ROAD USER COST ESTIMATE -- TxDOT PROJECT 271-7-210
I-10 KATY FREEWAY FROM I-610 (WEST LOOP) TO I-45

Background

Construction sequencing plans for I-10 Katy Freeway between I-610 West Loop and I-45 near downtown Houston are presently being prepared. The project includes the rehabilitation of the roadway pavement and the raising of several overpass structures. The Texas Department of Transportation (TxDOT) has requested that the Texas Transportation Institute (TTI) complete a road user cost analysis for two general traffic control options being considered for sequencing of the construction.

The two options differ significantly in the number of lanes available for use and the total time for project completion. The first option maintains the existing five lane cross section throughout the project and requires four separate phases. In each phase, the freeway lanes are narrowed (less than the desirable width of 12 feet) and the inside and outside shoulders are either completely eliminated or narrowed. The second proposed sequencing provides for completion of the rehabilitation project in only three phases. Each phase consists of only four narrow lanes as well as shoulder elimination. The reduction in the number of phases significantly reduces the amount of time required to complete the construction.

A road user cost estimate will be calculated for each of the two traffic control options. The latest traffic volume data will be used as inputs to the FREQ10PC freeway simulation model to determine the delays associated with each scenario. Comparisons of the differences in the delay are combined with the value of time to provide a daily user cost estimate for each phase. TxDOT can then apply these cost values to estimates of the time for each phase to determine the construction sequencing option that will incur the least total road user cost to be incurred on the public.

Freeway Simulation Model

The FREQ10PC model was used to simulate freeway operations for each phase of the two construction sequencing options on I-10 as described above. The computer program allows simulation of freeway traffic operations for a given set of geometric and demand input parameters. It is based upon a macroscopic deterministic approach which assumes that freeway operations can be simulated by disregarding the actual randomness of traffic demand and the behavior of individual vehicles. Inputs to the model includes geometric and traffic demand data. Model outputs include freeway travel time, ramp delay, total freeway travel time, total travel distance, average speed, gasoline consumed, vehicle emissions, and mainlane delay. The latest version of the model (REL T91) was used for this analysis.

The model was set up for the segment of I-10 from the T&NO Railroad overpass to the Houston Avenue overpass, a distance of approximately 4.2 miles. TTI had previously prepared spreadsheets of recent freeway mainlane and ramp data for this segment of I-10. This data was used as inputs to the model in one-hour intervals for typical weekdays, Saturdays, and Sundays for the eastbound and westbound directions. The FREQ10PC model was setup to simulate the existing traffic conditions as well as each phase of the two construction sequencing options.

Value of Time

Currently, the basis for determining value of time is a TTI report "The Value of Travel Time: New Estimates Developed Using a Speed Choice Model," Research Report No. 396-2F. This study derived the value of time using a speed choice model (HEEM) assuming a rational driver chooses a speed so that the total driving costs are minimized. Total driving costs include value of time and vehicle operating costs, accident costs, and traffic violation costs. The study recommends the following values of time (in 1985 dollars):

Drivers	-	$ 8.03 per person-hour.
Passenger Car	-	$10.44 per vehicle-hour (assumes 1.3 persons/vehicle)

The value of time may be adjusted using the current Consumer Price Index (CPI). Table 1 illustrates the CPI and the value of time from 1985 to 1992. Current CPI values may be obtained from the *Wall Street Journal* or other economic publications. For this study, the value of time was assumed at $10.47 per person-hour and at $13.09 per vehicle-hour.

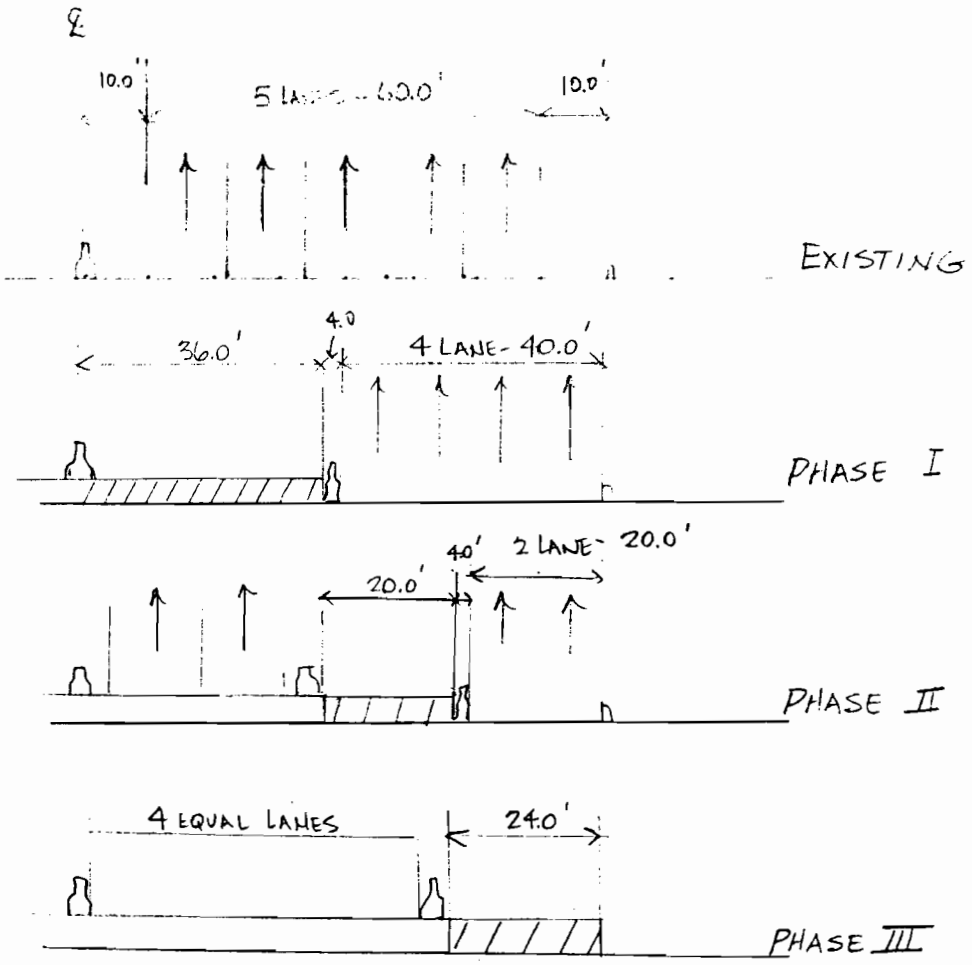
Table 1. Annual Cost for Value of Time

Year	CPI[1]	Value of Time	
		Drivers[2]	Passenger Cars[2,3]
1985	322.2	$ 8.03	$10.04
1986	238.4	8.24	10.30
1987	240.4	8.48	10.60
1988	118.2[4]	8.82	11.03
1989	124.0[4]	9.26	11.58
1990	130.7[4]	9.76	12.20
1991	136.2[4]	10.17	12.71
1992	140.3[4]	10.47	13.09

Notes: [1] CPI values are annual percentages.
[2] Costs represent only value of time.
[3] Passenger car cost based on drivers value of time x vehicle occupancy rate of 1.25.
[4] CPI base was changed in 1988. A multiplication factor of 2.99556 must be used with CPI published after 1988.

