

Section 7.1 ESTIMATION OF AVERAGE MILEAGE ACCRUAL RATES FROM SMOG CHECK DATA (1991 THROUGH 1995)

This section discusses the estimation of passenger car (PC), light-duty truck (LDT), medium-duty truck (MDT), and motor home average mileage accrual rates from smog check data (1991 through 1995).

7.1.1 Introduction

The direct relationship between the number of miles a vehicle travels and the emissions generated enables the estimation of tons per day emissions. The State's mobile source emissions inventory model (EMFAC2000) uses accrual rates to directly calculate the mobile source emissions of specific classes of vehicles. In previous versions of EMFAC2000, only statewide averages were used to estimate accrual rates. This analysis estimates the county specific and air basin specific accrual rates for light-duty trucks, medium-duty trucks, and motor homes in order to improve the accuracy of the estimation of mobile source emissions for these classes of vehicles. Except for some small differences in the analysis attributable to the different nature of available data, the methodology used to estimate accrual rates for light-duty trucks (LDT), motor homes, and passenger cars (PC) were identical. For this reason and to avoid redundancy, the methodology for light-duty trucks will be presented in detail and the portions of the methodology where motor homes and passenger cars vary from light-duty trucks will be presented in separate paragraphs.

7.1.2 Objectives

In this analysis, class specific vehicle data obtained from the Bureau of Automotive Repair's (BAR's) Smog Check database were analyzed for mileage differences over consecutive test years and used to develop average mileage accrual rates. Using the resultant mileage accrual rates, the corresponding model year of the vehicle, and vehicle registration data, the average accrual rates for PCs, LDTs, MDTs, and motor homes were developed for all 58 counties and 14 air basins of the state. This will result in greater accuracy for light-duty truck and motor home accrual rate estimates to be used in the EMFAC2000 model.

7.1.3 Methodology

The smog check program currently requires that most vehicles be tested approximately once every two years. Using three calendar year pairs, 91 & 93, 92 & 94, 93 & 95, consecutive test data for light-duty trucks (trucks with a GVWR of less than 8500 lbs.) were extracted for analysis. The BAR smog check data set is ideal for this analysis as it includes relevant data such as: vehicle identification number, license plate, county, vehicle type, test date, and odometer reading at the time of the test. All of this information enables the determination of regional mileage accrual rates.

7.1.4 Assumptions

As all light-duty trucks and medium-duty trucks are included in the same category in the BAR data set, the resultant accrual rates are assumed to be applicable to both light-duty trucks as well as medium-duty trucks. The current Smog Check program requires the use of I/M testing to collect data. As the I/M test does not apply to diesel vehicles, no data is available for diesel vehicles in the BAR data set. Due to this absence of diesel data, this analyses assumes all trucks have the same accrual rate, regardless of fuel type.

7.1.5 Rollover

Approximately 13 percent of older vehicles had odometer rollovers in which higher odometer readings are recorded for the previous test year than the odometer reading collected in the subsequent test year. These rollovers were converted by establishing a cutoff of 100,000 as the maximum reasonable difference allowed between consecutive test year odometer readings. For those vehicles that do demonstrate a rollover condition, the odometer difference was determined by the following equation:

(Using test years 1991 and 1993 as an example)

$$\text{ODODIFF} = (100,000 - \text{ODO91}) + \text{ODO93} \quad (7.1-1)$$

Otherwise, the odometer difference was calculated by a straight subtraction:

$$\text{ODODIFF} = \text{ODO93} - \text{ODO91} \quad (7.1-2)$$

In which:

ODO93 = odometer reading for 1993

ODO91 = odometer reading for 1991

ODODIFF = difference between odometer readings

7.1.6 Calculation of Accrual Rate

The data were first sorted by VIN, then conditions were set to screen out erroneous records such as zero odometer readings, zero odometer differences, and zero age values. The age of the vehicle is defined as the difference between the second test date of the vehicle and the model year of the vehicle. In this way, the age of the vehicle at the time of the second test is determined. A zero age value therefore indicates an erroneous input during testing. The miles traveled between smog checks were then determined and converted to average miles traveled per year using the following equations.

$$\text{Duration} = \text{testdate93} - \text{testdate91} \text{ (in days)} \quad (7.1-4)$$

$$\text{Miles traveled per year} = 365.25 * \text{ODODIFF}/\text{Duration} \quad (7.1-5)$$

7.1.7 County/Air Basin Substitutions

Certain counties and air basins did not have sufficient data to enable a representative analysis due to their small or incomplete sampling size. For these counties, data from the air basin containing the county was substituted. For these air basins, data from an adjacent air basin with sufficient sample size was substituted. Tables 7.1-1 and 7.1-2 detail these county and air basin substitutions.

**Table 7.1-1:
Counties replaced by air basins**

County	Replaced by Air Basin
2	1
3	4
5	4
6	8
8	6
11	8
12	6
14	14
15	1
17	2
18	7
22	4
23	6
25	7
24	1
32	4
35	5
46	4
47	7
51	8
53	6
55	4
58	8

**Table 7.1-2:
Air basin substitutions**

Air Basin	Replaced by Air Basin
2	8
6	8
7	8
1	4
3	4

Large counties, which lie within more than one air basin, created difficulties in performing air basin specific analysis. To resolve this problem, these counties were assigned to the air basin with the greatest sampling rate. Table 7.1-3 shows the reassignment of these large counties to the selected air basins. Appendix 7.1-1 shows a listing of all air basins and the counties they contain.

Table 7.1-3: Counties reallocated to air basins

County	Assigned Air Basins			Re-assigned Air Basin
El Dorado	3	4		4
Kern	11	14		11
Los Angeles	13	14		13
Placer	3	4	8	4
Riverside	13	14		13
San Bernardino	13	14	13	13
Solano	8	10		10
Sonoma	6	10		10

7.1.8 Regression Equation

Using stepwise regression, the following equation was found to be representative of the resultant light-duty truck data.

$$\text{Log(MODO)} = A * \text{Sqrt (AGE)} + C \quad (7.1-6)$$

Where MODO = Mean of Odometer per year
 Log(MODO) = Logarithm of MODO parameter
 Sqrt(AGE) = square root of AGE parameter
 A = Coefficient of Sqrt(AGE)
 C = Y-intercept

For motor home data, the following equation was found to be representative:

$$\text{MODO} = B * \text{Log(AGE)} + D \quad (7.1-7)$$

Where MODO = Mean of Odometer per year
 Log(AGE) = Logarithm of AGE parameter
 B = Coefficient
 D = Y-intercept

The following equations were both found to be representative of the passenger car data:

$$\text{Log(ODO)} = A * (\text{AGE}) + \text{intercept} \quad (7.1-8)$$

$$\text{ODO} = A * (\text{AGE}) + B * (\text{AGE})^2 + C * (\text{AGE})^3 + D * (\text{AGE})^4 + \text{intercept} \quad (7.1-9)$$

Where ODO = Odometer per year
 AGE = Age of vehicle
 A,B,C,D = Parameter estimates of the AGE

The age of the vehicle was defined as the difference between the model year of the vehicle and the year when the second smog check was performed.

