days.

CENTRAL/SH 121 O-D SURVEY

TABLE OF USE\_CENT BY SET

USE_CENT	SET					TOTAL
FREQUENCY	1	2	3	4	5	
PERCENT						
ROW PCT						
COL PCT						
YES	110	72	0	0	0	182
	45.64	29.88	0.00	0.00	0.00	75.52
	60.44	39.56	0.00	0.00	0.00	
	100.00	100.00	0.00	0.00	0.00	
NO	0	0	22	4	33	59
	0.00	0.00	9.13	1.66	13.69	24.48
	0.00	0.00	37.29	6.78	55.93	
	0.00	0.00	100.00	100.00	100.00	
TOTAL	110	72	22	4	33	241
	45.64	29.88	9.13	1.66	13.69	100.00

FREQUENCY MISSING = 45

TABLE OF VOLUNT BY SET

VOLUNT	SET					TOTAL
FREQUENCY	1	2	3	4	5	
PERCENT						
ROW PCT						
COL PCT						
YES	84	55	2	3	0	144
	45.41	29.73	1.08	1.62	0.00	77.84
	58.33	38.19	1.39	2.08	0.00	
	76.36	78.57	100.00	100.00		
NO	26	15	0	0	0	41
	14.05	8.11	0.00	0.00	0.00	22.16
	63.41	36.59	0.00	0.00	0.00	
	23.64	21.43	0.00	0.00		
TOTAL	110	70	2	3	0	185
	59.46	37.84	1.08	1.62	0.00	100.00

FREQUENCY MISSING = 101

CENTRAL/SH 121 O-D SURVEY

TABLE OF DESTIN BY SET

DESTIN	SET					TOTAL
	1	2	3	4	5	
FREQUENCY						
PERCENT						
ROW PCT						
COL PCT						
1	8	3	6	0	14	31
	3.42	1.28	2.56	0.00	5.98	13.25
	25.81	9.68	19.35	0.00	45.16	
	7.48	4.17	31.58	0.00	43.75	
2	4	0	3	1	9	17
	1.71	0.00	1.28	0.43	3.85	7.26
	23.53	0.00	17.65	5.88	52.94	
	3.74	0.00	15.79	25.00	28.13	
3	7	7	3	0	3	20
	2.99	2.99	1.28	0.00	1.28	8.55
	35.00	35.00	15.00	0.00	15.00	
	6.54	9.72	15.79	0.00	9.38	
4	8	1	1	1	0	11
	3.42	0.43	0.43	0.43	0.00	4.70
	72.73	9.09	9.09	9.09	0.00	
	7.48	1.39	5.26	25.00	0.00	
5	9	3	4	0	1	17
	3.85	1.28	1.71	0.00	0.43	7.26
	52.94	17.65	23.53	0.00	5.88	
	8.41	4.17	21.05	0.00	3.13	
6	38	26	2	1	1	68
	16.24	11.11	0.85	0.43	0.43	29.06
	55.88	38.24	2.94	1.47	1.47	
	35.51	36.11	10.53	25.00	3.13	
7	8	4	0	0	0	12
	3.42	1.71	0.00	0.00	0.00	5.13
	66.67	33.33	0.00	0.00	0.00	
	7.48	5.56	0.00	0.00	0.00	
8	8	2	0	1	2	13
	3.42	0.85	0.00	0.43	0.85	5.56
	61.54	15.38	0.00	7.69	15.38	
	7.48	2.78	0.00	25.00	6.25	
9	13	23	0	0	1	37
	5.56	9.83	0.00	0.00	0.43	15.81
	35.14	62.16	0.00	0.00	2.70	
	12.15	31.94	0.00	0.00	3.13	
10	2	0	0	0	0	2
	0.85	0.00	0.00	0.00	0.00	0.85
	100.00	0.00	0.00	0.00	0.00	
	1.87	0.00	0.00	0.00	0.00	
11	0	1	0	0	1	2
	0.00	0.43	0.00	0.00	0.43	0.85
	0.00	50.00	0.00	0.00	50.00	
	0.00	1.39	0.00	0.00	3.13	
12	2	2	0	0	0	4
	0.85	0.85	0.00	0.00	0.00	1.71
	50.00	50.00	0.00	0.00	0.00	
	1.87	2.78	0.00	0.00	0.00	
TOTAL	107	72	19	4	32	234
	45.73	30.77	8.12	1.71	13.68	100.00

