MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

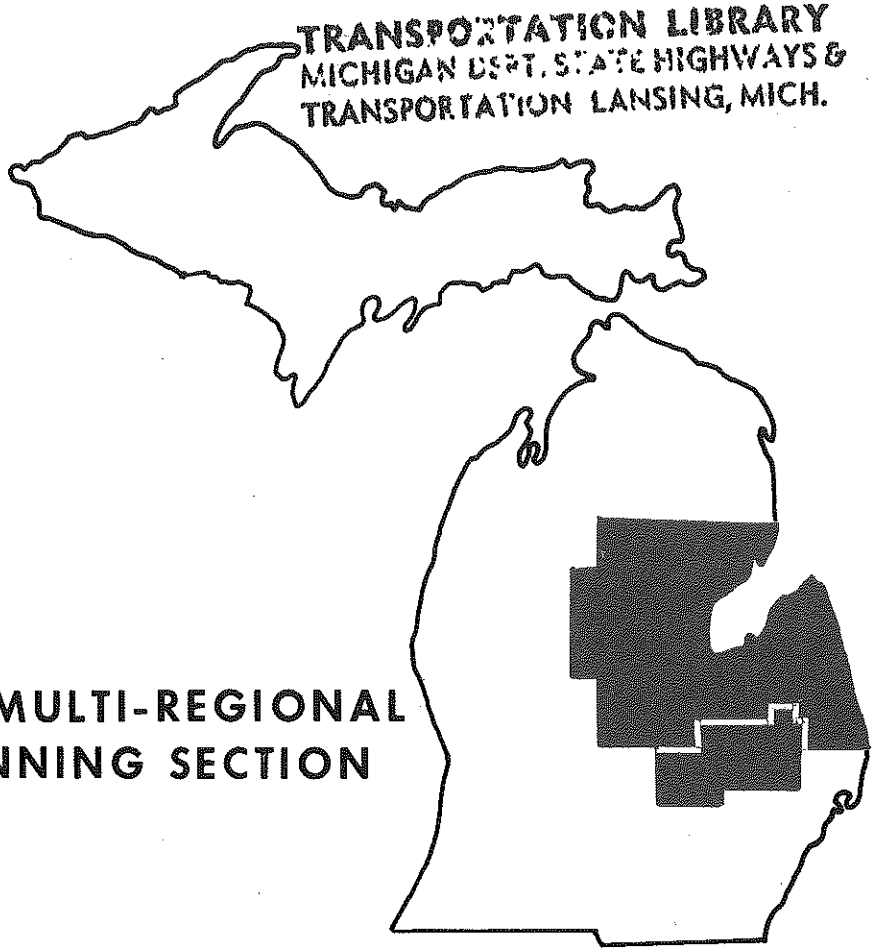
M-121 BRISTOL ROAD

1976 SINGLE STATION

ORIGIN DESTINATION STUDY

FACTUAL DATA REPORT

OCTOBER, 1976



EAST MULTI-REGIONAL PLANNING SECTION

MICHIGAN DEPARTMENT
OF
STATE HIGHWAYS AND TRANSPORTATION

M-121 BRISTOL ROAD

1976 SINGLE STATION

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This report represents the findings and/or professional opinions of the Michigan Department of State Highways and Transportation staff and not an official opinion of the State Highway Commission.

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING, 425 WEST OTTAWA PHONE 517-373-2090
POST OFFICE BOX 30050, LANSING, MICHIGAN 48909

JOHN P. WOODFORD, DIRECTOR

October 15, 1976

Mr. Sam F. Cryderman
Deputy Director
Bureau of Transportation Planning
Michigan Department of State Highways
and Transportation
Lansing, Michigan 48933

Dear Mr. Cryderman:

Documented in this report are the results of the 1975 M-121 Bristol Road External Origin-Destination Survey. Included are tables, maps, and summaries of data obtained during the survey.

This report was prepared by David Bell, supervised by Louis Lambert of the East Multi-Regional Planning Section.

Sincerely,

Keith E. Bushnell

Keith E. Bushnell, Administrator
Multi-Regional Planning Division

INTRODUCTION

This report was compiled to provide a complete description of data already reported on by the Transportation Survey Section in the fall of 1975 for this same study area.

The project for which this traffic study was conducted, extends along M-121 (Bristol Road) from I-69 to M-54 (Dort Highway), a distance of approximately 5.81 miles (see Figure 1).

M-121 (Bristol Road) located south of the city of Flint serves an area that is highly developed both industrially and commercially. In recent years, residential development has taken place south of M-121.

At the present time, M-121 (Bristol Road) serves a two fold function:

1. Provides access to industrial, commercial, and residential development along its corridor.
2. Serves as a collector for traffic wishing to use major routes such as I-69, I-75, I-475, and M-54.

The major purpose of this study was to determine the origin and destination of trips using M-121 during weekday hours. Interview data was expanded in order to provide a representation of traffic during a typical 24-hour period.

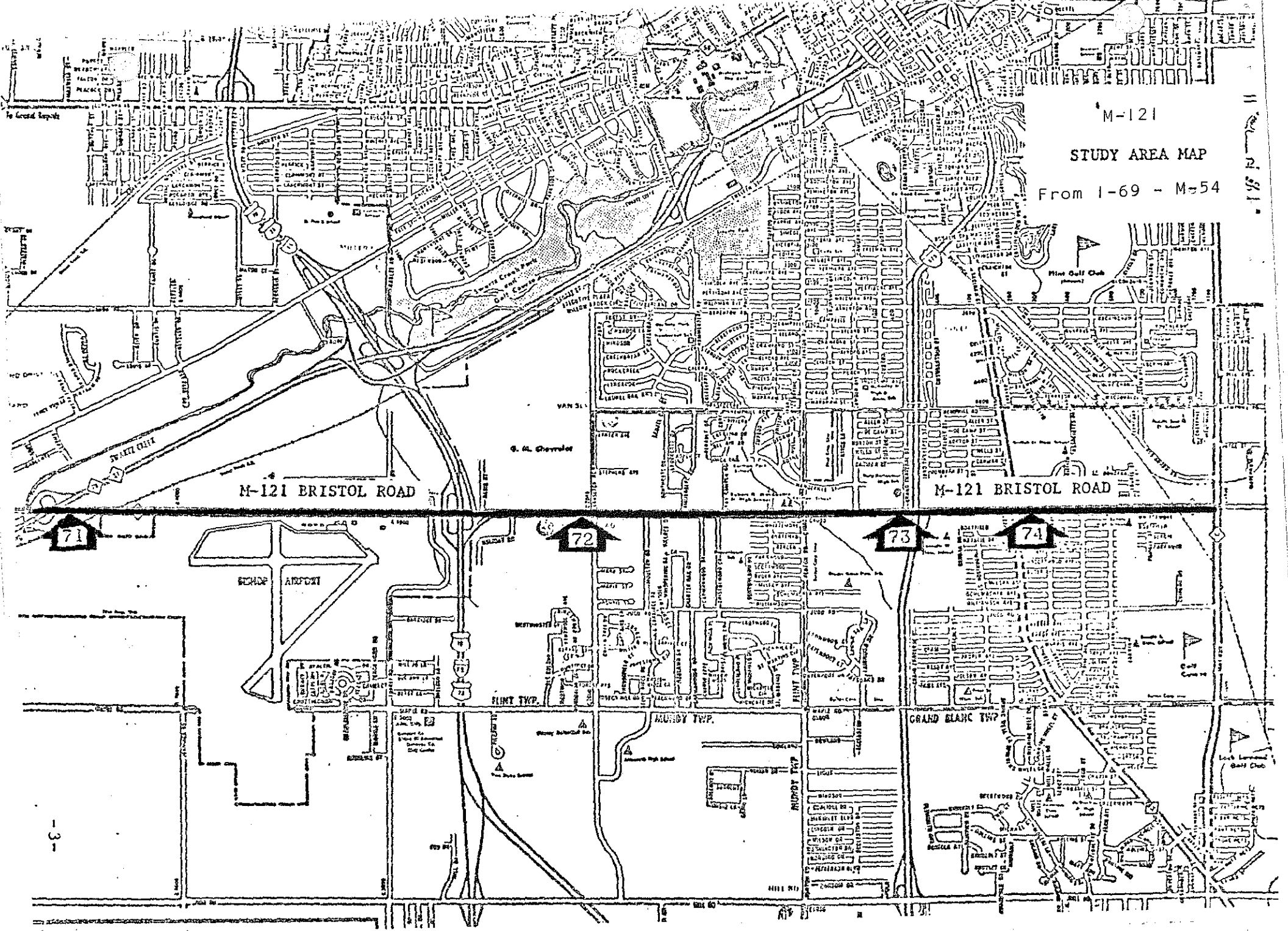

M-121
STUDY AREA MAP
From I-69 - M-54
M-121 BRISTOL ROAD
M-121 BRISTOL ROAD
71
72
73
74
BISHOP AIRPORT
FLINT TWP.
MUNDY TWP.
GRAND BLANC TWP.