A general linear model regression was then applied to obtain the best-fit model. The resultant model for light-duty trucks for the 14 air basins and 58 counties are presented in appendix 7.1-2 and appendix 7.1-3, respectively. Due to the lack of sufficient data for motor homes, the accrual rate for motor homes was only estimated for a statewide average and was not refined to air basin or county level. The resultant data for motor homes for the state of California are presented in appendix 7.1-4. Similarly, the resultant model for passenger cars for the 14 air basins and 58 counties are presented in appendix 7.1-5, and appendix 7.1-6, respectively.

7.1.9 Results

Although data for this analysis was only available to age 30, because the EMFAC2000 model estimates up to age 45, the regression equation is extended to age 45. The statewide exponential equation for light-duty trucks ($r^2 = 0.84$) showed a good fit to the means of the data. Chart 7.1-1 shows the age distribution for statewide light-duty trucks. Chart 7.1-2 shows the plot of the model in comparison to the findings of this analysis. Appendix 7.1-2 shows the regression analysis for all 14 air basins and appendix 7.1-3 shows the regression analysis for all 58 counties.

It should be noted that this is the first analysis of motor homes in California. This analysis has shown there to be a sparse population of motor homes in the BAR database. As a result, only 34364 valid observations were gathered. Due to the lack of sufficient data, the linear equation for modeling motor home accrual rates show a best fit of only $r^2 = 0.18$.

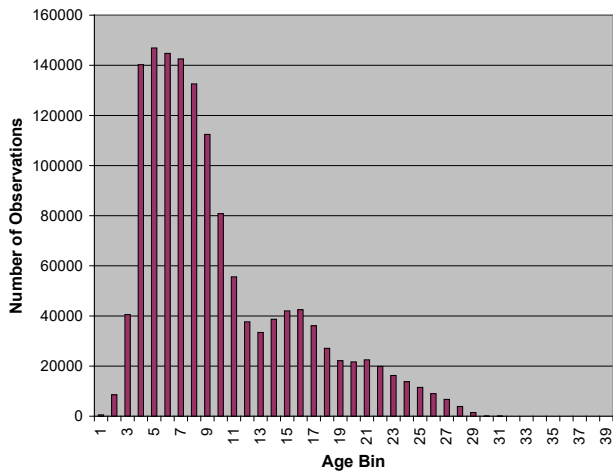


Chart 7.1-1:
Age Distribution of CA Truck Data

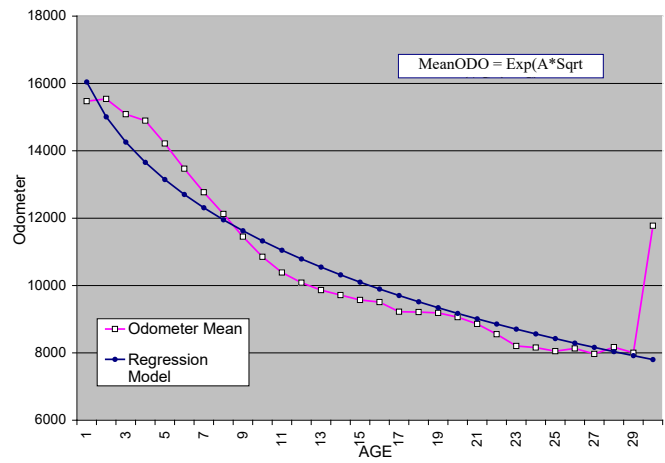


Chart 7.1-2:
Light Duty Truck Result – California Statewide

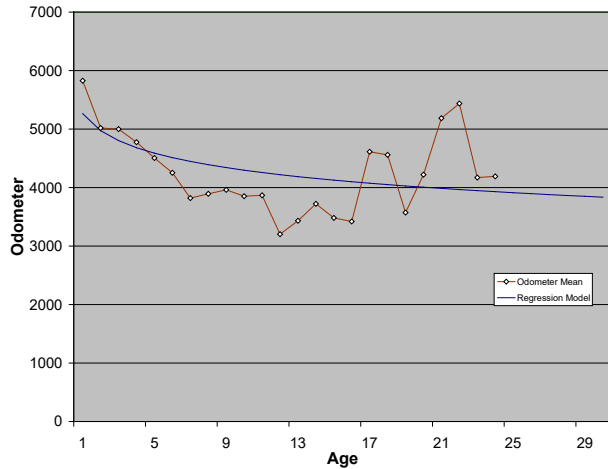


Chart 7.1-3:
Motor Homes – California Statewide

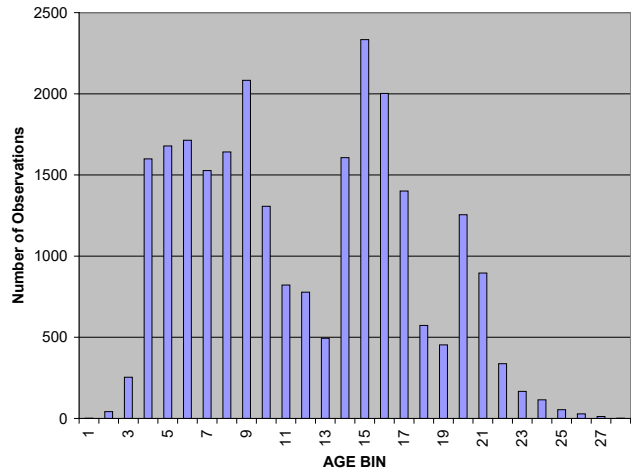


Chart 7.1-4:
Age Distribution of California Motor Homes

Chart 7.1-3 shows the plot of the model in comparison to the mean data for motor homes. Chart 7.1-4 shows the age distribution for statewide motor homes.

For the passenger car analysis, although the polynomial equation ($r^2 = 0.9611$) showed a better fit to the data than the logarithmic equation ($r^2 = 0.8226$), it was observed (see chart 7.1-5) that as age increases, the logarithmic equation turns downward while the polynomial equation inflects upward, which is not reasonable. Thus, the logarithmic equation was selected for modeling the mileage accrual rate.

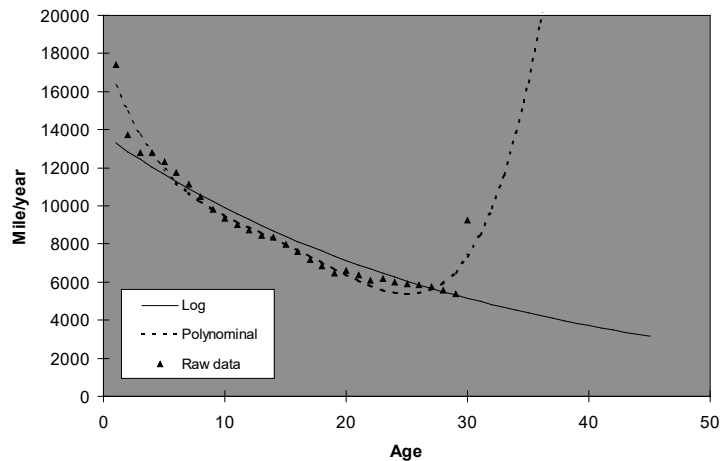


Chart 7.1-5:
Comparison of raw data (State averages) with regression models

7.1.10 Recommendations

The accrual rate for light-duty trucks was calculated in this analysis. A comparison of the findings of this analysis versus the estimated accrual rate from the current model EMFAC7G (Chart 7.1-6) shows that light-duty trucks have a much higher accrual rate than previously determined.