FREQUENCY MISSING = 52

CENTRAL/SH 121 O-D SURVEY

TABLE OF ARTERIAL BY SET

ARTERIAL	SET					TOTAL
	1	2	3	4	5	
FREQUENCY						
PERCENT						
ROW PCT						
COL PCT						
CENTRAL DR	61	43	4	2	9	119
	25.85	18.22	1.69	0.85	3.81	50.42
	51.26	36.13	3.36	1.68	7.56	
	55.96	60.56	20.00	50.00	28.13	
WB ENT TO SH 121	5	2	8	1	15	31
	2.12	0.85	3.39	0.42	6.36	13.14
	16.13	6.45	25.81	3.23	48.39	
	4.59	2.82	40.00	25.00	46.88	
FOREST RIDGE	32	21	4	1	2	60
	13.56	8.90	1.69	0.42	0.85	25.42
	53.33	35.00	6.67	1.67	3.33	
	29.36	29.58	20.00	25.00	6.25	
OTHER	11	5	4	0	6	26
	4.66	2.12	1.69	0.00	2.54	11.02
	42.31	19.23	15.38	0.00	23.08	
	10.09	7.04	20.00	0.00	18.75	
TOTAL	109	71	20	4	32	236
	46.19	30.08	8.47	1.69	13.56	100.00

FREQUENCY MISSING = 50

## APPENDIX B2

# COMPLETE SURVEY SUMMARY

CENTRAL DRIVE-SH 121 ORIGIN/DESTINATION SURVEY

QUESTION 1. DID YOU USE THE CENTRAL DRIVE EXIT ON THIS TRIP ?

RESPONDENT'S ORIGIN : ALL RESPONSES

USE CENTRAL DRIVE EXIT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	217	76.14	217	76.14
NO	68	23.86	285	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

USE CENTRAL DRIVE EXIT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	129	84.31	129	84.31
NO	24	15.69	153	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

USE CENTRAL DRIVE EXIT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	88	94.62	88	94.62
NO	5	5.38	93	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

USE CENTRAL DRIVE EXIT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
NO	39	100	39	100.00

CENTRAL DRIVE-SH 121 ORIGIN/DESTINATION SURVEY

QUESTION 2. IF YES, WOULD YOU CONSIDER USE OF ANOTHER RAMP VOLUNTARILY IN ORDER  
TO AVOID CONGESTION ?

RESPONDENT'S ORIGIN : ALL RESPONSES

VOLUNTARILY DIVERT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	174	78.73	174	78.73
NO	47	21.27	221	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

VOLUNTARILY DIVERT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	103	78.03	103	78.03
NO	29	21.97	132	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

VOLUNTARILY DIVERT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
YES	71	79.78	71	79.78
NO	18	20.22	89	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

VOLUNTARILY DIVERT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
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CENTRAL DRIVE-SH 121 ORIGIN/DESTINATION SURVEY

QUESTION 3. IF THE CENTRAL DRIVE EXIT WERE CLOSED TEMPORARILY, WOULD YOU USE ?

RESPONDENT'S ORIGIN : ALL RESPONSES

DIVERSION EXIT RAMP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
WESTPARK/MURPHY FROM SH 183	87	38.16	87	38.16
BEDFORD RD. FROM SH 121/183	68	29.82	155	67.98
MURPHY FROM SH 121	46	20.18	201	88.16
OTHER	27	11.84	228	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

DIVERSION EXIT RAMP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
WESTPARK/MURPHY FROM SH 183	87	62.14	87	62.14
BEDFORD RD. FROM SH 121/183	38	27.14	125	89.29
OTHER	15	10.71	140	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

DIVERSION EXIT RAMP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
BEDFORD RD. FROM SH 121/183	30	34.09	30	34.09
MURPHY FROM SH 121	46	52.27	76	86.36
OTHER	12	13.64	88	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

DIVERSION EXIT RAMP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
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CENTRAL DRIVE-SH 121 ORIGIN/DESTINATION SURVEY

REFERRING TO THE MAP :  
 QUESTION 4. ARE YOU COMING FROM A, B, OR C ?