Figure 1

PROCEDURE

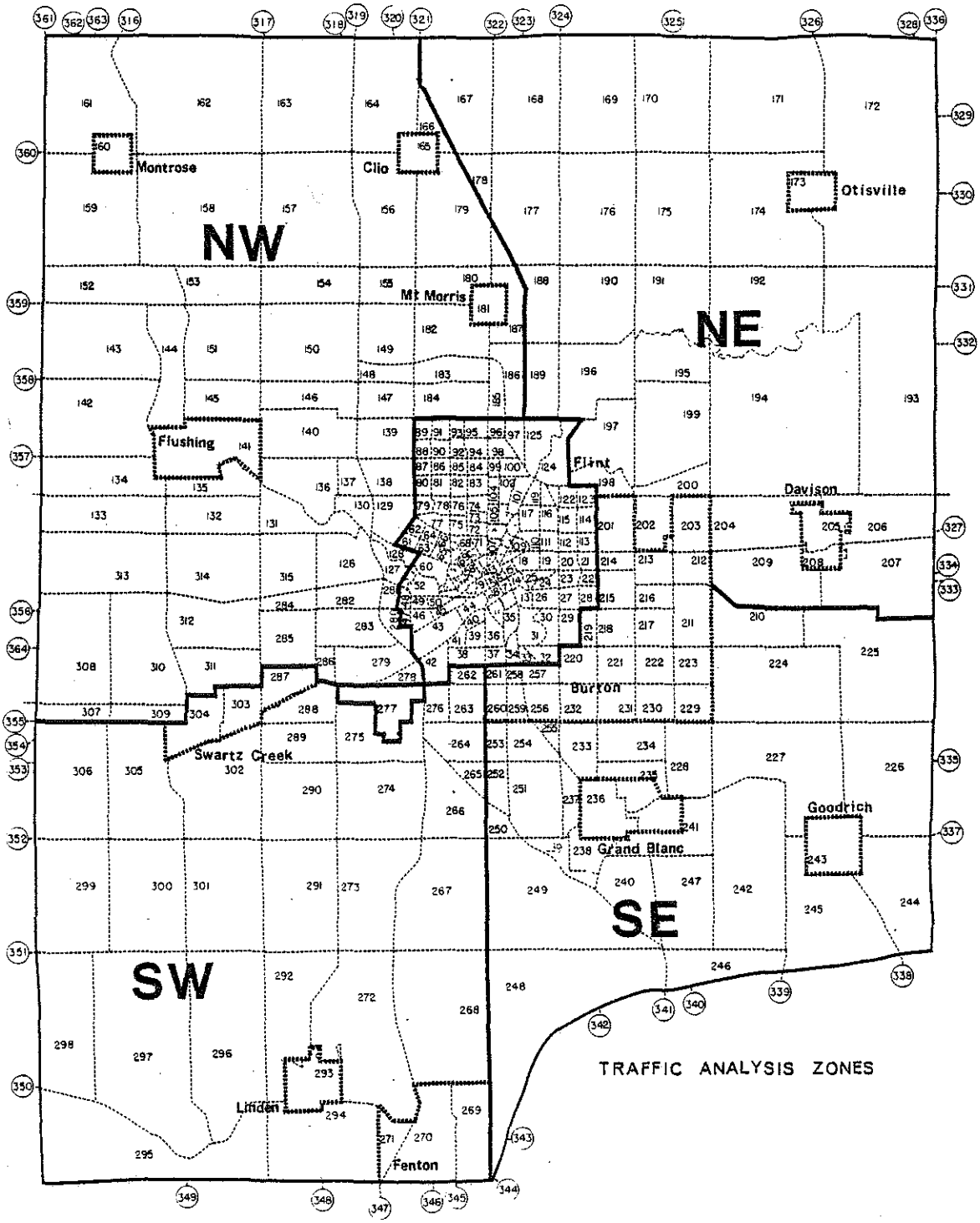
A field survey for the M-121 (Bristol Road) Origin-Destination Study was conducted during four weekdays in October, 1975. Four locations were selected on M-121 as representatives of the traffic characteristics on that road. The stations[1] are:

1. Station #71 located east of I-69 and west of I-75.
2. Station #72 located east of I-75 and west of Van Slyck Road.
3. Station #73 located east of Camden Avenue and west of I-475.
4. Station #74 located east of M-54BL (Saginaw St.) and west of Barnes Avenue.

At each location 6-hours (9 A.M. to 12 Noon and 3 P.M. to 6 P.M.) of driver interviews were conducted. During the hours of operation, vehicles were stopped and drivers interviewed regarding the origin, destination (Origin and destination zones appear in Figure 2), and purpose of the trip. At Stations 71 and 73, eastbound traffic was interviewed, at Stations 72 and 74, west-bound traffic was interviewed. This was done to obtain a wider range and directional balance of trips as well as for safety purposes. Manual Vehicle Classification counts were conducted in conjunction with interview hours and the remainder of the 24-hour day, for statistical expansion and

[1] Throughout this report these same stations are also referred to as stations 101, 102, 103 and 104 or simply as stations 1, 2, 3 & 4. See figure 1.

FIGURE 2


NW
NE
SW
SE
Montrose
Clio
Otisville
Mt Morris
Flushing
Flint
Davison
Burton
Swartz Creek
Goodrich
Grand Blanc
Linden
Fenton
TRAFFIC ANALYSIS ZONES

ALL STATIONS

As can be seen in Table 1, the greatest percentage of trip generation occurred in zones comprising the City of Flint and those in the City of Burton. Zones toward the northwest and southwest accounted for another large portion of trips passing through each station, while zones to the northeast and southeast had a relatively small amount. The Appendix shows the percent generation for each zone in Genesee County.

A trip length frequency distribution for trips passing through each station revealed that the average trip length (see Tables 2 and 3) for the vast majority of trips was quite short. This can be explained by the proximity of the stations to industrial development and nearby residential areas and by the fact that the greatest portion of trips through all stations were work trips taken in passenger cars or small trucks (see Table 4) when peak hour work traffic would be expected.

A double frequency distribution was apparent in the trip lengths through Stations 1 and 2. In addition to the dominant short work trip there was another pattern where a trip length of approximately thirty-five minutes was evident. It would then appear that not only does existing M-121 serve local trips in the vicinity of Stations 1 and 2, but also serves trips of longer distance, as a connector for access to the adjoining freeway facilities.