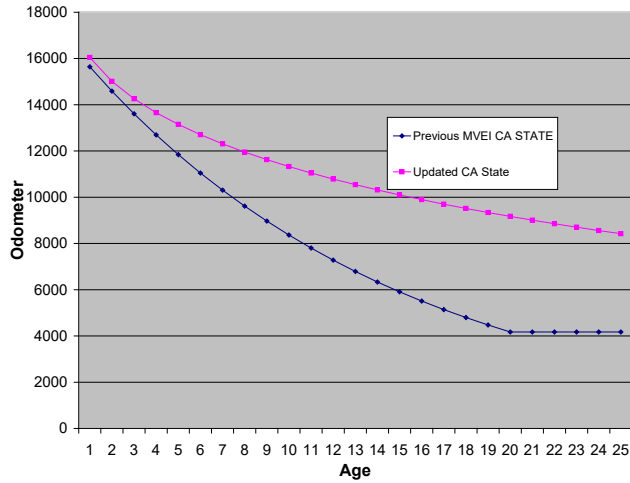


Chart 7.1-6:
Current LDT VMT vs. Updated LDT VMT

This suggests the changes in the current trend of utilizing most light-duty trucks primarily as cars rather than trucks. It is recommended that further attention be focused upon the redefining of trucks and their sub-classes so as to enable the refinement of EMFAC2000 in modeling vehicle emission trends.

In the attempt to estimate the accrual rate for motor homes in this analysis, it became obvious that there is insufficient data currently available. It is recommended that a greater amount of effort be exerted to gather motor home odometer data to enable a better study of the driving behavior of these types of vehicles.

Appendix 7.1-1:
Index of Air Basins and Counties

Air Basin Index	Air Basin Name	County	County Index
1	Great Basin Valleys	Inyo	14
1	Great Basin Valleys	Mono	26
1	Great Basin Valleys	Alpine	2
2	Lake County	Lake	17
3	Lake Tahoe	El Dorado	9
3	Lake Tahoe	Placer	31
4	Mountain Counties	Amador	3
4	Mountain Counties	Calaveras	5
4	Mountain Counties	El Dorado	9
4	Mountain Counties	Mariposa	22
4	Mountain Counties	Nevada	29
4	Mountain Counties	Placer	31
4	Mountain Counties	Plumas	32
4	Mountain Counties	Sierra	46
4	Mountain Counties	Tuloumne	55
5	North Central Coast	Monterey	27
5	North Central Coast	San Benito	35
5	North Central Coast	Santa Cruz	44
6	North Coast	Del Norte	8
6	North Coast	Humboldt	12
6	North Coast	Mendocino	23
6	North Coast	Sonoma	49
6	North Coast	Trinity	53
7	Northeast Plateau	Lassen	18
7	Northeast Plateau	Modoc	25
7	Northeast Plateau	Siskiyou	47
8	Sacramento Valley	Butte	4
8	Sacramento Valley	Colusa	6
8	Sacramento Valley	Glenn	11
8	Sacramento Valley	Placer	31
8	Sacramento Valley	Sacramento	34
8	Sacramento Valley	Shasta	45
8	Sacramento Valley	Solano	48
8	Sacramento Valley	Sutter	51

Air Basin Index	Air Basin Name	County	County Index
8	Sacramento Valley	Tehema	52
8	Sacramento Valley	Yolo	57
8	Sacramento Valley	Yuba	58
9	San Diego	San Diego	37
10	San Francisco Bay Area	Alameda	1
10	San Francisco Bay Area	Contra Costa	7
10	San Francisco Bay Area	Marin	21
10	San Francisco Bay Area	Napa	28
10	San Francisco Bay Area	San Francisco	38
10	San Francisco Bay Area	San Mateo	41
10	San Francisco Bay Area	Santa Clara	43
10	San Francisco Bay Area	Solano	48
10	San Francisco Bay Area	Sonoma	49
11	San Joaquin Valley	Fresno	10
11	San Joaquin Valley	Kern	15
11	San Joaquin Valley	Kings	16
11	San Joaquin Valley	Madera	20
11	San Joaquin Valley	Merced	24
11	San Joaquin Valley	San Joaquin	39
11	San Joaquin Valley	Stanislaus	50
11	San Joaquin Valley	Tulare	54
12	San Central Coast	San Luis Obispo	40
12	San Central Coast	Santa Barbara	42
12	San Central Coast	Ventura	56
13	South Coast	Los Angeles	19
13	South Coast	Orange	30
13	South Coast	Riverside	33
13	South Coast	San Bernardino	36
14	Southeast Desert	Imperial	13
14	Southeast Desert	Kern	15
14	Southeast Desert	Los Angeles	19
14	Southeast Desert	Riverside	33
14	Southeast Desert	San Bernardino	36

Appendix 7.1-2 – Truck Accrual: Air Basin Results

Tot Obs.	20646	72650	20646	20646	43620	72650	72650	72650	72650	172500	314231	148008	84970	554692	699702
R-Square	0.911894	0.685012	0.911894	0.911894	0.466343	0.685012	0.685012	0.685012	0.699116	0.882985	0.685017	0.182478	0.725412	0.587964	
Intercept	10.0417838	9.97776554	10.0417838	10.0417838	10.0378344	9.97776554	9.97776554	9.97776554	10.0167733	9.90050145	9.8614978	9.72073613	9.78171847	9.70013406	
Age Coeff	-0.2630923	-0.2284549	-0.2630923	-0.2630923	-0.27263	-0.2284549	-0.2284549	-0.2284549	-0.2129604	-0.2115474	-0.1767311	-0.1389898	-0.113218	-0.0839363	