Capacity Analysis

The determination of the capacity of the freeway sections has a major impact upon the results of the FREQ10PC simulation during the construction. Preliminary construction cross sections for each of the two alternatives were reviewed with respect to the lane width and clearances to lateral obstructions. Adjustment factors relating to these items were obtained from Table 3-2 of the *Highway Capacity Manual* and the reduced capacity for each phase was determined. The reduced capacity was then applied in the FREQ10 model to estimate the traffic flow conditions for each construction phase and scenario. The proposed cross sections and assumed capacities for the five lane and four lane scenarios as used for the simulation model are presented by Figures 1 and 2.

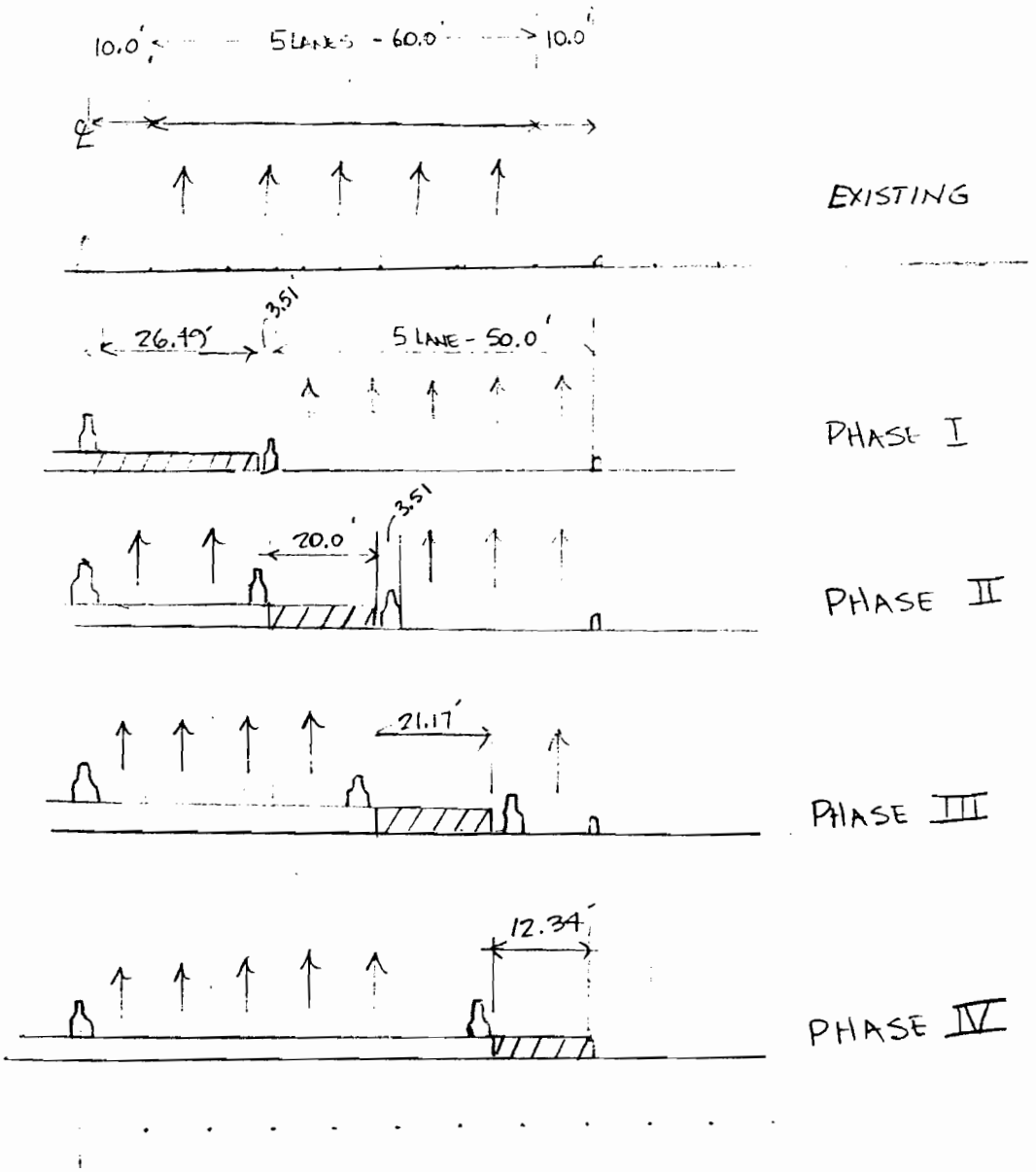


IH-10 REHAB.

TCP CLOSING 1 LANE - MAINTAINING 4 LANES DURING CONSTRUCTION

Figure 1.

SOURCE: TxDOT



IH-10 REHABILITATION
TCP w/ 5 LANES

Figure 2-

Source: TxDOT

The results of the simulation analysis are presented in Tables 2, 3, and 4. Each table presents the assumed freeway capacity and selected FREQ10PC outputs. These parameters (freeway travel time, freeway delay, and estimated fuel consumption) are typically used for comparison in alternative analyses. Each table includes these measures of effectiveness for the existing (non construction) traffic conditions, for each phase of the four and five lane alternatives, for typical weekdays, Saturdays, and Sundays. The study results indicate that more delay is incurred to motorists for the four lane alternative than that for the scenario that maintains the existing five lanes for all phases.

The delays calculated by the FREQ10PC simulation model are based upon an average speed of existing conditions as determined by the model. For this section of I-10, there is no congestion and the average speed exceeds the speed limit of 55 mph. The reduction in freeway capacity for the four lane scenarios does not cause any congestion. However, since the average speed does drop below the "normal" speed of 59 mph, delays above the existing conditions are incurred. These will be very insignificant and not noticed by the approximate 150,000 motorists using the roadway each day. The speeds will be presented in another section of the report.

User Costs Determination

Using the differences between the mainlane delays calculated by the FREQ10 model for the existing conditions and that for each construction phase, the additional delay to the motoring public can be estimated. Applying this additional delay to the current value of time ($13.09/vehicle-hour), a monetary cost (road user cost) can be placed upon the motorists that travel I-10 between the T&NO Railroad and Houston Avenue overpass structures. Table 5 presents the user cost determinations for weekdays, Saturdays, and Sundays for the five and four lane scenarios for each phase.

Table 2. Weekday Results of FREQ10PC Simulation Analysis				
Scenario	Capacity* (vph)	Freeway Travel Time+ (veh-hrs)	Mainlane Delay+ (veh-hrs)	Gasoline Consumed+ (gallons)
Existing				
Inbound	10,000	5,143	0.0	14,203
Outbound	10,000	5,869	0.0	16,002
Total		11,012	0.0	30,205
Maintain 5 Lanes				
Phase 1				
Inbound	8,100	5,221	63.54	14,030
Outbound	8,100	5,966	109.16	15,790
Total		11,187	172.70	29,820
Phase II				
Inbound	8,220	5,215	58.82	14,042
Outbound	8,220	5,959	102.61	15,805
Total		11,174	161.43	29,847
Phase III				
Inbound	8,100	5,221	63.54	14,030
Outbound	8,100	5,966	109.16	15,790
Total		11,187	172.70	29,820
Phase IV				
Inbound	8,700	5,194	42.11	14,088
Outbound	8,700	5,932	79.27	15,862
Total		11,126	121.38	29,950
Maintain 4 Lanes				
Phase 1				
Inbound	6,480	5,332	166.47	13,813
Outbound	6,480	6,404	408.67	15,615
Total		11,736	575.14	29,428
Phase II				
Inbound	7,040	5,280	117.29	13,902
Outbound	7,040	6,042	179.23	15,635
Total		11,322	296.52	29,537
Phase III				
Inbound	7,480	5,253	92.54	13,959
Outbound	7,480	6,008	147.19	15,704
Total		11,261	239.73	29,663

* Estimated freeway capacity for the basic cross section.
+ 24-hour totals for typical weekday traffic.