TABLE I

PERCENT TRIP GENERATION BY STATION

	Station 101	Station 102	Station 103	Station 104
Flint	18.14	29.48	26.77	18.42
Burton	11.24	10.00	29.67	49.06
Swartz Creek	6.48	3.01	0.76	0.51
Grand Blanc	2.06	2.16	1.50	1.15
Fenton	0.71	0.97	0.82	1.00
Flushing	0.90	1.97	0.76	0.38
Linden	0.62	0.31	0.13	0.41
Goodrich	0.05	0.04	0.31	0.47
Davison	0.10	0.23	0.45	0.97
Otisville	0.00	0.07	0.00	0.00
Montrose	0.05	0.31	0.26	0.00
Clio	0.12	0.66	0.17	0.15
Mt. Morris	0.09	0.89	0.25	0.30
Northwest	24.72	15.20	8.03	5.25
Northeast	0.59	0.29	1.74	2.21
Southwest	19.06	22.84	19.13	10.65
Southeast	2.67	3.67	3.40	4.43
US-23	0.21	0.61	0.44	0.56
M-54 North	0.00	0.00	0.04	0.00
M-54 South	0.00	0.09	0.14	0.09
I-75 North	0.23	2.20	0.81	0.86
I-75 South	1.67	2.79	1.54	0.68
M-15 North	0.00	0.03	0.14	0.00
M-15 South	0.00	0.07	0.00	0.14
M-21 East	0.09	0.16	0.39	0.30
M-21 West	8.79	4.17	1.06	0.80
	98.59	102.22	98.71	98.77

quality control purposes.

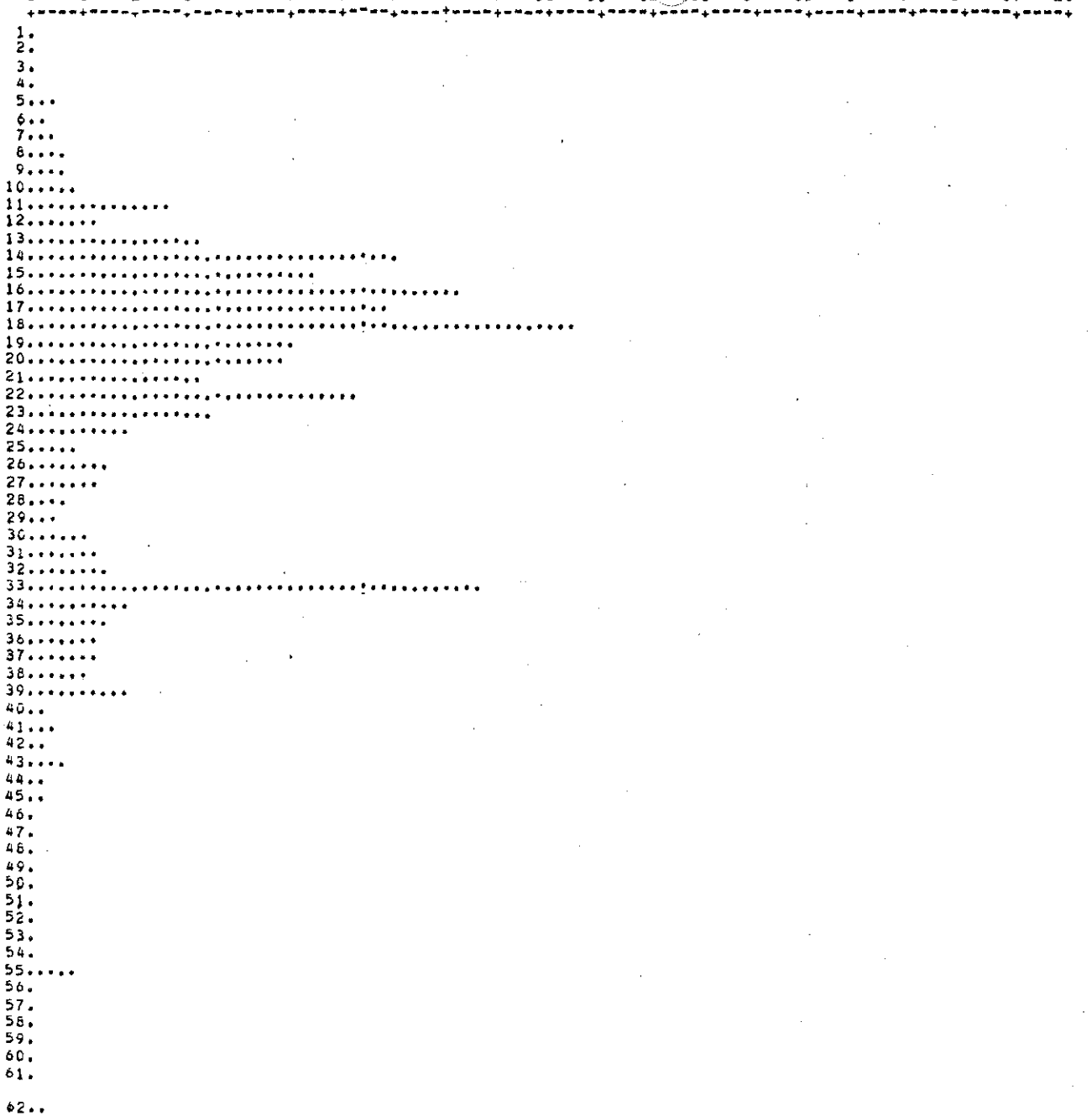
Interview and classification counts were recorded on an hourly basis. Sample forms for both interview and manual classification counts are attached.

TABLE 2

TRIP LENGTH

MINUTES	NO. OF TRIPS				% OF TOTAL			
	St.1	St.2	St.3	St.4	St.1	St.2	St.3	St.4
0-5	9	123	9	43	0.3	2.0	0.2	1.3
5-10	68	791	908	786	2.4	13.1	19.1	23.8
10-15	548	1317	1312	919	19.4	21.8	27.5	27.8
15-20	996	1421	1350	743	35.3	23.5	28.5	22.5
20-25	434	835	519	393	15.4	13.8	10.9	11.9
25-30	135	315	217	176	4.8	5.2	4.6	5.3
30-35	410	653	234	73	14.5	10.8	4.9	2.2
35-40	153	300	92	85	5.4	5.0	1.9	2.5
40-60	67	298	103	83	2.5	4.8	2.4	2.5
	2820	6053	4744	3301	100.0	100.0	100.0	100.0

TABLE 3



P.C.	CUM.	ACTUAL
0.000	0.000	0
0.000	0.000	0
0.000	0.000	0
0.000	0.000	0
0.319	0.319	9
0.213	0.532	6
0.426	0.957	12
0.532	1.489	15
0.532	2.021	15
0.709	2.730	20
2.518	5.248	71
1.170	6.418	33
3.298	9.716	93
7.057	16.773	199
5.390	22.163	152
8.298	30.461	234
6.738	37.199	190
10.496	47.695	296
4.929	52.624	139
4.858	57.482	137
3.298	60.780	93
6.241	67.021	176
3.333	70.355	94
1.702	72.057	48
0.816	72.872	23
1.489	74.362	42
1.135	75.496	32
0.638	76.135	18
0.496	76.631	14
1.028	77.660	29
1.277	78.936	36
1.454	80.390	41
8.688	89.078	245
1.702	90.780	48
1.418	92.199	40
1.170	93.369	33
1.135	94.504	32
1.099	95.603	31
1.844	97.447	52
0.177	97.624	5
0.319	97.943	9
0.106	98.050	3
0.567	98.617	16
0.213	98.830	6
0.106	98.936	3
0.000	98.936	0
0.000	98.936	0
0.000	98.936	0
0.000	98.936	0
0.000	98.936	0
0.000	98.936	0
0.000	98.936	0
0.071	99.007	2
0.000	99.007	0
0.887	99.894	25
0.000	99.894	0
0.000	99.894	0
0.000	99.894	0
0.000	99.894	0
0.000	99.894	0
0.000	99.894	0
0.106	100.000	3