ORIGIN	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
A: SH 183 FROM THE EAST	153	53.68	153	53.68
B: SH 121 FROM THE NORTHEAST	93	32.63	246	86.32
C: LOCAL COMMUTER AREA	39	13.68	285	100.00

CENTRAL DRIVE-SH 121 ORIGIN/DESTINATION SURVEY

QUESTION 5. IN WHICH ZONE NUMBER IS YOUR DESTINATION ?

RESPONDENT'S ORIGIN : ALL RESPONSES

DESTINATION ZONE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	38	13.67	38	13.67
2	19	6.83	57	20.50
3	22	7.91	79	28.42
4	12	4.32	91	32.73
5	21	7.55	112	40.29
6	73	26.26	185	66.55
7	14	5.04	199	71.58
8	23	8.27	222	79.86
9	47	16.91	269	96.76
10	2	0.72	271	97.48
11	3	1.08	274	98.56
12	4	1.44	278	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

DESTINATION ZONE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	16	10.88	16	10.88
2	8	5.44	24	16.33
3	11	7.48	35	23.81
4	10	6.80	45	30.61
5	16	10.88	61	41.50
6	42	28.57	103	70.07
7	10	6.80	113	76.87
8	12	8.16	125	85.03
9	18	12.24	143	97.28
10	2	1.36	145	98.64
12	2	1.36	147	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

DESTINATION ZONE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	5	5.38	5	5.38
2	1	1.08	6	6.45
3	8	8.60	14	15.05
4	2	2.15	16	17.20
5	4	4.30	20	21.51
6	30	32.26	50	53.76
7	4	4.30	54	58.06
8	8	8.60	62	66.67
9	28	30.11	90	96.77
11	1	1.08	91	97.85
12	2	2.15	93	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

DESTINATION ZONE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	17	44.74	17	44.74
2	10	26.32	27	71.05
3	3	7.89	30	78.95
5	1	2.63	31	81.58
6	1	2.63	32	84.21
8	3	7.89	35	92.11
9	1	2.63	36	94.74
11	2	5.26	38	100.00

CENTRAL DRIVE-SH 121 ORIGIN/ARTERIALATION SURVEY

QUESTION 6. TO REACH YOUR DESTINATION, ARE YOU GOING TO USE ?

RESPONDENT'S ORIGIN : ALL RESPONSES

ARTERIAL USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
CENTRAL DRIVE	147	52.69	147	52.69
WETSBOUND ENTRANCE TO SH 121/183	36	12.90	183	65.59
FOREST RIDGE	67	24.01	250	89.61
OTHER	29	10.39	279	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

ARTERIAL USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
CENTRAL DRIVE	80	53.33	80	53.33
WETSBOUND ENTRANCE TO SH 121/183	14	9.33	94	62.67
FOREST RIDGE	41	27.33	135	90.00
OTHER	15	10.00	150	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

ARTERIAL USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
CENTRAL DRIVE	57	62.64	57	62.64
WETSBOUND ENTRANCE TO SH 121/183	4	4.40	61	67.03
FOREST RIDGE	24	26.37	85	93.41
OTHER	6	6.59	91	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

ARTERIAL USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
CENTRAL DRIVE	10	26.32	10	26.32
WETSBOUND ENTRANCE TO SH 121/183	18	47.37	28	73.68
FOREST RIDGE	2	5.26	30	78.95
OTHER	8	21.05	38	100.00

CENTRAL DRIVE-SH 121 ORIGIN/DAYSATION SURVEY

QUESTION 7. HOW MANY DAYS PER WEEK DO YOU MAKE THIS TRIP ?

RESPONDENT'S ORIGIN : ALL RESPONSES

DAYS USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	12	4.23	12	4.23
2	11	3.87	23	8.10
3	15	5.28	38	13.38
4	10	3.52	48	16.90
5	165	58.10	213	75.00
6	42	14.79	255	89.79
7	24	8.45	279	98.24
LESS THAN ONCE A WEEK	5	1.76	284	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

DAYS USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	2	1.31	2	1.31
2	5	3.27	7	4.58
3	9	5.88	16	10.46
4	7	4.58	23	15.03
5	87	56.86	110	71.90
6	24	15.69	134	87.58
7	14	9.15	148	96.73
LESS THAN ONCE A WEEK	5	3.27	153	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

DAYS USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	6	6.52	6	6.52
2	5	5.43	11	11.96
3	5	5.43	16	17.39
4	3	3.26	19	20.65
5	52	56.52	71	77.17
6	12	13.04	83	90.22
7	9	9.78	92	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

DAYS USED	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1	4	10.26	4	10.26
2	1	2.56	5	12.82
3	1	2.56	6	15.38
5	26	66.67	32	82.05
6	6	15.38	38	97.44
7	1	2.56	39	100.00

CENTRAL DRIVE-SH 121 ORIGIN/COMMENTATION SURVEY

QUESTION 8. ANY ADDITIONAL COMMENTS ?