Age	Basin = 1 = 4	Basin = 2 = 8	Basin = 3 = 4	Basin = 4	Basin = 5	Basin = 6 = 8	Basin = 7 = 8	Basin = 8	Basin = 9	Basin = 10	Basin = 11	Basin = 12	Basin = 13	Basin = 14 =
1	17653.54	17142.41	17653.54	17653.54	17417.04	17142.41	17142.41	17142.41	18102.64	16138.36	16070.92	14497.72	15811.62	15005.88
2	15830.84	15594.62	15830.84	15830.84	15557.18	15594.62	15594.62	15594.62	16574.19	14784.41	14936.49	13686.63	15087.23	14493.13
3	14560.89	14502.41	14560.89	14560.89	14265.87	14502.41	14502.41	14502.41	15489.46	13823.02	14120.61	13095.17	14553.97	14111.60
4	13569.76	13641.28	13569.76	13569.76	13260.89	13641.28	13641.28	13641.28	14630.34	13061.27	13467.51	12616.45	14119.08	13797.76
5	12752.61	12925.08	12752.61	12752.61	12434.31	12925.08	12925.08	12925.08	13913.01	12425.01	12917.20	12209.21	13746.72	13527.05
6	12056.29	12310.01	12056.29	12056.29	11731.47	12310.01	12310.01	12310.01	13294.81	11876.52	12439.06	11852.36	13418.53	13286.89
7	11449.56	11770.25	11449.56	11449.56	11120.25	11770.25	11770.25	11770.25	12750.59	11393.51	12015.00	11533.41	13123.66	13069.80
8	10912.30	11289.15	10912.30	10912.30	10580.00	11289.15	11289.15	11289.15	12264.08	10961.62	11633.30	11244.27	12855.02	12870.93
9	10430.68	10855.22	10430.68	10430.68	10096.50	10855.22	10855.22	10855.22	11824.06	10570.89	11285.85	10979.30	12607.72	12686.90
10	9994.73	10460.15	9994.73	9994.73	9659.55	10460.15	10460.15	10460.15	11422.42	10214.15	10966.77	10734.43	12378.19	12515.26
11	9596.99	10097.74	9596.99	9596.99	9261.52	10097.74	10097.74	10097.74	11053.07	9886.03	10671.66	10506.60	12163.76	12354.17
12	9231.76	9763.19	9231.76	9231.76	8896.53	9763.19	9763.19	9763.19	10711.32	9582.36	10397.11	10293.43	11962.35	12202.18
13	8894.52	9452.74	8894.52	8894.52	8559.98	9452.74	9452.74	9452.74	10393.48	9299.88	10140.42	10093.04	11772.30	12058.17
14	8581.66	9163.34	8581.66	8581.66	8248.17	9163.34	9163.34	9163.34	10096.54	9035.92	9899.41	9903.90	11592.29	11921.19
15	8290.22	8892.50	8290.22	8290.22	7958.08	8892.50	8892.50	8892.50	9818.08	8788.35	9672.30	9724.77	11421.20	11790.51
16	8017.76	8638.17	8017.76	8017.76	7687.22	8638.17	8638.17	8638.17	9556.07	8555.35	9457.60	9554.59	11258.14	11665.47
17	7762.24	8398.61	7762.24	7762.24	7433.50	8398.61	8398.61	8398.61	9308.80	8335.42	9254.05	9392.50	11102.31	11545.55
18	7521.93	8172.37	7521.93	7521.93	7195.16	8172.37	8172.37	8172.37	9074.82	8127.28	9060.61	9237.74	10953.07	11430.29
19	7295.34	7958.17	7295.34	7295.34	6970.68	7958.17	7958.17	7958.17	8852.90	7929.84	8876.34	9089.67	10809.84	11319.30
20	7081.20	7754.93	7081.20	7081.20	6758.77	7754.93	7754.93	7754.93	8641.97	7742.13	8700.47	8947.73	10672.14	11212.22
21	6878.41	7561.72	6878.41	6878.41	6558.30	7561.72	7561.72	7561.72	8441.08	7563.35	8532.30	8811.43	10539.53	11108.76
22	6686.00	7377.70	6686.00	6686.00	6368.29	7377.70	7377.70	7377.70	8249.44	7392.76	8371.23	8680.34	10411.63	11008.66
23	6503.12	7202.15	6503.12	6503.12	6187.87	7202.15	7202.15	7202.15	8066.31	7229.72	8216.71	8554.09	10288.11	10911.69
24	6329.01	7034.42	6329.01	6329.01	6016.29	7034.42	7034.42	7034.42	7891.05	7073.67	8068.28	8432.33	10168.66	10817.62
25	6163.02	6873.93	6163.02	6163.02	5852.85	6873.93	6873.93	6873.93	7723.10	6924.11	7925.51	8314.76	10053.02	10726.28
26	6004.54	6720.18	6004.54	6004.54	5696.96	6720.18	6720.18	6720.18	7561.95	6780.57	7788.03	8201.11	9940.95	10637.50
27	5853.04	6572.70	5853.04	5853.04	5548.08	6572.70	6572.70	6572.70	7407.13	6642.67	7655.47	8091.13	9832.22	10551.13
28	5708.03	6431.07	5708.03	5708.03	5405.72	6431.07	6431.07	6431.07	7258.24	6510.02	7527.55	7984.61	9726.65	10467.02
29	5569.10	6294.92	5569.10	5569.10	5269.43	6294.92	6294.92	6294.92	7114.90	6382.30	7403.97	7881.34	9624.05	10385.06
30	5435.83	6163.91	5435.83	5435.83	5138.82	6163.91	6163.91	6163.91	6976.77	6259.21	7284.48	7781.14	9524.26	10305.12
31	5307.88	6037.73	5307.88	5307.88	5013.53	6037.73	6037.73	6037.73	6843.54	6140.46	7168.85	7683.83	9427.13	10227.10
32	5184.92	5916.08	5184.92	5184.92	4893.22	5916.08	5916.08	5916.08	6714.92	6025.82	7056.86	7589.27	9332.52	10150.91
33	5066.64	5798.72	5066.64	5066.64	4777.60	5798.72	5798.72	5798.72	6590.66	5915.04	6948.32	7497.32	9240.31	10076.45
34	4952.78	5685.40	4952.78	4952.78	4666.39	5685.40	5685.40	5685.40	6470.52	5807.92	6843.04	7407.83	9150.37	10003.65
35	4843.09	5575.90	4843.09	4843.09	4559.34	5575.90	5575.90	5575.90	6354.27	5704.27	6740.86	7320.70	9062.60	9932.43
36	4737.33	5470.01	4737.33	4737.33	4456.21	5470.01	5470.01	5470.01	6241.72	5603.89	6641.62	7235.81	8976.90	9862.71
37	4635.30	5367.56	4635.30	4635.30	4356.79	5367.56	5367.56	5367.56	6132.67	5506.63	6545.18	7153.05	8893.18	9794.43
38	4536.78	5268.36	4536.78	4536.78	4260.88	5268.36	5268.36	5268.36	6026.95	5412.33	6451.41	7072.33	8811.35	9727.54
39	4441.61	5172.26	4441.61	4441.61	4168.29	5172.26	5172.26	5172.26	5924.41	5320.85	6360.18	6993.56	8731.32	9661.96
40	4349.61	5079.10	4349.61	4349.61	4078.85	5079.10	5079.10	5079.10	5824.88	5232.05	6271.38	6916.66	8653.03	9597.66
41	4260.62	4988.75	4260.62	4260.62	3992.41	4988.75	4988.75	4988.75	5728.23	5145.80	6184.90	6841.53	8576.40	9534.57
42	4174.50	4901.07	4174.50	4174.50	3908.82	4901.07	4901.07	4901.07	5634.32	5062.00	6100.64	6768.13	8501.36	9472.66
43	4091.11	4815.94	4091.11	4091.11	3827.93	4815.94	4815.94	4815.94	5543.04	4980.53	6018.51	6696.36	8427.86	9411.87
44	4010.32	4733.25	4010.32	4010.32	3749.63	4733.25	4733.25	4733.25	5454.27	4901.29	5938.41	6626.17	8355.83	9352.17
45	3932.01	4652.89	3932.01	3932.01	3673.78	4652.89	4652.89	4652.89	5367.90	4824.19	5860.26	6557.50	8285.22	9293.51

Tot Obs.	1412077	146603	20646	20646	32951	20646	72650	40284	72650	9616
R-Square	0.838193	0.77854	0.911894	0.911894	0.948551	0.911894	0.685012	0.78085	0.685012	0.490701
Intercept	9.844299242	9.906905033	10.04178382	10.04178382	10.08185	10.04178382	9.977765539	9.946529254	9.977765539	9.907947053
Age Coeff	-0.161097587	-0.217550098	-0.26309234	-0.26309234	-0.28143253	-0.26309234	-0.228454858	-0.216383382	-0.228454858	-0.251409311