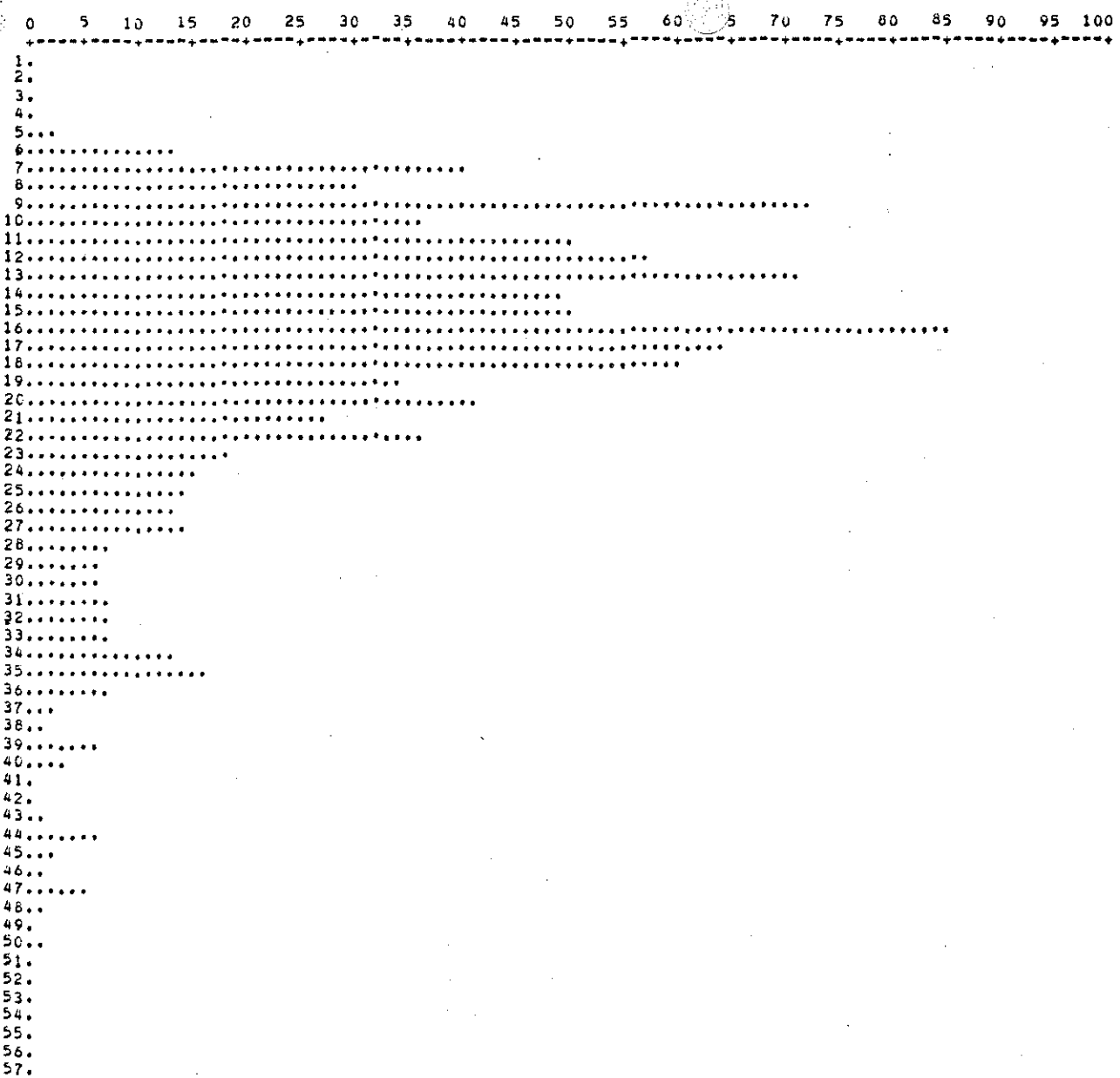
REMAINING VALUES ARE ALL ZERO
NUMBER OF OBSERVATIONS= 2820 SUM= 61777. MEAN= 21.907 VAR= 77.397 SD= 8.798

TOTAL TRIPS OVER MAXP = 0
TOTAL TRIPS OVER 255 = 0
VOLUME TABLE NUMBER = 201
SKIM TREE NUMBER = 101

		P.C.	CUM.	ACTUAL
1.		0.000	0.000	0
2.		0.000	0.000	0
3.		0.000	0.000	0
4.....		0.479	0.479	29
5.....		1.553	2.032	94
6..		0.132	2.164	8
7.....		1.867	4.031	113
8.....		3.321	7.352	201
9.....		4.031	11.383	244
10.....		3.717	15.100	225
11.....		2.660	17.760	161
12.....		3.668	21.427	222
13.....		8.640	30.068	523
14.....		3.238	33.306	196
15.....		3.552	36.858	215
16.....		5.468	42.326	331
17.....		4.395	46.721	266
18.....		6.856	53.577	415
19.....		4.262	57.839	258
20.....		2.495	60.334	151
21.....		2.676	63.010	162
22.....		4.378	67.388	265
23.....		3.155	70.544	191
24.....		0.859	71.403	52
25.....		2.726	74.129	165
26.....		0.743	74.872	45
27.....		0.958	75.830	58
28.....		1.421	77.251	86
29.....		0.991	78.242	60
30.....		1.090	79.333	66
31.....		1.404	80.737	85
32.....		2.296	83.033	139
33.....		5.551	88.584	336
34.....		0.958	89.542	58
35.....		0.578	90.121	35
36.....		1.388	91.508	84
37.....		0.479	91.987	29
38.....		1.173	93.160	71
39.....		1.140	94.300	69
40.....		0.776	95.077	47
41.....		0.545	95.622	33
42.....		2.197	97.819	133
43..		0.116	97.935	7
44..		0.066	98.001	4
45...		0.165	98.166	10
46.....		0.562	98.728	34
47...		0.248	98.976	15
48....		0.314	99.290	19
49.		0.000	99.290	0
50.		0.000	99.290	0
51.		0.000	99.290	0
52.		0.000	99.290	0
53.		0.000	99.290	0
54..		0.099	99.389	6
55...		0.231	99.620	14
56.		0.000	99.620	0
57.		0.000	99.620	0
58.		0.000	99.620	0
59.		0.000	99.620	0
60.		0.000	99.620	0
61.		0.000	99.620	0
62..		0.083	99.703	5
63.		0.000	99.703	0
64...		0.215	99.917	13
65.		0.000	99.917	0
66.		0.000	99.917	0
67.		0.000	99.917	0
68.		0.000	99.917	0
69..		0.083	100.000	5