RESPONDENT'S ORIGIN : ALL RESPONSES

COMMENTS	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
BETTER TRAFFIC CONTROL FROM SH 121/183	7	8.86	7	8.86
RE-OPEN MURPHY ENTRANCE TO SH 121	18	22.78	25	31.65
TWO LANES FOR SH 121/183 MERGE	8	10.13	33	41.77
MOVE CENTRAL EXIT RAMP BACK	9	11.39	42	53.16
OPEN MURPHY EXIT FROM SH 121	7	8.86	49	62.03
NEED EXIT RAMP FOR FOREST RIDGE	17	21.52	66	83.54
STOP SIGN ON FRONTAGE ROAD	2	2.53	68	86.08
POOR LANE DESIGNATION ON WB FRONTAGE	9	11.39	77	97.47
ENTRY BEFORE MURPHY ON SH 183 WB	2	2.53	79	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

COMMENTS	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
BETTER TRAFFIC CONTROL FROM SH 121/183	3	10.71	3	10.71
RE-OPEN MURPHY ENTRANCE TO SH 121	1	3.57	4	14.29
MOVE CENTRAL EXIT RAMP BACK	5	17.86	9	32.14
NEED EXIT RAMP FOR FOREST RIDGE	11	39.29	20	71.43
POOR LANE DESIGNATION ON WB FRONTAGE	6	21.43	26	92.86
ENTRY BEFORE MURPHY ON SH 183 WB	2	7.14	28	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

COMMENTS	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
BETTER TRAFFIC CONTROL FROM SH 121/183	4	11.11	4	11.11
RE-OPEN MURPHY ENTRANCE TO SH 121	3	8.33	7	19.44
TWO LANES FOR SH 121/183 MERGE	8	22.22	15	41.67
MOVE CENTRAL EXIT RAMP BACK	4	11.11	19	52.78
OPEN MURPHY EXIT FROM SH 121	6	16.67	25	69.44
NEED EXIT RAMP FOR FOREST RIDGE	6	16.67	31	86.11
STOP SIGN ON FRONTAGE ROAD	2	5.56	33	91.67
POOR LANE DESIGNATION ON WB FRONTAGE	3	8.33	36	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

COMMENTS	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
RE-OPEN MURPHY ENTRANCE TO SH 121	14	93.33	14	93.33
OPEN MURPHY EXIT FROM SH 121	1	6.67	15	100.00

CENTRAL DRIVE-SH 121 ORIGIN/TIMEATION SURVEY

TIME OF ARRIVAL

RESPONDENT'S ORIGIN : ALL RESPONSES

ARRIVAL TIME	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1600	29	11.42	29	11.42
1615	21	8.27	50	19.69
1630	44	17.32	94	37.01
1645	36	14.17	130	51.18
1700	69	27.17	199	78.35
1715	54	21.26	253	99.61
1730	1	0.39	254	100.00

RESPONDENT'S ORIGIN : SH 183 FROM THE EAST

ARRIVAL TIME	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1600	15	11.28	15	11.28
1615	15	11.28	30	22.56
1630	23	17.29	53	39.85
1645	13	9.77	66	49.62
1700	38	28.57	104	78.20
1715	28	21.05	132	99.25
1730	1	0.75	133	100.00

RESPONDENT'S ORIGIN : SH 121 FROM THE NORTHEAST

ARRIVAL TIME	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1600	8	9.52	8	9.52
1615	5	5.95	13	15.48
1630	13	15.48	26	30.95
1645	16	19.05	42	50.00
1700	17	20.24	59	70.24
1715	25	29.76	84	100.00

RESPONDENT'S ORIGIN : LOCAL COMMUTER AREA

ARRIVAL TIME	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENTAGE
1600	6	16.22	6	16.22
1615	1	2.70	7	18.92
1630	8	21.62	15	40.54
1645	7	18.92	22	59.46
1700	14	37.84	36	97.30
1715	1	2.70	37	100.00