Age	CA State	County=1	County=2=AB4	County=3=AB4	County=4	County=5=AB4	County=6=AB8	County=7	County=8=AB8	County=9
1	16045.79	16144.83	17653.54	17653.54	18041.28	17653.54	17142.41	16817.01	17142.41	15623.60
2	15010.01	14753.60	15830.84	15830.84	16056.10	15830.84	15594.62	15375.29	15594.62	14078.45
3	14260.80	13767.93	14560.89	14560.89	14682.25	14560.89	14502.41	14353.40	14502.41	12997.25
4	13658.32	12988.31	13569.76	13569.76	13615.78	13569.76	13641.28	13544.86	13641.28	12150.53
5	13148.65	12338.11	12752.61	12752.61	12740.58	12752.61	12925.08	12870.35	12925.08	11450.39
6	12704.26	11778.35	12056.29	12056.29	11997.86	12056.29	12310.01	12289.50	12310.01	10852.19
7	12308.87	11286.04	11449.56	11449.56	11353.14	11449.56	11770.25	11778.52	11770.25	10329.72
8	11951.91	10846.31	10912.30	10912.30	10784.21	10912.30	11289.15	11322.02	11289.15	9866.04
9	11626.08	10448.93	10430.68	10430.68	10275.86	10430.68	10855.22	10909.39	10855.22	9449.52
10	11326.09	10086.48	9994.73	9994.73	9817.11	9994.73	10460.15	10532.96	10460.15	9071.75
11	11047.94	9753.42	9596.99	9596.99	9399.80	9596.99	10097.74	10186.99	10097.74	8726.47
12	10788.55	9445.46	9231.76	9231.76	9017.65	9231.76	9763.19	9867.04	9763.19	8408.85
13	10545.49	9159.23	8894.52	8894.52	8665.72	8894.52	9452.74	9569.61	9452.74	8115.07
14	10316.78	8892.00	8581.66	8581.66	8340.06	8581.66	9163.34	9291.89	9163.34	7842.08
15	10100.81	8641.55	8290.22	8290.22	8037.44	8290.22	8892.50	9031.56	8892.50	7587.39
16	9896.23	8406.03	8017.76	8017.76	7755.21	8017.76	8638.17	8786.71	8638.17	7348.93
17	9701.90	8183.89	7762.24	7762.24	7491.12	7762.24	8398.61	8555.74	8398.61	7124.96
18	9516.86	7973.81	7521.93	7521.93	7243.31	7521.93	8172.37	8337.28	8172.37	6914.03
19	9340.28	7774.67	7295.34	7295.34	7010.15	7295.34	7958.17	8130.16	7958.17	6714.87
20	9171.43	7585.48	7081.20	7081.20	6790.27	7081.20	7754.93	7933.37	7754.93	6526.40
21	9009.70	7405.40	6878.41	6878.41	6582.46	6878.41	7561.72	7746.03	7561.72	6347.68
22	8854.53	7233.69	6686.00	6686.00	6385.69	6686.00	7377.70	7567.37	7377.70	6177.89
23	8705.43	7069.69	6503.12	6503.12	6199.02	6503.12	7202.15	7396.71	7202.15	6016.32
24	8561.97	6912.81	6329.01	6329.01	6021.66	6329.01	7034.42	7233.45	7034.42	5862.30
25	8423.76	6762.54	6163.02	6163.02	5852.87	6163.02	6873.93	7077.05	6873.93	5715.29
26	8290.45	6618.43	6004.54	6004.54	5692.02	6004.54	6720.18	6927.03	6720.18	5574.77
27	8161.73	6480.04	5853.04	5853.04	5538.53	5853.04	6572.70	6782.96	6572.70	5440.28
28	8037.32	6347.00	5708.03	5708.03	5391.88	5708.03	6431.07	6644.44	6431.07	5311.42
29	7916.96	6218.98	5569.10	5569.10	5251.61	5569.10	6294.92	6511.14	6294.92	5187.81
30	7800.41	6095.67	5435.83	5435.83	5117.29	5435.83	6163.91	6382.71	6163.91	5069.12
31	7687.46	5976.78	5307.88	5307.88	4988.55	5307.88	6037.73	6258.89	6037.73	4955.03
32	7577.92	5862.06	5184.92	5184.92	4865.03	5184.92	5916.08	6139.39	5916.08	4845.28
33	7471.60	5751.26	5066.64	5066.64	4746.41	5066.64	5798.72	6023.97	5798.72	4739.61
34	7368.33	5644.18	4952.78	4952.78	4632.40	4952.78	5685.40	5912.41	5685.40	4637.78
35	7267.98	5540.62	4843.09	4843.09	4522.74	4843.09	5575.90	5804.50	5575.90	4539.58
36	7170.38	5440.38	4737.33	4737.33	4417.17	4737.33	5470.01	5700.04	5470.01	4444.80
37	7075.41	5343.30	4635.30	4635.30	4315.48	4635.30	5367.56	5598.87	5367.56	4353.28
38	6982.95	5249.23	4536.78	4536.78	4217.44	4536.78	5268.36	5500.82	5268.36	4264.82
39	6892.89	5158.00	4441.61	4441.61	4122.87	4441.61	5172.26	5405.73	5172.26	4179.29
40	6805.11	5069.50	4349.61	4349.61	4031.58	4349.61	5079.10	5313.47	5079.10	4096.53
41	6719.52	4983.58	4260.62	4260.62	3943.42	4260.62	4988.75	5223.90	4988.75	4016.40
42	6636.02	4900.14	4174.50	4174.50	3858.21	4174.50	4901.07	5136.90	4901.07	3938.79
43	6554.53	4819.06	4091.11	4091.11	3775.82	4091.11	4815.94	5052.35	4815.94	3863.57
44	6474.97	4740.23	4010.32	4010.32	3696.12	4010.32	4733.25	4970.14	4733.25	3790.63
45	6397.25	4663.56	3932.01	3932.01	3618.96	3932.01	4652.89	4890.18	4652.89	3719.86

Tot Obs.	85892	72650	72650	699702	20646	35329	9615	72650	72650	699702
R-Square	0.895085	0.685012	0.685012	0.587964	0.911894	0.197994	0.607071	0.685012	0.685012	0.587964
Intercept	9.92124751	9.977765539	9.977765539	9.700134056	10.04178382	9.743905163	9.968640225	9.977765539	9.977765539	9.700134056
Age Coeff	-0.188428702	-0.228454858	-0.228454858	-0.083936322	-0.26309234	-0.145442167	-0.205951306	-0.228454858	-0.228454858	-0.083936322