REMAINING VALUES ARE ALL ZERO

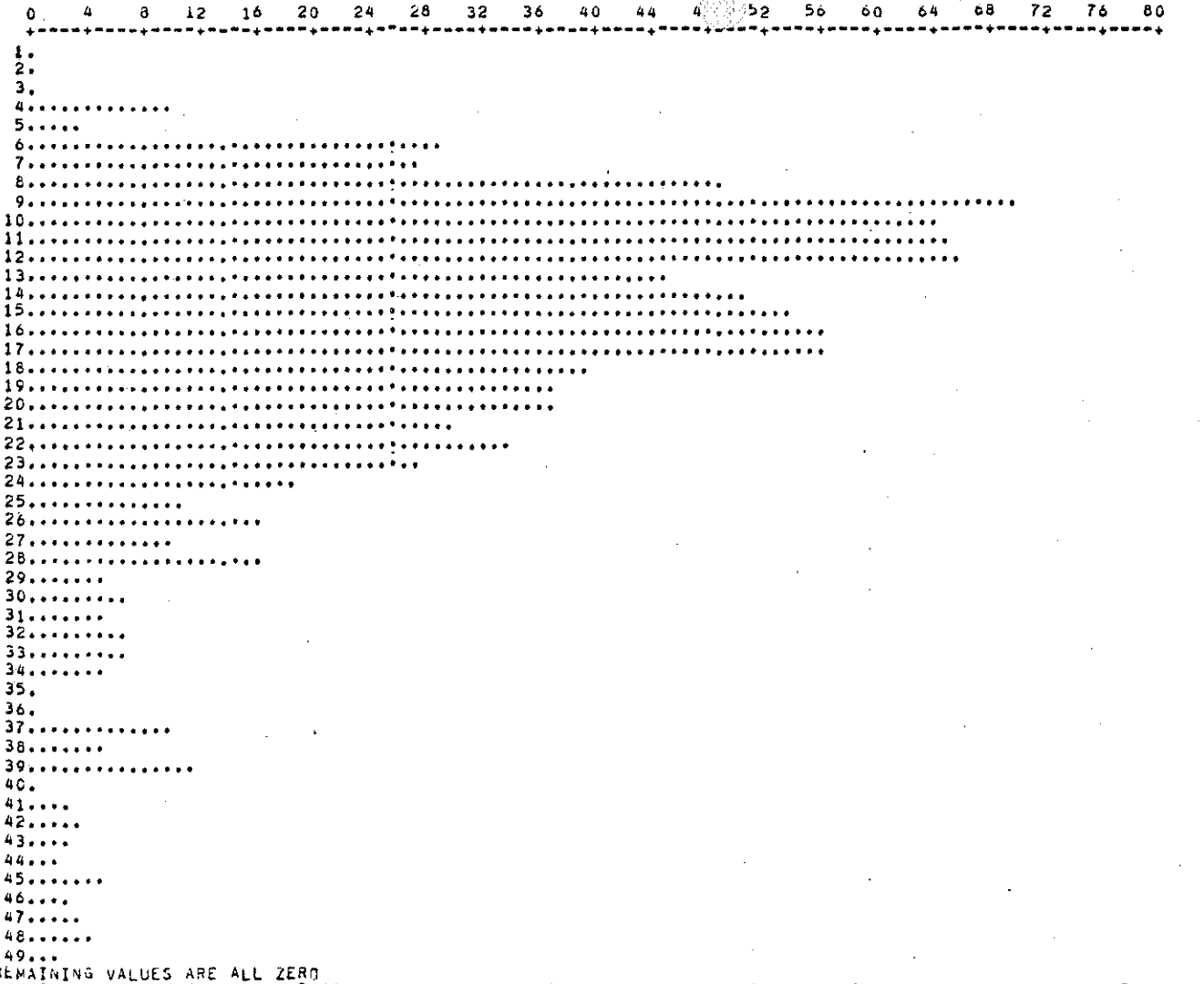
NUMBER OF OBSERVATIONS= 6053 SUM= 124116. MEAN= 20.505 VAR= 106.708 SD= 10.330



	P.C.	CUM.	ACTUAL
1.	0.000	0.000	0
2.	0.000	0.000	0
3.	0.000	0.000	0
4.	0.000	0.000	0
5...	0.190	0.190	9
6.....	1.328	1.518	63
7.....	3.963	5.481	188
8.....	3.035	8.516	144
9.....	7.230	15.746	343
10.....	3.583	19.330	170
11.....	4.975	24.304	236
12.....	5.691	29.996	270
13.....	7.083	37.078	336
14.....	4.869	41.948	231
15.....	5.038	46.986	239
16.....	8.495	55.481	403
17.....	6.408	61.889	304
18.....	6.008	67.896	285
19.....	3.415	71.311	162
20.....	4.132	75.443	196
21.....	2.656	78.099	126
22.....	3.562	81.661	169
23.....	1.813	83.474	86
24.....	1.539	85.013	73
25.....	1.370	86.383	65
26.....	1.265	87.648	60
27.....	1.370	89.018	65
28.....	0.738	89.755	35
29.....	0.569	90.325	27
30.....	0.632	90.957	30
31.....	0.696	91.653	33
32.....	0.696	92.348	33
33.....	0.696	93.044	33
34.....	1.265	94.309	60
35.....	1.581	95.890	75
36.....	0.675	96.564	32
37...	0.232	96.796	11
38..	0.105	96.901	5
39.....	0.632	97.534	30
40....	0.295	97.829	14
41.	0.000	97.829	0
42.	0.000	97.829	0
43..	0.105	97.934	5
44.....	0.632	98.567	30
45...	0.211	98.777	10
46..	0.148	98.925	7
47.....	0.506	99.431	24
48..	0.148	99.578	7
49.	0.000	99.578	0
50..	0.105	99.684	5
51.	0.000	99.684	0
52.	0.000	99.684	0
53.	0.000	99.684	0
54.	0.000	99.684	0
55.	0.000	99.684	0
56.	0.000	99.684	0
57.	0.000	99.684	0
58.	0.000	99.684	0
59.	0.000	99.684	0
60.	0.000	99.684	0
61.	0.000	99.684	0
62.	0.000	99.684	0
63....	0.316	100.000	15

REMAINING VALUES ARE ALL ZERO
NUMBER OF OBSERVATIONS= 4744 SUM= 82420. MEAN= 17.374 VAR= 72.922 SD= 8.539

TOTAL TRIPS OVER MAXP = 0
TOTAL TRIPS OVER 255 = 0
VOLUME TABLE NUMBER = 203
SKIM TREE NUMBER = 101



	P.C.	CUM.	ACTUAL
1.	0.000	0.000	0
2.	0.000	0.000	0
3.	0.000	0.000	0
4.....	0.969	0.969	32
5.....	0.333	1.303	11
6.....	2.878	4.181	95
7.....	2.696	6.877	89
8.....	4.908	11.784	162
9.....	6.937	18.722	229
10.....	6.392	25.114	211
11.....	6.453	31.566	213
12.....	6.543	38.110	216
13.....	4.483	42.593	148
14.....	5.029	47.622	166
15.....	5.332	52.954	176
16.....	5.574	58.528	184
17.....	5.635	64.162	186
18.....	3.938	68.101	130
19.....	3.666	71.766	121
20.....	3.696	75.462	122
21.....	2.999	78.461	99
22.....	3.332	81.793	110
23.....	2.726	84.520	90
24.....	1.818	86.337	60
25.....	1.030	87.367	34
26.....	1.636	89.003	54
27.....	0.969	89.973	32
28.....	1.606	91.578	53
29.....	0.485	92.063	16
30.....	0.636	92.699	21
31.....	0.485	93.184	16
32.....	0.666	93.850	22
33.....	0.606	94.456	20
34.....	0.454	94.911	15
35.	0.000	94.911	0
36.	0.000	94.911	0
37.....	0.969	95.880	32
38.....	0.485	96.365	16
39.....	1.121	97.486	37
40.	0.000	97.486	0
41....	0.273	97.758	9
42.....	0.303	98.061	10
43....	0.273	98.334	9
44...	0.151	98.485	5
45.....	0.454	98.940	15
46....	0.212	99.152	7
47.....	0.303	99.455	10
48.....	0.424	99.879	14
49...	0.121	100.000	4

REMAINING VALUES ARE ALL ZERO
NUMBER OF OBSERVATIONS= 3301 SUM= 54892. MEAN= 16.629 VAR= 72.031 SD= 8.487

TOTAL TRIPS OVER MAXP = 0
TOTAL TRIPS OVER 255 = 0
VOLUME TABLE NUMBER = 204
SKIM TREE NUMBER = 101

TPTLD 099 (INFORMATION) FINIS - DATE 08JAN76 TIME 06.33.38 ELAPSED PROCESSOR TIME 00.03.01

TABLE 4

17DEC75 M-121 GENERAL PURPOSE SUMMARY BY STATION PAGE 7

STATION NUMBER = 01 (71)