Table 3. Weekday Results of FREQ10PC Simulation Analysis				
Scenario	Capacity* (vph)	Freeway Travel Time+ (veh-hrs)	Mainlane Delay+ (veh-hrs)	Gasoline Consumed+ (gallons)
Existing				
Inbound	10,000	3,579	0.0	10,319
Outbound	10,000	4,798	0.0	13,443
Total		8,377	0.0	23,762
Maintain 5 Lanes				
Phase 1				
Inbound	8,100	3,613	13.07	10,200
Outbound	8,100	4,859	76.92	13,293
Total		8,472	89.99	23,493
Phase II				
Inbound	8,220	3,611	11.70	10,208
Outbound	8,220	4,854	73.04	13,303
Total		8,465	84.74	23,511
Phase III				
Inbound	8,100	3,613	13.07	10,200
Outbound	8,100	4,859	76.92	13,293
Total		8,472	89.99	23,493
Phase IV				
Inbound	8,700	3,602	7.11	10,237
Outbound	8,700	4,838	58.92	13,344
Total		8,440	66.03	23,581
Maintain 4 Lanes				
Phase 1				
Inbound	6,480	3,655	43.32	10,084
Outbound	6,480	4,937	149.65	13,120
Total		8,592	192.97	23,204
Phase II				
Inbound	7,040	3,639	29.94	10,128
Outbound	7,040	4,906	119.57	13,187
Total		8,545	149.51	23,315
Phase III				
Inbound	7,480	3,627	21.86	10,159
Outbound	7,480	4,885	99.82	13,233
Total		8,512	121.68	23,392

* Estimated freeway capacity for the basic cross section.
+ 24-hour totals for typical weekday traffic.

Table 4. Weekday Results of FREQ10PC Simulation Analysis				
Scenario	Capacity* (vph)	Freeway Travel Time+ (veh-hrs)	Mainlane Delay+ (veh-hrs)	Gasoline Consumed+ (gallons)
Existing				
Inbound	10,000	3,186	0.0	9,259
Outbound	10,000	3,844	0.0	10,929
Total		7,030	0.0	20,188
Maintain 5 Lanes				
Phase 1				
Inbound	8,100	3,214	38.57	9,156
Outbound	8,100	3,886	38.92	10,808
Total		7,100	77.49	19,964
Phase II				
Inbound	8,220	3,212	36.88	9,163
Outbound	8,220	3,883	36.50	10,816
Total		7,095	73.38	19,979
Phase III				
Inbound	8,100	3,214	38.57	9,156
Outbound	8,100	3,886	38.92	10,808
Total		7,100	77.49	19,964
Phase IV				
Inbound	8,700	3,205	30.68	9,188
Outbound	8,700	3,872	28.07	10,847
Total		7,077	58.75	20,035
Maintain 4 Lanes				
Phase 1				
Inbound	6,480	3,248	69.88	9,055
Outbound	6,480	3,940	85.12	10,679
Total		7,188	155.00	19,734
Phase II				
Inbound	7,040	3,235	57.06	9,093
Outbound	7,040	3,918	65.81	10,729
Total		7,153	122.87	19,822
Phase III				
Inbound	7,480	3,225	48.58	9,120
Outbound	7,480	3,904	53.35	10,764
Total		7,129	101.93	19,884

* Estimated freeway capacity for the basic cross section.
+ 24-hour totals for typical weekday traffic.

Table 5. Total Cost/Day of Road User Cost per Phase		
Scenario	Delay Cost (veh-hrs)	User Time Cost ($/day)
WEEKDAYS		
Maintain 5 Lanes		
Phase I	172.70	$2,261
Phase II	161.43	2,113
Phase III	172.70	2,261
Phase IV	121.38	1,589
Maintain 4 Lanes		
Phase I	575.14	$7,529
Phase II	296.52	3,881
Phase III	239.73	3,138
SATURDAYS		
Maintain 5 Lanes		
Phase I	89.99	$1,178
Phase II	84.74	1,109
Phase III	89.99	1,178
Phase IV	66.03	864
Maintain 4 Lanes		
Phase I	192.97	$2,526
Phase II	149.51	1,957
Phase III	121.68	1,593
SUNDAYS		
Maintain 5 Lanes		
Phase I	77.49	$1,014
Phase II	73.38	961
Phase III	77.49	1,014
Phase IV	58.75	769
Maintain 4 Lanes		
Phase I	155.00	$2,029
Phase II	122.87	1,608
Phase III	101.93	1,334

To determine the sequencing that will be more cost efficient, additional steps should be applied to the costs per phase as presented. Once the number of days required for each phase has been estimated, the total user delay cost to the motoring public can be determined. The difference between the two scenarios combined with any construction cost savings of the four-lane option can then be used to determine the more cost effective construction sequencing.

Other Considerations

Although Table 5 indicates higher user costs for the four lane alternative, freeway speeds do not decline significantly to cause congestion. Table 6 presents the average speeds as determined by the FREQ10PC model for each phase being considered. As indicated, there is not significant reduction in average speed over a 24-hour period to preclude implementing the four-lane alternative.

The Appendix includes the traffic demands as used for the FREQ10PC simulations. If the freeway mainlane volume for any hour is greater than the assumed capacities indicated on Figures 1 and 2, freeway congestion will develop. This is most critical for Phase I of the four-lane scenario during which the least amount of roadway capacity is available. An examination of the freeway data indicates volumes near the critical value (6480 vph) from 7:00 to 8:00 a.m. on weekdays. There may be some congestion during this hour, but it should not be significant. Diversion of motorists to other parallel roadways (i.e., Memorial Drive) will lessen this impact.

Recommendations

The results of the FREQ10PC simulation analysis indicate that freeway speeds will not be significantly impacted if the four lane alternative were implemented. Although there may be some delays incurred during the AM (and possible PM) peak hour, it is recommended that the four lane construction alternative be implemented. It is also recommended that the road user cost per day for each phase as presented in Table 5 be

used as minimum liquidated damages for the freeway portion of the project. As the traffic control plan is outlined in more detail, this study may need to be completed again for a more accurate value.

Table 6. Estimated Average Freeway Speeds

Scenario	Average 24-Hour Speeds as Estimated by FREQ10PC in MPH		
	Weekday	Saturday	Sunday
Existing			
Inbound	59.6	60.8	61.0
Outbound	59.2	60.0	60.4
Maintain 5 Lanes			
Phase 1			
Inbound	58.7	60.2	60.5
Outbound	58.2	59.3	59.8
Phase II			
Inbound	58.7	60.3	60.5
Outbound	58.3	59.3	59.8
Phase III			
Inbound	58.7	60.2	60.5
Outbound	58.2	59.3	59.8
Phase IV			
Inbound	59.0	60.4	60.6
Outbound	58.5	59.5	60.0
Maintain 4 Lanes			
Phase 1			
Inbound	57.5	59.5	59.8
Outbound	55.3	58.3	58.9
Phase II			
Inbound	58.0	59.8	60.1
Outbound	57.5	58.7	59.3
Phase III			
Inbound	58.3	60.0	60.2
Outbound	57.8	59.0	59.5