Age	County=10	County=11=AB8	County=12=AB8	County=13=AB14	County=14=AB4	County=15	County=16	County=17=AB8	County=18=AB8	County=19
1	16862.02	17142.41	17142.41	15005.88	17653.54	14742.11	17373.28	17142.41	17142.41	15005.88
2	15595.99	15594.62	15594.62	14493.13	15830.84	13880.20	15952.66	15594.62	15594.62	14493.13
3	14689.37	14502.41	14502.41	14111.60	14560.89	13253.17	14941.86	14502.41	14502.41	14111.60
4	13966.13	13641.28	13641.28	13797.76	13569.76	12746.61	14139.64	13641.28	13641.28	13797.76
5	13358.50	12925.08	12925.08	13527.05	12752.61	12316.40	13468.64	12925.08	12925.08	13527.05
6	12831.95	12310.01	12310.01	13286.89	12056.29	11939.96	12889.45	12310.01	12310.01	13286.89
7	12366.07	11770.25	11770.25	13069.80	11449.56	11603.96	12378.85	11770.25	11770.25	13069.80
8	11947.66	11289.15	11289.15	12870.93	10912.30	11299.71	11921.78	11289.15	11289.15	12870.93
9	11567.58	10855.22	10855.22	12686.90	10430.68	11021.23	11507.87	10855.22	10855.22	12686.90
10	11219.22	10460.15	10460.15	12515.26	9994.73	10764.15	11129.62	10460.15	10460.15	12515.26
11	10897.63	10097.74	10097.74	12354.17	9596.99	10525.20	10781.39	10097.74	10097.74	12354.17
12	10598.96	9763.19	9763.19	12202.18	9231.76	10301.85	10458.85	9763.19	9763.19	12202.18
13	10320.20	9452.74	9452.74	12058.17	8894.52	10092.08	10158.56	9452.74	9452.74	12058.17
14	10058.89	9163.34	9163.34	11921.19	8581.66	9894.26	9877.76	9163.34	9163.34	11921.19
15	9813.03	8892.50	8892.50	11790.51	8290.22	9707.07	9614.18	8892.50	8892.50	11790.51
16	9580.96	8638.17	8638.17	11665.47	8017.76	9529.39	9365.94	8638.17	8638.17	11665.47
17	9361.27	8398.61	8398.61	11545.55	7762.24	9360.29	9131.46	8398.61	8398.61	11545.55
18	9152.77	8172.37	8172.37	11430.29	7521.93	9198.97	8909.41	8172.37	8172.37	11430.29
19	8954.45	7958.17	7958.17	11319.30	7295.34	9044.73	8698.62	7958.17	7958.17	11319.30
20	8765.41	7754.93	7754.93	11212.22	7081.20	8896.99	8498.10	7754.93	7754.93	11212.22
21	8584.89	7561.72	7561.72	11108.76	6878.41	8755.22	8306.99	7561.72	7561.72	11108.76
22	8412.20	7377.70	7377.70	11008.66	6686.00	8618.97	8124.53	7377.70	7377.70	11008.66
23	8246.76	7202.15	7202.15	10911.69	6503.12	8487.83	7950.04	7202.15	7202.15	10911.69
24	8088.02	7034.42	7034.42	10817.62	6329.01	8361.45	7782.94	7034.42	7034.42	10817.62
25	7935.52	6873.93	6873.93	10726.28	6163.02	8239.49	7622.68	6873.93	6873.93	10726.28
26	7788.83	6720.18	6720.18	10637.50	6004.54	8121.68	7468.81	6720.18	6720.18	10637.50
27	7647.57	6572.70	6572.70	10551.13	5853.04	8007.75	7320.88	6572.70	6572.70	10551.13
28	7511.40	6431.07	6431.07	10467.02	5708.03	7897.47	7178.52	6431.07	6431.07	10467.02
29	7379.99	6294.92	6294.92	10385.06	5569.10	7790.62	7041.37	6294.92	6294.92	10385.06
30	7253.08	6163.91	6163.91	10305.12	5435.83	7687.00	6909.13	6163.91	6163.91	10305.12
31	7130.39	6037.73	6037.73	10227.10	5307.88	7586.44	6781.49	6037.73	6037.73	10227.10
32	7011.69	5916.08	5916.08	10150.91	5184.92	7488.77	6658.19	5916.08	5916.08	10150.91
33	6896.76	5798.72	5798.72	10076.45	5066.64	7393.85	6539.00	5798.72	5798.72	10076.45
34	6785.40	5685.40	5685.40	10003.65	4952.78	7301.53	6423.69	5685.40	5685.40	10003.65
35	6677.43	5575.90	5575.90	9932.43	4843.09	7211.68	6312.05	5575.90	5575.90	9932.43
36	6572.67	5470.01	5470.01	9862.71	4737.33	7124.20	6203.89	5470.01	5470.01	9862.71
37	6470.96	5367.56	5367.56	9794.43	4635.30	7038.95	6099.04	5367.56	5367.56	9794.43
38	6372.17	5268.36	5268.36	9727.54	4536.78	6955.86	5997.34	5268.36	5268.36	9727.54
39	6276.14	5172.26	5172.26	9661.96	4441.61	6874.81	5898.63	5172.26	5172.26	9661.96
40	6182.76	5079.10	5079.10	9597.66	4349.61	6795.72	5802.76	5079.10	5079.10	9597.66
41	6091.90	4988.75	4988.75	9534.57	4260.62	6718.50	5709.62	4988.75	4988.75	9534.57
42	6003.45	4901.07	4901.07	9472.66	4174.50	6643.09	5619.08	4901.07	4901.07	9472.66
43	5917.31	4815.94	4815.94	9411.87	4091.11	6569.40	5531.02	4815.94	4815.94	9411.87
44	5833.39	4733.25	4733.25	9352.17	4010.32	6497.36	5445.33	4733.25	4733.25	9352.17
45	5751.58	4652.89	4652.89	9293.51	3932.01	6426.91	5361.92	4652.89	4652.89	9293.51

Tot Obs.	10313	25117	20646	72650	21994	72650	20646	37795	14288	10115
R-Square	0.758115	0.875598	0.911894	0.685012	0.854911	0.685012	0.911894	0.776075	0.767447	0.78175
Intercept	10.06513854	10.07316334	10.04178382	9.977765539	9.877071855	9.977765539	10.04178382	9.806128464	10.11554007	10.01269546
Age Coeff	-0.24269398	-0.29077291	-0.26309234	-0.228454858	-0.193564096	-0.228454858	-0.26309234	-0.18143763	-0.30740059	-0.27249722