VEHICLE TYPE = 1 TO 6

TRIP PURPOSE

HOUR	RANGES		1	2	3	4	5	6	TOTAL
			1	2	3	4	5	6	TOT %
	10	10	190.39	32.35	35.14	0.00	19.94	57.59	335.41
H	ROW %		56.76	9.64	10.48	0.00	5.94	17.17	11.95
	COL %		14.10	9.17	7.48	0.00	10.18	13.43	
R	TOT %		6.79	1.15	1.25	0.00	0.71	2.05	
	11	11	131.30	52.89	89.09	2.82	13.87	75.68	365.65
	ROW %		35.91	14.46	24.36	0.77	3.79	20.70	13.03
	COL %		9.73	14.99	18.96	34.14	7.08	17.65	
	TOT %		4.68	1.89	3.18	0.10	0.49	2.70	
P									
	12	12	157.50	52.02	95.62	3.09	21.46	86.01	415.70
E	ROW %		37.89	12.51	23.00	0.74	5.16	20.69	14.82
	COL %		11.67	14.74	20.34	37.41	10.96	20.06	
R	TOT %		5.61	1.85	3.41	0.11	0.76	3.07	
	16	16	416.47	108.40	72.93	0.00	21.45	79.94	699.19
	ROW %		59.56	15.50	10.43	0.00	3.07	11.43	24.92
O	COL %		30.85	30.72	15.52	0.00	10.95	18.65	
	TOT %		14.84	3.86	2.60	0.00	0.76	2.85	
D									
	17	17	281.98	71.52	102.41	2.35	38.47	42.98	539.71
	ROW %		52.25	13.25	18.98	0.44	7.13	7.96	19.24
	COL %		20.89	20.27	21.79	28.45	19.64	10.02	
E	TOT %		10.05	2.55	3.65	0.08	1.37	1.53	
	18	18	172.41	35.68	74.81	0.00	80.67	86.53	450.10
N	ROW %		38.30	7.93	16.62	0.00	17.92	19.22	16.04
D	COL %		12.77	10.11	15.92	0.00	41.19	20.18	
	TOT %		6.14	1.27	2.67	0.00	2.88	3.08	
I									
	TOTAL		1350.05	352.86	470.00	8.26	195.86	428.73	2805.76
	TOT %		48.12	12.58	16.75	0.29	6.98	15.28	

STATION NUMBER = 02 (72)

VEHICLE TYPE = 1 TO 6

TRIP PURPOSE

HOME	RANGES	1	2	3	4	5	6	TOTAL
	10 10	376.57	86.71	55.02	7.86	75.17	67.06	668.39
	ROW %	56.34	12.97	8.23	1.18	11.25	10.03	11.05
	COL %	10.37	18.74	8.60	44.28	10.69	11.32	
	TOT %	6.23	1.43	0.91	0.13	1.24	1.11	
	11 11	463.92	120.64	87.74	4.70	94.00	89.31	860.31
	ROW %	53.92	14.02	10.20	0.55	10.93	10.38	14.22
	COL %	12.77	26.07	13.71	26.48	13.37	15.08	
	TOT %	7.67	1.99	1.45	0.08	1.55	1.48	
	12 12	563.96	99.89	99.25	5.19	105.08	127.12	1000.49
	ROW %	56.37	9.98	9.92	0.52	10.50	12.71	16.54
	COL %	15.52	21.59	15.51	29.24	14.94	21.46	
	TOT %	9.32	1.65	1.64	0.09	1.74	2.10	
	16 16	899.74	60.24	93.72	0.00	101.53	145.03	1300.26
	ROW %	69.20	4.63	7.21	0.00	7.81	11.15	21.50
	COL %	24.77	13.02	14.64	0.00	14.44	24.48	
	TOT %	14.87	1.00	1.55	0.00	1.68	2.40	
	17 17	746.98	27.46	193.37	0.00	110.53	119.53	1197.87
	ROW %	62.36	2.29	16.14	0.00	9.23	9.98	19.80
	COL %	20.56	5.93	30.22	0.00	15.72	20.18	
	TOT %	12.35	0.45	3.20	0.00	1.83	1.98	
	18 18	581.76	67.77	110.85	0.00	216.83	44.34	1021.55
	ROW %	56.95	6.63	10.85	0.00	21.23	4.34	16.89
	COL %	16.01	14.65	17.32	0.00	30.84	7.48	
	TOT %	9.62	1.12	1.83	0.00	3.58	0.73	
	TOTAL	3632.93	462.71	639.95	17.75	703.14	592.39	6048.87
	TOT %	60.06	7.65	10.58	0.29	11.62	9.79	

STATION NUMBER = 03 (23)

VEHICLE TYPE = 1 TO 6

TRIP PURPOSE

	RANGES	1 1	2 2	3 3	4 4	5 5	6 6	TOTAL TOT %
	10 10	355.88	46.31	66.12	0.00	58.30	162.65	689.26
H	ROW %	51.63	6.72	9.59	0.00	8.46	23.60	14.36
	COL %	15.15	16.27	7.62	0.00	11.29	20.97	
R	TOT %	7.41	0.96	1.38	0.00	1.21	3.39	
	11 11	261.86	68.04	119.02	0.00	63.97	132.52	645.41
	ROW %	40.57	10.54	18.44	0.00	9.91	20.53	13.45
	COL %	11.15	23.90	13.72	0.00	12.38	17.09	
P	TOT %	5.46	1.42	2.48	0.00	1.33	2.76	
	12 12	242.05	76.47	157.98	0.00	112.11	132.51	721.12
E	ROW %	33.57	10.60	21.91	0.00	15.55	18.38	15.02
	COL %	10.30	26.86	18.21	0.00	21.70	17.09	
R	TOT %	5.04	1.59	3.29	0.00	2.34	2.76	
	16 16	659.35	24.45	171.75	0.00	82.10	81.80	1019.45
I	ROW %	64.68	2.40	16.85	0.00	8.05	8.02	21.24
	COL %	28.07	8.59	19.80	0.00	15.89	10.55	
O	TOT %	13.74	0.51	3.58	0.00	1.71	1.70	
	17 17	487.74	13.66	198.07	6.83	81.96	127.58	915.84
	ROW %	53.26	1.49	21.63	0.75	8.95	13.93	19.08
	COL %	20.76	4.80	22.83	100.00	15.87	16.45	
E	TOT %	10.16	0.28	4.13	0.14	1.71	2.66	
	18 18	342.03	55.78	154.52	0.00	118.14	138.41	808.88
	ROW %	42.28	6.90	19.10	0.00	14.61	17.11	16.85
D	COL %	14.56	19.59	17.81	0.00	22.87	17.85	
I	TOT %	7.13	1.16	3.22	0.00	2.46	2.88	
	TOTAL	2348.91	284.71	867.46	6.83	516.58	775.47	4799.96
	TOT %	48.94	5.93	18.07	0.14	10.76	16.16	

STATION NUMBER = 04 (07)

VEHICLE TYPE = 1 TO 6

TRIP PURPOSE

HOME	RANGES	1	2	3	4	5	6	TOTAL
		1	2	3	4	5	6	TOT %
	10 10	190.95	28.57	76.84	0.00	25.62	115.27	437.25
H	ROW %	43.67	6.53	17.57	0.00	5.86	26.36	13.55
	COL %	13.86	8.36	10.68	0.00	8.48	23.69	
R	TOT %	5.92	0.89	2.38	0.00	0.79	3.57	
	11 11	182.67	65.25	147.15	0.00	22.75	34.15	451.97
•	ROW %	40.42	14.44	32.56	0.00	5.03	7.56	14.00
	COL %	13.26	19.10	20.45	0.00	7.53	7.02	
	TOT %	5.66	2.02	4.56	0.00	0.70	1.06	
P								
	12 12	174.40	88.46	88.37	0.00	56.04	65.11	472.38
E	ROW %	36.92	18.73	18.71	0.00	11.86	13.78	14.63
	COL %	12.65	25.90	12.28	0.00	18.56	13.38	
R	TOT %	5.40	2.74	2.74	0.00	1.74	2.02	
	16 16	326.21	69.56	183.12	0.00	55.00	104.50	738.39
I	ROW %	44.18	9.42	24.80	0.00	7.45	14.15	22.88
O	COL %	23.67	20.36	25.45	0.00	18.21	21.48	
	TOT %	10.11	2.16	5.67	0.00	1.70	3.24	
D								
	17 17	252.64	49.12	130.04	0.00	53.88	74.44	560.12
	ROW %	45.10	8.77	23.22	0.00	9.62	13.29	17.35
	COL %	18.33	14.38	18.07	0.00	17.84	15.30	
E	TOT %	7.83	1.52	4.03	0.00	1.67	2.31	
	18 18	251.25	40.61	94.04	0.00	88.67	93.10	567.67
N	ROW %	44.26	7.15	16.57	0.00	15.62	16.40	17.59
D	COL %	18.23	11.89	13.07	0.00	29.36	19.13	
	TOT %	7.78	1.26	2.91	0.00	2.75	2.88	
I								
	TOTAL	1378.12	341.57	719.56	0.00	301.96	486.57	3227.78
	TOT %	42.70	10.58	22.29	0.00	9.36	15.07	

STATION 1

The average trip length for Station 1 was approximately twenty-two minutes, and the dominant trip length through this station (35.3%) fell within the 15-20 minute range. These figures were consistent with characteristics of trips in the other three stations. However, Stations 1 and 2 displayed a trip length characteristic that the other two stations did not, which was a second dominant trip length of thirty-forty minutes. This would indicate the western portion of M-121 functions as a freeway connector for longer trips as well as serve local traffic.

