SECTION 7: METHODOLOGY

Land/Structure Use

Background information contributing to this data set was based on data gathered during the 2004 Navasota Comprehensive Plan process. For that document planners visited Downtown and performed visual inspections of each structure within the study area. For consistency, their classifications were based entirely upon what could be observed from the street. For this study, the process was repeated to account for changes in business types which have occurred since the publishing of the Comprehensive Plan.

Building footprints were digitized using a combination of aerial photo sources. The primary source was digital ortho quad aerial (DOQ) photography acquired in 1995. Oblique aerial photography acquired in early 2004 was also utilized to supplement the older DOQ data. The windshield survey, which updated Downtown structure use, was utilized to record numbers of and use by floor information. Square footage for each building was determined geometrically and may deviate slightly from the actual square footage.

Parking Demand

Parking demand and usage statistics are based upon fieldwork conducted between February and December of 2004, with a total of 167 sample points. Methodology for this data collection varied, but consistency in the results was achieved regardless of the method utilized.

From February to June of 2004 demand statistics were recorded using direct entry fieldwork. A planner drove through Downtown at randomly selected times and mechanically recorded the number of vehicles parked in each parking group. This method was used 19 times and provided data for various times on weekdays, Saturdays, and Sundays.

Once fieldwork for this study began, digital video and still photography were used to record parking within Navasota for a variety of study components. Data collected

during these other components was used to determine parking turnover and employee parking habits. Once analysis for those datasets was complete, the information was converted for use as raw parking demand. This conversion produced 148 new sample points representing parking demand through the latter part of 2004.

Charts showing overall Downtown parking usage were derived using this combined data set. An average parking count was determined for each 30 minute interval during the day. All sample points falling within this 30 minute interval were averaged to produce the daily charts.

Turnover

Fieldwork to determine turnover rates was conducted on October 26, October 28, and November 5, 2004. Over these three days a total of 23 hours of "workday" parking habits were observed. The general methodology involved a planner driving a set route through Downtown at 15 minute intervals. Along the way, digital video was taken of each parking space. Each parking space was then labeled on a spreadsheet organized by parking group. The video was replayed allowing planners to record the type and color of vehicles occupying any given space during each 15 minute period. If the same vehicle was observed parked in the same space for consecutive observation times this was also recorded. At the conclusion of each day the total time each space had a particular vehicle occupying it was recorded and averaged by group.

This method, particularly when spread across three workdays, is believed to produce a very good representation of turnover within Downtown.

A potential limitation for this data is the time required to drive by each parking space in Downtown and return to the starting point within 15 minutes. To alleviate this problem, two routes were driven including "complete" and "partial" routes. The complete route included all parking within Downtown Navasota. The partial route included all on-street parking and the most highly used off-street parking lots. Parking lots excluded from the partial route were identified as primarily "employee" lots using other portions of this research. Therefore, it is not anticipated that the lower precision of observations will drastically affect their observed turnover rate. Only parking

groups with an actual turnover rate of less than 30 minutes would be affected by such an omission.

Employee Parking

To determine where employees tend to park within Downtown a method was chosen which relied upon the frequency of times certain vehicles were observed. A planner walked throughout Downtown taking pictures of each vehicle parked in a marked parking space. These pictures were later reviewed in order to create a spreadsheet consisting of information about each recorded vehicle.

Visits were made eight times for this purpose. These visits included the morning of October 12, the afternoon of October 12, the morning of October 13, the afternoon of October 21, the afternoon of October 25, the afternoon of October 26, the afternoon of October 28, and the afternoon of November 15.

Information about each vehicle included manufacturer, color, model, license plate number, number of doors, location within Downtown, and any other distinguishing characteristics visible in the photography.

In order to be counted as an employee driven vehicle, each entry was required to appear at least three times within the database.

Effective Supply

The Effective Supply example given in Section 4 is calculated with the following equation:

$$\text{Effective Supply for a Parking Group} = \frac{\text{Total Time of Day in Minutes}}{(\text{Average Turnover of Group} + \text{Lag Time})} * \text{Total Capacity}$$

Table 7.1 displays the effective supply calculated by parking group. Both actual and hypothetical effective supply is calculated and shown for Downtown. Also, the effective supply tables presented in Section 4 are derived from Table 7.1 as shown.

Parking groups with "0" in the Effective Supply column were excluded from the total due to incomplete data.

Parking Group ID	Total	Actual		Hypothetical		Parking Type	Zone
		Turnover	Eff. Supply	Turnover	Eff. Supply		
0	4	81	26.67	58	37.24	on-street	1
37	8	39	110.77	62	69.68	off-street	1
38	28	86	175.81	109	138.72	off-street	1
39	14	184	41.09	207	36.52	off-street	1
40	45	93	261.29	116	209.48	off-street	1
2	10	88	61.36	65	83.08	on-street	2
4	10	64	84.38	41	131.71	on-street	2
28	34	158	116.20	181	101.44	off-street	2
29	5	37	72.97	14	72.97	on-street	2
30	9	218	22.29	241	20.17	off-street	2
31	2	180	6.00	203	5.32	off-street	2
32	10	136	39.71	159	33.96	off-street	2
33	6	211	15.36	234	13.85	off-street	2
1	5	169	15.98	146	18.49	on-street	3
3	12	76	85.26	53	122.26	on-street	3
5	9	72	67.50	49	99.18	on-street	3
601	7	42	90.00	19	102.16	on-street	3
602	11	84	70.71	61	97.38	on-street	3
7	22	83	143.13	60	198.00	on-street	3
8	21	110	103.09	87	130.34	on-street	3
9	11	113	52.57	90	66.00	on-street	3
10	8	76	56.84	53	81.51	on-street	3
11	8	88	49.09	65	66.46	on-street	3
12	4	117.8	0.00	94.8	0.00	on-street	3
13	4	55	39.27	32	58.38	on-street	3
14	8	55	78.55	32	116.76	on-street	3
34	20	260	41.54	283	38.16	off-street	3
53	10	117.8	0.00	94.8	0.00	on-street	3
55	6	117.8	0.00	94.8	0.00	on-street	3
57	24	195	66.46	218	59.45	off-street	3
58	11	106	56.04	83	71.57	on-street	3
64	3	474	3.42	451	3.59	on-street	3
65	3	162	10.00	139	11.65	on-street	3
15	5	67	40.30	44	61.36	on-street	4
17	11	182	32.64	159	37.36	on-street	4
18	8	113	38.23	90	48.00	on-street	4
19	5	203	13.30	180	15.00	on-street	4
20	13	63	111.43	40	175.50	on-street	4
26	6	41	79.02	18	87.57	on-street	4
60	3	210	7.71	187	8.66	on-street	4
62	4	63	34.29	40	54.00	on-street	4
16	2	41	26.34	18	29.19	on-street	5
21	9	90	54.00	67	72.54	on-street	5
22	21	58	195.52	35	306.49	on-street	5
231	9	189	25.71	166	29.28	on-street	5
232	6	46	70.43	23	87.57	on-street	5
24	6	62	52.26	39	83.08	on-street	5
25	3	38	42.63	15	43.78	on-street	5
35	26	236	59.49	259	54.21	off-street	5
63	6	41	79.02	64	50.63	off-street	5
			3025.68		**3539.69**		

Table 7.1: Effective Supply for Downtown Navasota by Parking Groups