APPENDIX

CATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	*M/L*	I-610 NB Exit	I-610 SB Exit	M/L	I-610 NB Entry	I-610 SB Entry	M/L	AVL Entry	M/L	WASHINGTON Exit	M/L	WASHINGTON Entry	M/L
12:00 AM	740	190	230	320	140	120	580	0	580	30	550	60	610
1:00 AM	470	120	130	220	100	80	400	0	400	20	380	30	410
2:00 AM	380	110	110	160	70	70	300	0	300	20	280	30	310
3:00 AM	340	110	90	140	50	80	270	0	270	10	260	20	280
4:00 AM	540	130	120	290	60	200	550	10	560	50	510	30	540
5:00 AM	2140	330	470	1340	150	770	2260	60	2320	210	2110	100	2210
6:00 AM	5250	780	1600	2870	490	1810	5170	640	5810	620	5190	540	5730
7:00 AM	6300	1130	2300	2870	1080	1530	5480	380	5860	860	5000	1290	6290
8:00 AM	6010	1160	2390	2460	1120	1380	4960	580	5540	720	4820	930	5750
9:00 AM	5550	1050	2230	2270	890	1380	4540	280	4820	530	4290	600	4890
0:00 AM	5230	1010	2000	2220	910	1260	4390	100	4490	490	4000	560	4560
1:00 AM	5440	1070	2090	2280	980	1220	4480	90	4570	590	3980	640	4620
2:00 PM	5460	1370	2050	2040	1040	1230	4310	80	4390	580	3810	650	4460
1:00 PM	5560	1530	2130	1900	1100	1260	4260	0	4260	540	3720	650	4370
2:00 PM	5560	1530	2020	2010	990	1270	4270	0	4270	480	3790	660	4450
3:00 PM	5870	1770	1850	2250	1050	1230	4530	0	4530	520	4010	730	4740
4:00 PM	5910	1640	1640	2630	1020	1350	5000	0	5000	480	4520	900	5420
5:00 PM	5490	2090	1560	1840	1190	1530	4560	0	4560	500	4060	940	5000
6:00 PM	5120	1480	1640	2000	980	1110	4090	0	4090	420	3670	590	4260
7:00 PM	4000	1200	1450	1350	690	750	2790	0	2790	260	2530	320	2850
8:00 PM	3230	880	1050	1300	520	490	2310	0	2310	190	2120	220	2340
9:00 PM	2750	800	970	980	470	450	1900	0	1900	160	1740	190	1930
0:00 PM	2140	660	730	750	410	390	1550	0	1550	120	1430	150	1580
:00 PM	1310	430	450	430	280	240	950	0	950	70	880	100	980
HOURS	90790	22570	31300	36920	15780	21200	73900	2220	76120	8470	67650	10930	78580

CATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	T.C.JESTER Exit	M/L	DURHAM Exit	M/L	T.C.JESTER Entry	M/L	SHEPEHRD Entry	M/L	STUDEMONT Exit	M/L	HEIGHTS Entry	M/L	TAYLOR Exit
12:00 AM	20	590	50	540	30	570	80	650	90	560	80	640	60
1:00 AM	20	390	30	360	20	380	50	430	50	380	60	440	30
2:00 AM	10	300	30	270	10	280	30	310	40	270	40	310	20
3:00 AM	10	270	30	240	10	250	80	330	30	300	40	340	20
4:00 AM	10	530	30	500	20	520	90	610	40	570	40	610	20
5:00 AM	30	2180	90	2090	80	2170	120	2290	140	2150	90	2240	70
6:00 AM	120	5610	350	5260	280	5540	260	5800	550	5250	240	5490	340
7:00 AM	240	6050	700	5350	550	5900	470	6370	1310	5060	360	5420	570
8:00 AM	210	5540	690	4850	470	5320	420	5740	1160	4580	360	4940	570
9:00 AM	210	4680	600	4080	310	4390	440	4830	750	4080	380	4460	360
0:00 AM	210	4350	620	3730	290	4020	490	4510	640	3870	400	4270	350
1:00 AM	250	4370	700	3670	310	3980	540	4520	700	3820	440	4260	400
2:00 PM	270	4190	710	3480	300	3780	710	4490	700	3790	490	4280	480
1:00 PM	240	4130	630	3500	320	3820	680	4500	710	3790	490	4280	480
2:00 PM	260	4190	620	3570	300	3870	620	4490	660	3830	460	4290	490
3:00 PM	270	4470	680	3790	360	4150	670	4820	670	4150	550	4700	570
:00 PM	290	5130	650	4480	410	4890	700	5590	720	4870	700	5570	590
:00 PM	310	4690	760	3930	460	4390	710	5100	760	4340	710	5050	620
:00 PM	260	4000	610	3390	270	3660	530	4190	680	3510	440	3950	520
:00 PM	150	2700	470	2230	160	2390	390	2780	530	2250	290	2540	350
:00 PM	110	2230	320	1910	110	2020	310	2330	410	1920	220	2140	270
:00 PM	100	1830	280	1550	90	1640	270	1910	350	1560	210	1770	230
:00 PM	80	1500	180	1320	70	1390	220	1610	300	1310	160	1470	140
:00 PM	50	930	120	810	50	860	140	1000	160	840	120	960	100
HOURS	3730	74850	9950	64900	5280	70180	9020	79200	12150	67050	7370	74420	7650

:ATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
:OURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	M/L	TAYLOR Entry	M/L
2:00 AM	580	60	640
1:00 AM	410	30	440
2:00 AM	290	30	320
3:00 AM	320	30	350
4:00 AM	590	50	640
5:00 AM	2170	90	2260
5:00 AM	5150	220	5370
7:00 AM	4850	340	5190
3:00 AM	4370	340	4710
9:00 AM	4100	340	4440
0:00 AM	3920	350	4270
:00 AM	3860	390	4250
2:00 PM	3800	360	4160
:00 PM	3800	350	4150
:00 PM	3800	380	4180
:00 PM	4130	450	4580
:00 PM	4980	460	5440
:00 PM	4430	430	4860
:00 PM	3430	310	3740
:00 PM	2190	230	2420
:00 PM	1870	160	2030
:00 PM	1540	130	1670
:00 PM	1330	120	1450
:00 PM	860	90	950
HOURS	66770	5740	72510

CATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	*M/L*	I-610 NB Exit	I-610 SB Exit	M/L	I-610 NB Entry	I-610 SB Entry	M/L	AVL Entry	M/L	WASHINGTON Exit	M/L	WASHINGTON Entry	M/L
12:00 AM	1230	370	390	470	280	240	990	0	990	80	910	100	1010
1:00 AM	760	240	230	290	210	130	630	0	630	50	580	90	670
2:00 AM	610	210	190	210	250	120	580	0	580	40	540	60	600
3:00 AM	440	140	110	190	90	100	380	0	380	30	350	30	380
4:00 AM	480	130	110	240	50	130	420	0	420	30	390	20	410
5:00 AM	950	200	230	520	70	330	920	0	920	80	840	60	900
6:00 AM	1760	390	530	840	170	570	1580	0	1580	190	1390	120	1510
7:00 AM	2540	590	880	1070	320	810	2200	0	2200	280	1920	190	2110
8:00 AM	3710	880	1460	1370	490	860	2720	0	2720	330	2390	240	2630
9:00 AM	4660	1040	1670	1950	560	950	3460	0	3460	370	3090	320	3410
0:00 AM	5230	1110	1830	2290	650	960	3900	0	3900	420	3480	330	3810
1:00 AM	5480	1190	1970	2320	650	920	3890	0	3890	430	3460	360	3820
2:00 PM	5430	1200	1990	2240	660	910	3810	0	3810	380	3430	360	3790
1:00 PM	4920	1160	2040	1720	660	890	3270	0	3270	390	2880	310	3190
2:00 PM	4760	950	2040	1770	680	850	3300	0	3300	370	2930	300	3230
3:00 PM	4770	620	1800	2350	680	810	3840	0	3840	380	3460	300	3760
4:00 PM	4530	860	1840	1830	660	690	3180	0	3180	360	2820	270	3090
5:00 PM	4410	930	1680	1800	620	800	3220	0	3220	320	2900	300	3200
6:00 PM	4390	800	1920	1670	600	700	2970	0	2970	250	2720	240	2960
7:00 PM	3720	710	1770	1240	590	660	2490	0	2490	320	2170	150	2320
8:00 PM	3160	240	1220	1700	450	610	2760	0	2760	240	2520	160	2680
9:00 PM	2780	270	1200	1310	550	610	2470	0	2470	200	2270	140	2410
10:00 PM	2550	150	1010	1390	530	500	2420	0	2420	150	2270	110	2380
11:00 PM	1730	90	720	920	480	320	1720	0	1720	110	1610	100	1710
HOURS	75000	14470	28830	31700	10950	14470	57120	0	57120	5800	51320	4660	55980

KATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	T.C.JESTER Exit	M/L	DURHAM Exit	M/L	T.C.JESTER Entry	M/L	SHEPEHRD Entry	M/L	STUDEMONT Exit	M/L	HEIGHTS Entry	M/L	TAYLOR Exit
12:00 AM	30	980	120	860	60	920	190	1110	180	930	130	1060	80
1:00 AM	30	640	70	570	30	600	100	700	110	590	110	700	70
2:00 AM	20	580	50	530	20	550	80	630	100	530	110	640	60
3:00 AM	10	370	30	340	20	360	30	390	70	320	50	370	30
4:00 AM	10	400	40	360	20	380	30	410	60	350	50	400	30
5:00 AM	10	890	60	830	40	870	50	920	80	840	60	900	20
6:00 AM	10	1500	90	1410	100	1510	80	1590	160	1430	120	1550	50
7:00 AM	40	2070	200	1870	120	1990	170	2160	270	1890	170	2060	120
8:00 AM	90	2540	390	2150	180	2330	230	2560	340	2220	150	2370	120
9:00 AM	110	3300	520	2780	180	2960	310	3270	480	2790	230	3020	190
0:00 AM	150	3660	590	3070	190	3260	390	3650	550	3100	290	3390	230
1:00 AM	180	3640	530	3110	200	3310	430	3740	620	3120	300	3420	240
2:00 PM	160	3630	530	3100	180	3280	480	3760	590	3170	370	3540	270
1:00 PM	210	2980	550	2430	200	2630	480	3110	620	2490	360	2850	290
2:00 PM	180	3050	530	2520	190	2710	440	3150	600	2550	410	2960	310
3:00 PM	170	3590	500	3090	150	3240	390	3630	520	3110	350	3460	300
4:00 PM	180	2910	470	2440	170	2610	380	2990	500	2490	350	2840	300
5:00 PM	180	3020	410	2610	180	2790	350	3140	530	2610	330	2940	310
6:00 PM	180	2780	440	2340	140	2480	330	2810	540	2270	250	2520	260
7:00 PM	120	2200	450	1750	150	1900	260	2160	530	1630	260	1890	250
8:00 PM	100	2580	310	2270	100	2370	210	2580	400	2180	240	2420	220
9:00 PM	90	2320	290	2030	100	2130	240	2370	440	1930	220	2150	180
0:00 PM	90	2290	270	2020	70	2090	250	2340	390	1950	190	2140	140
1:00 PM	60	1650	180	1470	60	1530	200	1730	320	1410	180	1590	110
HOURS	2410	53570	7620	45950	2850	48800	6100	54900	9000	45900	5280	51180	4180

KATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	M/L	TAYLOR Entry	M/L
12:00 AM	980	110	1090
1:00 AM	630	100	730
2:00 AM	580	50	630
3:00 AM	340	30	370
4:00 AM	370	30	400
5:00 AM	880	40	920
6:00 AM	1500	100	1600
7:00 AM	1940	150	2090
8:00 AM	2250	170	2420
9:00 AM	2830	200	3030
0:00 AM	3160	220	3380
1:00 AM	3180	260	3440
2:00 PM	3270	270	3540
1:00 PM	2560	250	2810
2:00 PM	2650	230	2880
3:00 PM	3160	210	3370
:00 PM	2540	220	2760
:00 PM	2630	190	2820
:00 PM	2260	190	2450
:00 PM	1640	180	1820
:00 PM	2200	120	2320
:00 PM	1970	110	2080
:00 PM	2000	110	2110
:00 PM	1480	90	1570
HOURS	47000	3630	50630

KATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	*M/L*	I-610 NB Exit	I-610 SB Exit	M/L	I-610 NB Entry	I-610 SB Entry	M/L	AVL Entry	M/L	WASHINGTON Exit	M/L	WASHINGTON Entry	M/L
12:00 AM	1130	80	530	520	400	230	1150	0	1150	90	1060	110	1170
1:00 AM	930	100	330	500	280	140	920	0	920	60	860	60	920
2:00 AM	660	50	200	410	250	120	780	10	790	50	740	60	800
3:00 AM	400	80	190	130	220	80	430	10	440	30	410	40	450
4:00 AM	340	30	100	210	110	80	400	10	410	20	390	20	410
5:00 AM	530	20	100	410	50	160	620	10	630	40	590	20	610
6:00 AM	910	30	140	740	60	210	1010	10	1020	50	970	30	1000
7:00 AM	1130	100	350	680	120	260	1060	20	1080	80	1000	60	1060
8:00 AM	1810	120	490	1200	190	220	1610	50	1660	100	1560	100	1660
9:00 AM	3050	290	840	1920	280	540	2740	160	2900	190	2710	150	2860
10:00 AM	5160	740	1300	3120	370	640	4130	330	4460	250	4210	200	4410
11:00 AM	4030	660	2530	840	480	610	1930	230	2160	250	1910	160	2070
12:00 PM	3670	520	1930	1220	450	640	2310	150	2460	270	2190	240	2430
1:00 PM	3650	450	1510	1690	510	730	2930	180	3110	230	2880	200	3080
2:00 PM	3990	300	1600	2090	470	620	3180	190	3370	240	3130	180	3310
3:00 PM	4050	460	1560	2030	500	700	3230	260	3490	300	3190	210	3400
4:00 PM	3590	430	1600	1560	540	660	2760	230	2990	310	2680	230	2910
5:00 PM	3670	270	1590	1810	520	700	3030	230	3260	270	2990	230	3220
6:00 PM	3670	380	1550	1740	540	700	2980	180	3160	250	2910	250	3160
7:00 PM	2980	310	1520	1150	530	530	2210	150	2360	170	2190	150	2340
8:00 PM	2850	170	1140	1540	380	400	2320	90	2410	110	2300	100	2400
9:00 PM	2500	150	840	1510	290	350	2150	60	2210	120	2090	90	2180
10:00 PM	2170	130	720	1320	290	270	1880	10	1890	70	1820	70	1890
11:00 PM	1550	130	570	850	210	170	1230	0	1230	50	1180	60	1240
24 HOURS	58420	6000	23230	29190	8040	9760	46990	2570	49560	3600	45960	3020	48980

KATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	T.C.JESTER Exit	M/L	DURHAM Exit	M/L	T.C.JESTER Entry	M/L	SHEPEHRD Entry	M/L	STUDEMONT Exit	M/L	HEIGHTS Entry	M/L	TAYLOR Exit
12:00 AM	70	1100	120	980	50	1030	140	1170	200	970	140	1110	100
1:00 AM	30	890	60	830	30	860	100	960	140	820	110	930	70
2:00 AM	30	770	80	690	30	720	130	850	120	730	110	840	40
3:00 AM	20	430	40	390	20	410	150	560	70	490	60	550	30
4:00 AM	10	400	30	370	10	380	210	590	30	560	40	600	20
5:00 AM	10	600	30	570	20	590	260	850	50	800	30	830	10
6:00 AM	20	980	40	940	40	980	110	1090	80	1010	50	1060	30
7:00 AM	30	1030	80	950	70	1020	60	1080	140	940	90	1030	50
8:00 AM	60	1600	100	1500	80	1580	120	1700	200	1500	100	1600	90
9:00 AM	110	2750	210	2540	120	2660	140	2800	280	2520	120	2640	110
10:00 AM	140	4270	290	3980	140	4120	200	4320	420	3900	220	4120	200
11:00 AM	140	1930	280	1650	120	1770	200	1970	380	1590	230	1820	220
12:00 PM	150	2280	370	1910	170	2080	270	2350	450	1900	270	2170	250
1:00 PM	160	2920	370	2550	180	2730	360	3090	550	2540	280	2820	220
2:00 PM	170	3140	350	2790	160	2950	280	3230	500	2730	340	3070	240
3:00 PM	180	3220	330	2890	170	3060	300	3360	460	2900	270	3170	270
4:00 PM	180	2730	340	2390	150	2540	270	2810	430	2380	260	2640	250
5:00 PM	170	3050	350	2700	140	2840	260	3100	500	2600	270	2870	240
6:00 PM	160	3000	370	2630	160	2790	260	3050	470	2580	210	2790	230
7:00 PM	110	2230	260	1970	100	2070	180	2250	370	1880	190	2070	190
8:00 PM	90	2310	230	2080	80	2160	170	2330	280	2050	170	2220	170
9:00 PM	70	2110	190	1920	70	1990	150	2140	290	1850	160	2010	120
10:00 PM	60	1830	130	1700	60	1760	130	1890	220	1670	130	1800	100
11:00 PM	40	1200	80	1120	40	1160	80	1240	150	1090	90	1180	80
24 HOURS	2210	46770	4730	42040	2210	44250	4530	48780	6780	42000	3940	45940	3330

KATY FRWY (I-10) EASTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	M/L	TAYLOR Entry	M/L
12:00 AM	1010	70	1080
1:00 AM	860	40	900
2:00 AM	800	30	830
3:00 AM	520	20	540
4:00 AM	580	20	600
5:00 AM	820	20	840
6:00 AM	1030	40	1070
7:00 AM	980	50	1030
8:00 AM	1510	110	1620
9:00 AM	2530	110	2640
10:00 AM	3920	170	4090
11:00 AM	1600	160	1760
12:00 PM	1920	220	2140
1:00 PM	2600	270	2870
2:00 PM	2830	260	3090
3:00 PM	2900	190	3090
4:00 PM	2390	210	2600
5:00 PM	2630	220	2850
6:00 PM	2560	200	2760
7:00 PM	1880	130	2010
8:00 PM	2050	160	2210
9:00 PM	1890	120	2010
10:00 PM	1700	80	1780
11:00 PM	1100	60	1160
24 HOURS	42610	2960	45570

:ATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	TAYLOR Exit		TAYLOR Entry		HEIGHTS Exit		STUDEMONT Entry		SHEPHERD Exit		T.C.JESTER Exit		
	M/L		M/L		M/L		M/L		M/L		M/L		M/L
2:00 AM	610	60	550	50	600	80	520	180	700	50	650	40	610
1:00 AM	300	30	270	30	300	50	250	140	390	30	360	20	340
2:00 AM	330	30	300	30	330	40	290	120	410	40	370	20	350
3:00 AM	330	30	300	20	320	40	280	60	340	20	320	20	300
4:00 AM	450	40	410	30	440	40	400	40	440	20	420	20	400
5:00 AM	1460	120	1340	90	1430	110	1320	110	1430	100	1330	90	1240
6:00 AM	4340	270	4070	330	4400	360	4040	320	4360	330	4030	260	3770
7:00 AM	6320	360	5960	650	6610	640	5970	580	6550	610	5940	430	5510
8:00 AM	5680	360	5320	550	5870	670	5200	520	5720	580	5140	330	4810
9:00 AM	4610	320	4290	400	4690	490	4200	460	4660	530	4130	270	3860
0:00 AM	4340	300	4040	410	4450	500	3950	480	4430	540	3890	300	3590
1:00 AM	4960	360	4600	480	5080	600	4480	560	5040	730	4310	330	3980
2:00 PM	4430	350	4080	450	4530	600	3930	660	4590	690	3900	340	3560
1:00 PM	4760	330	4430	420	4850	560	4290	630	4920	660	4260	330	3930
2:00 PM	5090	360	4730	460	5190	580	4610	660	5270	650	4620	350	4270
:00 PM	5410	440	4970	540	5510	580	4930	740	5670	670	5000	440	4560
:00 PM	5410	420	4990	600	5590	600	4990	870	5860	680	5180	580	4600
:00 PM	5570	420	5150	550	5700	570	5130	860	5990	700	5290	700	4590
:00 PM	5160	310	4850	420	5270	470	4800	630	5430	500	4930	390	4540
:00 PM	3820	240	3580	340	3920	360	3560	480	4040	370	3670	250	3420
:00 PM	2940	170	2770	250	3020	290	2730	390	3120	270	2850	190	2660
:00 PM	2720	160	2560	180	2740	260	2480	350	2830	210	2620	160	2460
:00 PM	2180	130	2050	160	2210	200	2010	290	2300	150	2150	130	2020
:00 PM	1420	100	1320	100	1420	130	1290	220	1510	100	1410	90	1320
HOURS	82640	5710	76930	7540	84470	8820	75650	10350	86000	9230	76770	6080	70690

ATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
OURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	DURHAM Entry		T.C.JESTER Entry		WASHINGTON Exit		WASHINGTON Entry		AVL Exit		I-610 NB Exit	I-610 SB Exit	
		M/L		M/L		M/L		M/L		M/L			M/L
2:00 AM	120	730	20	750	30	720	50	770	0	770	230	150	390
1:00 AM	70	410	10	420	20	400	30	430	0	430	130	90	210
2:00 AM	50	400	10	410	20	390	30	420	0	420	110	80	230
3:00 AM	30	330	10	340	30	310	20	330	0	330	130	50	150
4:00 AM	40	440	10	450	60	390	40	430	0	430	150	60	220
5:00 AM	80	1320	40	1360	190	1170	80	1250	0	1250	390	140	720
6:00 AM	300	4070	130	4200	490	3710	210	3920	0	3920	910	610	2400
7:00 AM	740	6250	250	6500	970	5530	350	5880	0	5880	1170	1100	3610
3:00 AM	750	5560	240	5800	810	4990	400	5390	0	5390	1280	1160	2950
9:00 AM	780	4640	180	4820	480	4340	430	4770	0	4770	1220	1050	2500
1:00 AM	890	4480	200	4680	520	4160	520	4680	0	4680	1180	960	2540
1:00 AM	1090	5070	260	5330	590	4740	590	5330	0	5330	1300	1080	2950
2:00 PM	1250	4810	240	5050	560	4490	560	5050	0	5050	1320	1090	2640
:00 PM	1320	5250	230	5480	550	4930	640	5570	0	5570	1420	1160	2990
:00 PM	1290	5560	210	5770	580	5190	610	5800	210	5590	1410	1040	3140
:00 PM	1360	5920	220	6140	670	5470	630	6100	420	5680	1370	1070	3240
:00 PM	1480	6080	230	6310	1010	5300	680	5980	810	5170	1240	1150	2780
:00 PM	1370	5960	260	6220	1490	4730	560	5290	430	4860	1070	1130	2660
:00 PM	1110	5650	180	5830	690	5140	560	5700	620	5080	1410	990	2680
:00 PM	790	4210	150	4360	230	4130	390	4520	240	4280	910	760	2610
:00 PM	610	3270	90	3360	150	3210	260	3470	110	3360	800	530	2030
:00 PM	480	2940	90	3030	120	2910	250	3160	70	3090	760	460	1870
:00 PM	340	2360	50	2410	100	2310	210	2520	10	2510	580	410	1520
:00 PM	250	1570	40	1610	60	1550	120	1670	0	1670	380	290	1000
HOURS	16590	87280	3350	90630	10420	80210	8220	88430	2920	85510	20870	16610	48030

:ATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL WEEKDAY
:OURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	I-610 NB Entry	I-610 SB Entry	*M/L*
2:00 AM	320	200	910
1:00 AM	180	150	540
2:00 AM	150	140	520
3:00 AM	110	120	380
4:00 AM	110	180	510
5:00 AM	230	510	1460
6:00 AM	720	1320	4440
7:00 AM	1380	1300	6290
8:00 AM	1540	1360	5850
9:00 AM	1420	1280	5200
0:00 AM	1560	1360	5460
1:00 AM	1900	1380	6230
2:00 PM	2030	1370	6040
:00 PM	2040	1400	6430
:00 PM	2060	1400	6600
:00 PM	2000	1330	6570
:00 PM	1750	1160	5690
:00 PM	1560	1250	5470
:00 PM	1960	1110	5750
:00 PM	1820	990	5420
:00 PM	1380	730	4140
:00 PM	1300	650	3820
:00 PM	970	540	3030
:00 PM	630	350	1980
HOURS	29120	21580	98730

KATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)		TAYLOR Exit		TAYLOR Entry		HEIGHTS Exit		STUDEMONT Entry		SHEPHERD Exit		T.C.JESTER Exit	
	M/L		M/L		M/L		M/L		M/L		M/L		M/L
12:00 AM	1060	40	1020	80	1100	170	930	260	1190	90	1100	90	1010
1:00 AM	640	20	620	60	680	100	580	230	810	80	730	70	660
2:00 AM	660	20	640	70	710	120	590	200	790	60	730	60	670
3:00 AM	510	20	490	30	520	70	450	70	520	50	470	20	450
4:00 AM	490	30	460	30	490	60	430	40	470	40	430	30	400
5:00 AM	1020	80	940	40	980	100	880	80	960	50	910	50	860
6:00 AM	2070	180	1890	130	2020	150	1870	140	2010	100	1910	80	1830
7:00 AM	2740	240	2500	200	2700	200	2500	290	2790	210	2580	140	2440
8:00 AM	3640	250	3390	310	3700	310	3390	360	3750	290	3460	180	3280
9:00 AM	4140	220	3920	290	4210	420	3790	410	4200	430	3770	180	3590
0:00 AM	4360	200	4160	290	4450	440	4010	440	4450	470	3980	200	3780
1:00 AM	4190	250	3940	310	4250	490	3760	520	4280	510	3770	230	3540
2:00 PM	4320	240	4080	400	4480	470	4010	610	4620	590	4030	310	3720
1:00 PM	3950	220	3730	310	4040	470	3570	560	4130	440	3690	250	3440
2:00 PM	4080	240	3840	330	4170	450	3720	610	4330	420	3910	270	3640
3:00 PM	4230	300	3930	300	4230	400	3830	590	4420	390	4030	250	3780
4:00 PM	4000	280	3720	300	4020	380	3640	560	4200	360	3840	230	3610
5:00 PM	4760	280	4480	290	4770	350	4420	450	4870	390	4480	300	4180
6:00 PM	4050	210	3840	280	4120	360	3760	480	4240	330	3910	260	3650
7:00 PM	3530	160	3370	300	3670	390	3280	380	3660	300	3360	190	3170
8:00 PM	2750	110	2640	260	2900	290	2610	350	2960	200	2760	140	2620
9:00 PM	2630	110	2520	190	2710	260	2450	350	2800	200	2600	140	2460
:00 PM	2550	90	2460	160	2620	240	2380	320	2700	170	2530	120	2410
:00 PM	1690	70	1620	140	1760	210	1550	290	1840	120	1720	110	1610
HOURS	68060	3860	64200	5100	69300	6900	62400	8590	70990	6290	64700	3900	60800

CATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	DURHAM Entry		T.C.JESTER Entry		WASHINGTON Exit		WASHINGTON Entry		AVL Exit		I-610 NB Exit	I-610 SB Exit	
		M/L		M/L		M/L		M/L		M/L			M/L
2:00 AM	240	1250	30	1280	80	1200	110	1310	0	1310	340	260	710
1:00 AM	170	830	30	860	40	820	130	950	0	950	230	210	510
2:00 AM	90	760	20	780	40	740	70	810	0	810	230	160	420
3:00 AM	60	510	10	520	30	490	30	520	0	520	160	90	270
4:00 AM	40	440	10	450	30	420	40	460	10	450	130	60	260
5:00 AM	40	900	10	910	80	830	30	860	10	850	220	70	560
6:00 AM	90	1920	40	1960	170	1790	100	1890	40	1850	410	240	1200
7:00 AM	230	2670	80	2750	220	2530	180	2710	70	2640	610	360	1670
8:00 AM	310	3590	120	3710	240	3470	260	3730	140	3590	850	590	2150
9:00 AM	470	4060	140	4200	310	3890	350	4240	170	4070	950	650	2470
0:00 AM	550	4330	160	4490	270	4220	390	4610	200	4410	1140	690	2580
1:00 AM	750	4290	180	4470	250	4220	400	4620	220	4400	1180	740	2480
2:00 PM	960	4680	160	4840	250	4590	420	5010	230	4780	1220	800	2760
1:00 PM	690	4130	170	4300	230	4070	420	4490	200	4290	1130	740	2420
2:00 PM	670	4310	140	4450	250	4200	390	4590	240	4350	1090	720	2540
3:00 PM	620	4400	130	4530	220	4310	380	4690	250	4440	1150	680	2610
4:00 PM	560	4170	130	4300	230	4070	360	4430	200	4230	1090	660	2480
5:00 PM	470	4650	120	4770	230	4540	340	4880	170	4710	1140	690	2880
6:00 PM	500	4150	110	4260	140	4120	250	4370	150	4220	1010	640	2570
7:00 PM	410	3580	100	3680	140	3540	200	3740	130	3610	840	580	2190
8:00 PM	320	2940	70	3010	120	2890	310	3200	100	3100	750	490	1860
9:00 PM	330	2790	50	2840	110	2730	180	2910	90	2820	770	460	1590
:00 PM	390	2800	70	2870	90	2780	150	2930	10	2920	920	500	1500
:00 PM	380	1990	50	2040	70	1970	120	2090	0	2090	520	440	1130
HOURS	9340	70140	2130	72270	3840	68430	5610	74040	2630	71410	18080	11520	41810

CATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SATURDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	I-610 NB Entry	I-610 SB Entry	*M/L*
2:00 AM	690	350	1750
1:00 AM	390	240	1140
2:00 AM	360	230	1010
3:00 AM	150	170	590
4:00 AM	110	140	510
5:00 AM	200	250	1010
6:00 AM	430	580	2210
7:00 AM	790	810	3270
3:00 AM	1060	980	4190
9:00 AM	1350	1030	4850
0:00 AM	1640	1100	5320
1:00 AM	1750	1290	5520
2:00 PM	1980	1310	6050
1:00 PM	1860	1280	5560
2:00 PM	1940	1290	5770
:00 PM	1910	1180	5700
:00 PM	1850	1350	5680
:00 PM	1740	1120	5740
:00 PM	1630	1080	5280
:00 PM	1340	800	4330
:00 PM	980	710	3550
:00 PM	1020	670	3280
:00 PM	1060	540	3100
:00 PM	900	420	2450
HOURS	27130	18920	87860

ATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
OURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	TAYLOR Exit		TAYLOR Entry		HEIGHTS Exit		STUDEMONT Entry		SHEPHERD Exit		T.C.JESTER Exit		
	M/L		M/L		M/L		M/L		M/L		M/L		M/L
2:00 AM	940	30	910	100	1010	170	840	270	1110	90	1020	90	930
1:00 AM	670	20	650	80	730	100	630	260	890	80	810	80	730
2:00 AM	720	20	700	60	760	120	640	220	860	90	770	80	690
3:00 AM	230	20	210	30	240	60	180	100	280	30	250	20	230
4:00 AM	280	20	260	20	280	30	250	50	300	40	260	20	240
5:00 AM	380	70	310	30	340	30	310	60	370	20	350	30	320
6:00 AM	980	140	840	40	880	50	830	90	920	40	880	40	840
7:00 AM	1540	190	1350	80	1430	110	1320	130	1450	60	1390	60	1330
8:00 AM	1860	190	1670	110	1780	130	1650	190	1840	100	1740	70	1670
9:00 AM	2530	170	2360	150	2510	210	2300	270	2570	170	2400	120	2280
0:00 AM	2780	160	2620	250	2870	260	2610	340	2950	230	2720	130	2590
1:00 AM	2990	190	2800	250	3050	270	2780	380	3160	260	2900	170	2730
2:00 PM	3670	190	3480	310	3790	350	3440	480	3920	260	3660	150	3510
:00 PM	3690	170	3520	320	3840	380	3460	490	3950	310	3640	150	3490
:00 PM	4310	190	4120	250	4370	360	4010	430	4440	340	4100	210	3890
:00 PM	4150	230	3920	260	4180	340	3840	480	4320	320	4000	210	3790
:00 PM	2930	220	2710	270	2980	370	2610	500	3110	280	2830	220	2610
:00 PM	3780	220	3560	320	3880	400	3480	510	3990	280	3710	200	3510
:00 PM	3900	160	3740	280	4020	420	3600	430	4030	220	3810	230	3580
:00 PM	3130	130	3000	250	3250	330	2920	410	3330	210	3120	160	2960
:00 PM	2840	90	2750	170	2920	240	2680	300	2980	220	2760	160	2600
:00 PM	2150	80	2070	190	2260	240	2020	260	2280	150	2130	100	2030
:00 PM	2180	70	2110	120	2230	170	2060	220	2280	130	2150	80	2070
:00 PM	950	50	900	70	970	120	850	140	990	70	920	60	860
HOURS	53580	3020	50560	4010	54570	5260	49310	7010	56320	4000	52320	2840	49480

ATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
OURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	DURHAM Entry		T.C.JESTER Entry		WASHINGTON Exit		WASHINGTON Entry		AVL Exit		I-610 NB Exit	I-610 SB Exit	
		M/L		M/L		M/L		M/L		M/L			M/L
2:00 AM	320	1250	40	1290	60	1230	150	1380	0	1380	380	380	620
1:00 AM	280	1010	30	1040	40	1000	100	1100	0	1100	250	260	590
2:00 AM	260	950	30	980	70	910	90	1000	0	1000	220	190	590
3:00 AM	80	310	10	320	30	290	60	350	0	350	120	150	80
:00 AM	50	290	10	300	20	280	30	310	0	310	90	60	160
:00 AM	50	370	10	380	20	360	30	390	0	390	100	50	240
:00 AM	70	910	20	930	50	880	40	920	0	920	200	60	660
:00 AM	120	1450	30	1480	90	1390	50	1440	0	1440	270	130	1040
:00 AM	180	1850	60	1910	100	1810	110	1920	0	1920	380	180	1360
:00 AM	230	2510	100	2610	170	2440	130	2570	0	2570	590	240	1740
:00 AM	360	2950	100	3050	150	2900	210	3110	0	3110	720	400	1990
:00 AM	490	3220	120	3340	150	3190	180	3370	0	3370	730	520	2120
:00 PM	630	4140	180	4320	190	4130	240	4370	0	4370	930	600	2840
:00 PM	700	4190	130	4320	160	4160	200	4360	0	4360	980	680	2700
:00 PM	620	4510	140	4650	160	4490	220	4710	0	4710	1310	650	2750
:00 PM	600	4390	120	4510	180	4330	280	4610	0	4610	1290	570	2750
:00 PM	650	3260	120	3380	220	3160	280	3440	0	3440	1280	590	1570
:00 PM	600	4110	130	4240	190	4050	250	4300	0	4300	1040	610	2650
:00 PM	520	4100	90	4190	140	4050	220	4270	0	4270	990	570	2710
:00 PM	400	3360	70	3430	130	3300	150	3450	0	3450	840	580	2030
:00 PM	410	3010	60	3070	100	2970	120	3090	0	3090	680	460	1950
:00 PM	380	2410	50	2460	90	2370	150	2520	0	2520	610	400	1510
:00 PM	270	2340	50	2390	60	2330	80	2410	0	2410	500	330	1580
:00 PM	220	1080	40	1120	50	1070	80	1150	0	1150	360	280	510
HOURS	8490	57970	1740	59710	2620	57090	3450	60540	0	60540	14860	8940	36740

KATY FRWY (I-10) WESTBOUND --- SILBER TO TAYLOR --- TYPICAL SUNDAY
SOURCE: TEXAS TRANSPORTATION INSTITUTE REVISED NOVEMBER, 1992

TIME (Begin)	I-610 NB Entry	I-610 SB Entry	*M/L*
12:00 AM	800	380	1800
1:00 AM	480	280	1350
2:00 AM	360	230	1180
3:00 AM	300	130	510
4:00 AM	120	100	380
5:00 AM	80	120	440
6:00 AM	130	160	950
7:00 AM	210	250	1500
8:00 AM	370	380	2110
9:00 AM	620	600	2960
0:00 AM	890	680	3560
1:00 AM	1070	750	3940
2:00 PM	1200	890	4930
1:00 PM	1410	950	5060
2:00 PM	1460	910	5120
3:00 PM	1600	1060	5410
:00 PM	2980	1060	5610
:00 PM	1950	1020	5620
:00 PM	1510	950	5170
:00 PM	1420	730	4180
:00 PM	1010	570	3530
:00 PM	850	580	2940
:00 PM	710	440	2730
:00 PM	530	310	1350
HOURS	22060	13530	72330