Examination of trip purposes through Station 1 shows that the work trip is the most common at 40%, the personal business trip at 12.6% and shopping at 16.3%. These types of trip purposes are relatively short in duration and seem to correspond to the dominant trip length through the station.

STATION 2

The average trip length for Station 2 was twenty and one-half minutes. Forty-two percent of trips through the station were 10-20 minutes in length. These figures were similar to the other stations, with the exception that, like Station 1, Station 2 had a second dominant grouping (10.5%) in the 30-35 minute range.

The work trip was the dominant purpose at 60.1% of the trips passing through Station 2. Personal business and shopping had 7.7% and 10.6% respectively. The vacation trip was almost non-existent at 0.3%.

STATION 3

The average trip length through Station 3 was 17.3 minutes which was shorter than Station 1 or 2, indicating that this portion of M-121 would serve local traffic to more of an extent than the portion in the area of Stations 1 and 2. The dominant trip length was 16 minutes, and 81.7% of Station 3 trips were 22 minutes or less in length.

As with Stations 1 and 2, the dominant trip purpose in Station 3 was the work trip at 42.7% of all trips, followed by 10.6% for personal business and 22.3% shopping trips.

STATION 4

Station 4 had an average trip length of 16.6 minutes, which was the shortest for all four interview stations. The dominant trip length was nine minutes (6.9%) and over 75% of the trip lengths were twenty minutes or less. These figures are comparable to those for Station 3, thus indicating a similarity in the nature of the traffic on the east portion of M-121.

As with Stations 1-3, the work trip was the most common trip purpose at Station 4 at 42.7%. Personal business and shopping accounted for 10.6% and 22.3% respectively.

APPENDIX

ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4	ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4
1	0	0.11	0.29	0.26	28	0.11	0.04	0.28	0.23
2	0	0.12	0.05	0.09	29	0.25	0.09	0.29	0.42
3	0.14	0.29	0.33	0.14	30	0.37	0.53	0.96	0.84
4	0.11	0.07	0.39	0.20	31	0.05	0.29	0.40	0.33
5	0.11	0.04	0.34	0	32	0.37	0.24	0.65	1.18
6	0	0.04	0.21	0.20	33	0.43	0.46	1.36	1.70
7	0.07	0.15	0.25	0.23	34	0.32	0.07	0.45	0.39
8	0.05	0.17	0.14	0	35	0.16	0.19	0.60	0.06
9	0.23	0	0.08	0.15	36	0.23	0.62	0.37	0.38
10	0.05	0	0.20	0.08	37	0.46	0.68	0.56	0.23
11	0.05	0.07	0.14	0.15	38	0.67	2.00	0.69	0.77
12	0.35	0.21	0.32	0.08	39	0.30	0.30	0.47	0.20
13	0	0.09	0.04	0.08	40	0.05	0.06	0	0
14	0	0	0.05	0	41	0	0.10	0.18	0
15	0.05	0.07	0.25	0	42	6.84	13.25	5.45	1.83
16	0.12	0	0.07	0	43	0.43	0.37	0.24	0.15
17	0	0.03	0.15	0.08	44	0	0.07	0.05	0
18	0.27	0.18	2.27	0.41	45	0.05	0.06	0.16	0
19	0.05	0.03	0.26	0.08	46	0.12	0.20	0.13	0
20	0.05	0	0.36	0.21	47	0	0.26	0	0
21	0	0.07	0	0.08	48	0.07	0.31	0.09	0.24
22	0.05	0	0.07	0.09	49	0	0.04	0.11	0.21
23	0.16	0.04	0.55	0.18	50	0.18	0.04	0.10	0.08
24	0	0	0	0.15	51	0.11	0.15	0.11	0.14
25	0.07	0.07	0.05	0.09	52	0.04	0.03	0.09	0
26	0.30	0.04	0.17	0.44	53	0	0	0	0
27	0.07	0.12	0.43	0.58	54	0	0.07	0.11	0

	PERCENT TRIP ENDS					PERCENT TRIP ENDS			
ZONE NO.	ST.1	ST.2	ST.3	ST.4	ZONE NO.	ST.1	ST.2	ST.3	ST.4
55	0.05	0	0	0	82	0.05	0	0	0
56	0	0	0.08	0	83	0	0	0.04	0.08
57	0	0.04	0	0.09	84	0.05	0.11	0.04	0.08
58	0	0.06	0	0	85	0	0	0	0
59	0	0	.05	0.08	86	0.12	0.04	0	0.15
60	0.07	0.08	.07	0.06	87	0	0.20	0	0
61	0	0.11	0	0	88	0	0.12	0.04	0
62	0.18	0	0.04	0.08	89	0	0.13	0	0.08
63	0.05	0	0	0	90	0.05	0.06	0	0
64	0	0	0.08	0	91	0	0.06	0	0
65	0	0	0	0.17	92	0	0.06	0.04	0
66	0.05	0	0	0	93	0	0.03	0.04	0
67	0	0	0	0	94	0	0	0	0.08
68	0	0.05	0	0	95	0.05	0.04	0	0
69	0	0	0.19	0.09	96	0	0	0.05	0
70	0	0.04	0.05	0	97	0	0	0.05	0.08
71	0.16	0.17	0.24	0.08	98	0	0	0	0
72	0	0	0.05	0.06	99	0.05	0	0.08	0
73	0	0.07	0	0	100	0	0.07	0	0.15
74	0.11	0	0	0.09	101	0.05	0.16	0.05	0.09
75	0.05	0	0.16	0	102	0	0.06	0	0.03
76	0.11	0.07	0.05	0.08	103	0	0.07	0.39	0.24
77	0	0	0	0	104	0	0	0	0
78	0	0	0.05	0	105	0	0.04	0	0.14
79	0.05	0	0	0	106	0.21	0.11	0.17	0.24
80	0.09	0.03	0	0	107	0	0.04	0	0.08
81	0.05	0.04	0	0.08	108	0	0	0	0.06

ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4	ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4
109	0	0.04	0.04	0	136	0	0	0.14	0
110	0	0	0.17	0.06	137	0.07	0.11	0	0
111	0.04	0	0.17	0	138	0.05	0.22	0.77	0.08
112	0	0.12	0.81	0	139	0.05	0.96	0.26	0.42
113	0	0	0	0	140	0	0.17	0	0
114	0	0	0.05	0	141	0.90	1.97	0.76	0.38
115	0.05	0.05	0.18	0.08	142	0	0	0	0
116	0.05	0	0.16	0	143	0	0	0	0.08
117	0	0.05	0.05	0	144	0	0	0	0.26
118	0	0	0	0.08	145	0	0	0	0
119	0	0	0.08	0	146	0	0.05	0	0
120	0	0	0.17	0	147	0.12	0.17	0	0
121	0	0	0.05	0.23	148	0	0	0	0.06
122	0	0	0.05	0	149	0	0	0.12	0.11
123	0	0.07	0.05	0	150	0.05	0	0	0.08
124	0.18	0.06	0.24	0.30	151	0.04	0.04	0	0.08
125	0.11	0.05	0.14	0.20	152	0	0.03	0	0
126	1.10	0.85	0.51	0.21	153	0	0	0	0
127	0.11	0.11	0.14	0	154	0	0	0	0
128	0	0.07	0.27	0	155	0	0.04	0	0
129	0.05	0.11	0.05	0	156	0	0	0	0
130	0.16	0	0.04	0.15	157	0	0	0	0
131	0.14	0.14	0.18	0.20	158	0	0	0	0
132	0	0.07	0	0.06	159	0	0	0	0
133	0	0	0	0	160	0.05	0.31	0.04	0
134	0	0	0	0	161	0.11	0	0	0.08
135	0.05	0	0	0	162	0	0	0	0