Age	County=20	County=21	County=22=AB4	County=23=AB8	County=24	County=25=AB8	County=26=AB4	County=27	County=28	County=29
1	18443.08	17718.96	17653.54	17142.41	16050.70	17142.41	17653.54	15133.87	18181.13	16986.91
2	16679.20	15708.36	15830.84	15594.62	14814.04	15594.62	15830.84	14038.19	16007.46	15173.81
3	15440.98	14321.68	14560.89	14502.41	13930.12	14502.41	14560.89	13251.54	14517.45	13914.91
4	14468.81	13248.21	13569.76	13641.28	13226.05	13641.28	13569.76	12622.71	13369.60	12935.12
5	13663.16	12369.33	12752.61	12925.08	12635.30	12925.08	12752.61	12093.48	12433.77	12129.23
6	12973.47	11625.06	12056.29	12310.01	12123.96	12310.01	12056.29	11634.14	11644.22	11443.95
7	12370.01	10980.22	11449.56	11770.25	11672.02	11770.25	11449.56	11227.14	10962.49	10848.00
8	11833.58	10412.20	10912.30	11289.15	11266.51	11289.15	10912.30	10861.13	10363.86	10321.22
9	11350.95	9905.49	10430.68	10855.22	10898.49	10855.22	10430.68	10528.23	9831.42	9849.77
10	10912.59	9448.95	9994.73	10460.15	10561.48	10460.15	9994.73	10222.76	9353.02	9423.70
11	10511.38	9034.25	9596.99	10097.74	10250.61	10097.74	9596.99	9940.45	8919.61	9035.57
12	10141.81	8655.03	9231.76	9763.19	9962.13	9763.19	9231.76	9678.00	8524.27	8679.66
13	9799.56	8306.28	8894.52	9452.74	9693.07	9452.74	8894.52	9432.78	8161.57	8351.47
14	9481.15	7983.97	8581.66	9163.34	9441.04	9163.34	8581.66	9202.69	7827.14	8047.40
15	9183.73	7684.84	8290.22	8892.50	9204.07	8892.50	8290.22	8986.00	7517.45	7764.51
16	8904.95	7406.19	8017.76	8638.17	8980.54	8638.17	8017.76	8781.28	7229.59	7500.36
17	8642.83	7145.77	7762.24	8398.61	8769.08	8398.61	7762.24	8587.32	6961.12	7252.93
18	8395.70	6901.67	7521.93	8172.37	8568.51	8172.37	7521.93	8403.08	6709.97	7020.49
19	8162.13	6672.26	7295.34	7958.17	8377.84	7958.17	7295.34	8227.69	6474.40	6801.56
20	7940.87	6456.14	7081.20	7754.93	8196.21	7754.93	7081.20	8060.37	6252.91	6594.89
21	7730.86	6252.11	6878.41	7561.72	8022.86	7561.72	6878.41	7900.46	6044.20	6399.38
22	7531.15	6059.11	6686.00	7377.70	7857.12	7377.70	6686.00	7747.38	5847.11	6214.06
23	7340.92	5876.20	6503.12	7202.15	7698.43	7202.15	6503.12	7600.61	5660.68	6038.10
24	7159.43	5702.57	6329.01	7034.42	7546.24	7034.42	6329.01	7459.69	5484.00	5870.75
25	6986.04	5537.50	6163.02	6873.93	7400.12	6873.93	6163.02	7324.21	5316.32	5711.34
26	6820.15	5380.34	6004.54	6720.18	7259.63	6720.18	6004.54	7193.80	5156.94	5559.30
27	6661.26	5230.50	5853.04	6572.70	7124.42	6572.70	5853.04	7068.13	5005.24	5414.08
28	6508.88	5087.48	5708.03	6431.07	6994.13	6431.07	5708.03	6946.90	4860.66	5275.22
29	6362.59	4950.79	5569.10	6294.92	6868.47	6294.92	5569.10	6829.84	4722.71	5142.29
30	6222.01	4820.03	5435.83	6163.91	6747.16	6163.91	5435.83	6716.71	4590.93	5014.89
31	6086.79	4694.79	5307.88	6037.73	6629.95	6037.73	5307.88	6607.27	4464.92	4892.68
32	5956.59	4574.73	5184.92	5916.08	6516.60	5916.08	5184.92	6501.33	4344.30	4775.33
33	5831.14	4459.54	5066.64	5798.72	6406.90	5798.72	5066.64	6398.69	4228.73	4662.55
34	5710.16	4348.91	4952.78	5685.40	6300.66	5685.40	4952.78	6299.18	4117.91	4554.07
35	5593.39	4242.58	4843.09	5575.90	6197.69	5575.90	4843.09	6202.63	4011.55	4449.65
36	5480.63	4140.31	4737.33	5470.01	6097.82	5470.01	4737.33	6108.90	3909.39	4349.05
37	5371.64	4041.86	4635.30	5367.56	6000.92	5367.56	4635.30	6017.86	3811.18	4252.06
38	5266.24	3947.03	4536.78	5268.36	5906.82	5268.36	4536.78	5929.36	3716.72	4158.50
39	5164.25	3855.62	4441.61	5172.26	5815.40	5172.26	4441.61	5843.30	3625.78	4068.18
40	5065.49	3767.45	4349.61	5079.10	5726.53	5079.10	4349.61	5759.56	3538.18	3980.93
41	4969.82	3682.36	4260.62	4988.75	5640.10	4988.75	4260.62	5678.04	3453.75	3896.61
42	4877.08	3600.18	4174.50	4901.07	5556.00	4901.07	4174.50	5598.64	3372.32	3815.06
43	4787.14	3520.78	4091.11	4815.94	5474.12	4815.94	4091.11	5521.27	3293.74	3736.15
44	4699.86	3444.02	4010.32	4733.25	5394.38	4733.25	4010.32	5445.84	3217.87	3659.76
45	4615.14	3369.77	3932.01	4652.89	5316.68	4652.89	3932.01	5372.28	3144.58	3585.77

Tot Obs.	18267	17577	20646	91844	55280	43620	115933	281315	42721	34060
R-Square	0.678256	0.694788	0.911894	0.827238	0.64766	0.466343	0.92045	0.699116	0.185983	0.399819
Intercept	9.883047408	9.877453602	10.04178382	10.01652347	9.897715793	10.03783443	10.09201175	10.01677331	9.378897423	10.3370285
Age Coeff	-0.190271754	-0.205094876	-0.26309234	-0.2001095	-0.185720166	-0.27263	-0.23257098	-0.21296043	-0.078406661	-0.33977963