ZONE NO.	ST.1	ST.2	ST.3	ST.4	ZONE NO.	ST.1	ST.2	ST.3	ST.4
163	0	0	0	0	190	0	0	0	0.08
164	0	0	0	0	191	0	0	0.04	0
165	0.12	0.66	0	0.15	192	0	0	0	0
166	0	0.07	0	0	193	0	0	0	0
167	0	0	0	0	194	0.05	0	0.15	0.08
168	0	0	0	0	195	0.07	0	0	0
169	0	0	0	0.08	196	0	0.07	0	0.09
170	0	0	0	0	197	0.12	0	0.22	0.32
171	0	0	0	0	198	0.07	0	0.41	0.06
172	0	0	0	0	199	0.11	0.04	0.15	0.15
173	0	0.07	0	0	200	0.05	0.05	0	0.30
174	0	0	0	0	201	0.05	0.16	0.22	0.15
175	0	0	0	0	202	0	0	0.41	0.30
176	0	0	0	0	203	0.05	0	0.11	0.14
177	0	0	0	0	204	0	0.07	0	0
178	0	0	0	0.08	205	0.05	0.19	0.21	0.67
179	0	0	0	0	206	0	0	0	0
180	0	0	0	0	207	0	0	0.08	0.08
181	0.09	0.89	0.25	0.30	208	0.05	0.04	0.24	0.30
182	0.05	0.11	0.21	0	209	0	0	0.07	0.24
183	0	0	0	0.15	210	0	0	0.07	0.12
184	0	0.40	0.05	0.06	211	0	0.04	0.05	0.30
185	0	0.20	0.31	0.09	212	0.11	0	0.13	0
186	0.05	0.12	0	0.15	213	0.05	0	0.13	0.21
187	0	0	0	0.08	214	0.05	0.07	0.11	0.09
188	0.07	0	0.04	0	215	0.11	0.05	0.47	0.24
189	0	0.12	0	0.29	216	0	0.07	0	0.29

ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4	ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4
217	0.20	0	0	0.29	244	0	0	0	0
218	0.16	0.07	0.92	2.24	245	0	0	0	0
219	0.21	0	0	0.27	246	0	0	0	0
220	0.98	0.97	2.19	4.28	247	0.05	0	0	0.06
221	0.27	0.20	0.43	0.91	248	0	0	0	0
222	0.16	0	0.21	0.80	249	0	0	0.04	0.08
223	0	0.04	0.21	0.39	250	0	0	0	0
224	0.07	0	0.34	0.62	251	0.18	0.15	0.25	0.23
225	0	0	0.07	0.09	252	0.05	0.33	0.19	0.55
226	0	0.07	0.08	0.08	253	0.21	0.48	0.93	0
227	0.07	0	0	0.08	254	1.01	1.05	0.71	0.97
228	0.12	0	0.05	0.24	255	0.23	0.53	0.04	0.55
229	0.05	0.04	0.14	0.44	256	1.44	1.99	6.90	14.55
230	0.09	0.12	0.05	0.47	257	0.80	0.41	2.20	4.50
231	0.18	0.27	0.41	1.23	258	0.64	0.41	2.08	2.47
232	0.59	0.95	1.39	5.27	259	2.16	1.88	5.84	5.92
233	0.11	0.44	0.41	0.58	260	0.69	1.07	3.95	1.68
234	0.18	0.12	0.09	0.35	261	2.20	1.35	2.47	1.95
235	0.05	0.07	0.12	0.23	262	2.07	2.81	3.17	1.89
236	1.76	2.04	1.98	1.15	263	6.58	8.25	10.36	4.16
237	0.04	0.27	0.05	0	264	0.55	1.07	1.76	0.76
238	0	0	0	0	265	0.05	0	0.25	0.17
239	0	0	0	0	266	0.11	1.90	0.09	0.09
240	0	0	0	0	267	0.05	0.17	0.16	0.36
241	0.30	0.12	0.13	0	268	0.05	0.07	0.11	0.06
242	0	0	0	0.23	269	1.22	0.07	0.35	0.21
243	0.05	0.04	0.31	0.47	270	0.43	0.90	0.47	0.68

ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4	ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4
271	0	0	0	0.11	298	0	0	0	0
272	0	0.05	0.08	0.08	299	0.25	0.24	0	0
273	0	0	0.15	0	300	0	0	0.05	0
274	0.21	0.10	0.32	0.15	301	0	0	0	0
275	2.32	1.14	0.61	0.48	302	0.05	0.07	0	0
276	3.01	6.60	2.14	1.11	303	0.12	0.07	0	0.18
277	2.98	1.79	1.36	0.55	304	5.58	2.70	0.71	0.33
278	0.78	0.84	0.47	0.17	305	0	0	0	0
279	9.71	3.90	2.04	0.97	306	0	0	0	0.09
280	0.05	0.80	0.39	0.29	307	0.11	0	0	0
281	0.11	0.43	0	0.08	307	1.73	0.90	0	0
282	0.53	0.74	0.18	0.15	309	0	0	0	0
283	1.13	0.88	0.22	0.33	310	0.11	0	0	0
284	0.21	0.04	0.07	0.12	311	5.11	0.95	0	0.21
285	0.83	0.44	0	0.15	312	0.25	0.13	0	0
286	1.56	0.43	0.23	0.15	313	0	0	0	0.17
287	0.78	0.24	0.05	0	314	0	0	0	0
288	2.87	1.05	0.61	0.15	315	0.28	0.50	0	0.14
289	0.64	0.23	0.29	0.17	316	0	0	0	0
290	0.05	0.06	0	0	317	0	0	0	0
291	0.05	0.06	0.09	0	318	0	0	0	0
292	0.05	0	0	0	319	0.23	2.20	0.05	0.86
293	0.62	0.31	0.13	0.41	320	0	0	0.08	0.08
294	0	0	0.07	0	321	0	0	0.04	0
295	0.05	0.19	0.09	0	322	0	0	0	0
296	0	0	0	0	323	0	0	0	0
297	0.05	0	0	0	324	0	0	0	0

ZONE NO.	PERCENT TRIP ENDS ST.1	ST.2	ST.3	ST.4
325	0	0	0	0
326	0	0.03	0.14	0
327	0	0	0	0
328	0	0	0	0
329	0	0	0	0
330	0	0	0	0
331	0	0	0	0
332	0	0	0	0
333	0.09	0.16	0.39	0.30
334	0.11	0	0	0
335	0	0	0	0
336	0	0	0	0
337	0	0	0	0
338	0	0.07	0	0.14
339	0	0	0	0
340	0	0.09	0.14	0.09
341	1.67	2.79	1.54	0.68
342	0	0	0	0.09
343	0	0	0	0
344	0	0	0.05	0.08
345	0	0	0.07	0
346	0	0	0	0
347	0.21	0.61	0.44	0.56
348	0.04	0	0	0
349	0	0	0	0
350	0	0	0	0
351	0	0	0	0
352	0.09	0.03	0	0
353	0	0	0.04	0
354	0	0	0	0
355	8.79	3.77	1.06	0.80
356	0.34	0	0	0
357	0	0	0	0
358	0	0	0	0
359	0	0.07	0	0
360	0.18	0	0.08	0.06
361	0	0	0	0
362	0	0	0	0
363	0	0	0	0
364	0	0	0	0
	100.8	100.5	100.0	99.4