Age	County=30	County=31	County=32=AB4	County=33	County=34	County=35=AB5	County=36	County=37	County=38	County=39
1	16200.15	15872.74	17653.54	18332.19	16514.53	17417.04	19138.18	18102.64	10943.39	21965.95
2	14972.38	14579.99	15830.84	16873.94	15291.74	15557.18	17380.54	16574.19	10593.69	19082.13
3	14093.75	13659.89	14560.89	15834.14	14415.21	14265.87	16142.12	15489.46	10332.95	17128.74
4	13393.22	12929.46	13569.76	15007.49	13715.41	13260.89	15166.89	14630.34	10118.13	15638.16
5	12804.95	12318.38	12752.61	14315.03	13127.08	12434.31	14356.63	13913.01	9932.57	14432.79
6	12295.38	11790.81	12056.29	13716.53	12616.95	11731.47	13661.43	13294.81	9767.75	13423.23
7	11844.70	11325.63	11449.56	13188.28	12165.34	11120.25	13051.87	12750.59	9618.59	12557.28
8	11440.07	10909.16	10912.30	12714.88	11759.54	10580.00	12508.98	12264.08	9481.80	11801.55
9	11072.64	10531.95	10430.68	12285.75	11390.73	10096.50	12019.66	11824.06	9355.10	11133.23
10	10735.97	10187.19	9994.73	11893.20	11052.56	9659.55	11574.48	11422.42	9236.83	10535.98
11	10425.26	9869.76	9596.99	11531.47	10740.23	9261.52	11166.36	11053.07	9125.72	9997.67
12	10136.79	9575.70	9231.76	11196.13	10450.05	8896.53	10789.86	10711.32	9020.80	9509.03
13	9867.61	9301.90	8894.52	10883.67	10179.10	8559.98	10440.68	10393.48	8921.31	9062.82
14	9615.35	9045.83	8581.66	10591.24	9925.02	8248.17	10115.36	10096.54	8826.61	8653.24
15	9378.06	8805.44	8290.22	10316.53	9685.88	7958.08	9811.09	9818.08	8736.19	8275.61
16	9154.13	8579.01	8017.76	10057.62	9460.07	7687.22	9525.50	9556.07	8649.62	7926.05
17	8942.20	8365.12	7762.24	9812.88	9246.24	7433.50	9256.65	9308.80	8566.53	7601.35
18	8741.11	8162.53	7521.93	9580.94	9043.23	7195.16	9002.85	9074.82	8486.62	7298.80
19	8549.88	7970.21	7295.34	9360.62	8850.07	6970.68	8762.69	8852.90	8409.61	7016.10
20	8367.63	7787.24	7081.20	9150.89	8665.89	6758.77	8534.93	8641.97	8335.28	6751.28
21	8193.63	7612.83	6878.41	8950.87	8489.96	6558.30	8318.50	8441.08	8263.41	6502.63
22	8027.22	7446.31	6686.00	8759.79	8321.61	6368.29	8112.47	8249.44	8193.84	6268.68
23	7867.82	7287.04	6503.12	8576.94	8160.28	6187.87	7915.99	8066.31	8126.39	6048.12
24	7714.91	7134.50	6329.01	8401.72	8005.44	6016.29	7728.35	7891.05	8060.93	5839.82
25	7568.03	6988.21	6163.02	8233.58	7856.65	5852.85	7548.90	7723.10	7997.34	5642.77
26	7426.78	6847.72	6004.54	8072.04	7713.48	5696.96	7377.04	7561.95	7935.49	5456.08
27	7290.78	6712.65	5853.04	7916.65	7575.58	5548.08	7212.26	7407.13	7875.28	5278.95
28	7159.70	6582.66	5708.03	7767.03	7442.61	5405.72	7054.08	7258.24	7816.63	5110.66
29	7033.24	6457.41	5569.10	7622.81	7314.27	5269.43	6902.08	7114.90	7759.43	4950.58
30	6911.11	6336.63	5435.83	7483.67	7190.27	5138.82	6755.88	6976.77	7703.63	4798.12
31	6793.08	6220.05	5307.88	7349.30	7070.38	5013.53	6615.11	6843.54	7649.13	4652.76
32	6678.89	6107.43	5184.92	7219.44	6954.36	4893.22	6479.45	6714.92	7595.89	4514.03
33	6568.36	5998.55	5066.64	7093.84	6842.00	4777.60	6348.62	6590.66	7543.83	4381.49
34	6461.28	5893.20	4952.78	6972.26	6733.10	4666.39	6222.34	6470.52	7492.91	4254.74
35	6357.46	5791.21	4843.09	6854.49	6627.48	4559.34	6100.36	6354.27	7443.06	4133.44
36	6256.75	5692.38	4737.33	6740.35	6524.99	4456.21	5982.45	6241.72	7394.25	4017.24
37	6159.00	5596.58	4635.30	6629.63	6425.46	4356.79	5868.40	6132.67	7346.42	3905.85
38	6064.05	5503.63	4536.78	6522.19	6328.76	4260.88	5758.01	6026.95	7299.54	3798.97
39	5971.78	5413.42	4441.61	6417.86	6234.75	4168.29	5651.11	5924.41	7253.56	3696.37
40	5882.07	5325.81	4349.61	6316.50	6143.31	4078.85	5547.51	5824.88	7208.46	3597.78
41	5794.79	5240.68	4260.62	6217.96	6054.31	3992.41	5447.06	5728.23	7164.19	3503.01
42	5709.84	5157.91	4174.50	6122.13	5967.67	3908.82	5349.61	5634.32	7120.72	3411.83
43	5627.11	5077.41	4091.11	6028.89	5883.27	3827.93	5255.03	5543.04	7078.03	3324.07
44	5546.53	4999.07	4010.32	5938.12	5801.01	3749.63	5163.19	5454.27	7036.08	3239.54
45	5467.99	4922.81	3932.01	5849.71	5720.82	3673.78	5073.97	5367.90	6994.85	3158.07

Tot Obs.	28739	65369	38845	110818	31689	28730	20646	72650	22355	57665
R-Square	0.697313	0.48593	0.168876	0.851663	0.384112	0.912654	0.911894	0.685012	0.592889	0.944529
Intercept	9.876239464	10.09536737	9.672329373	9.767406226	9.899804838	10.17920494	10.04178382	9.977765539	9.888971676	9.964691137
Age Coeff	-0.201979162	-0.28010115	-0.14067893	-0.156332971	-0.24957784	-0.29920208	-0.26309234	-0.228454858	-0.198145052	-0.225017312

Age	County=40	County=41	County=42	County=43	County=44	County=45	County=46=AB4	County=47=AB8	County=48	County=49
1	15902.96	18311.16	13789.33	14929.18	15525.31	19535.78	17653.54	17142.41	16168.60	16978.00
2	14626.61	16305.28	13008.77	13993.08	14000.50	17258.66	15830.84	15594.62	14894.57	15467.07
3	13717.14	14916.42	12439.92	13314.77	12932.82	15693.03	14560.89	14502.41	13985.47	14399.51
4	12994.50	13837.88	11979.73	12768.55	12096.23	14484.01	13569.76	13641.28	13262.31	13556.98
5	12389.45	12952.47	11588.42	12305.91	11404.14	13496.27	12752.61	12925.08	12656.24	12855.63
6	11866.73	12200.87	11245.66	11902.10	10812.59	12661.39	12056.29	12310.01	12132.19	12252.85
7	11405.52	11548.25	10939.42	11542.46	10295.72	11939.30	11449.56	11770.25	11669.44	11723.51
8	10992.36	10972.22	10661.87	11217.49	9836.86	11304.25	10912.30	11289.15	11254.61	11251.38
9	10617.96	10457.39	10407.61	10920.61	9424.53	10738.59	10430.68	10855.22	10878.42	10825.28
10	10275.58	9992.70	10172.71	10647.05	9050.46	10229.64	9994.73	10460.15	10534.20	10437.12
11	9960.18	9569.89	9954.20	10393.21	8708.45	9767.97	9596.99	10097.74	10216.90	10080.85
12	9667.87	9182.63	9749.81	10156.34	8393.74	9346.33	9231.76	9763.19	9922.67	9751.81
13	9395.57	8825.92	9557.72	9934.21	8102.59	8959.02	8894.52	9452.74	9648.42	9446.31
14	9140.79	8495.78	9376.45	9725.06	7831.98	8601.51	8581.66	9163.34	9391.69	9161.39
15	8901.52	8188.94	9204.82	9527.44	7579.44	8270.09	8290.22	8892.50	9150.46	8894.63
16	8676.06	7902.72	9041.80	9340.12	7342.93	7961.69	8017.76	8638.17	8923.04	8644.01
17	8462.99	7634.87	8886.56	9162.08	7120.76	7673.77	7762.24	8398.61	8708.01	8407.85
18	8261.11	7383.47	8738.37	8992.46	6911.46	7404.17	7521.93	8172.37	8504.18	8184.71
19	8069.39	7146.91	8596.62	8830.50	6713.80	7151.04	7295.34	7958.17	8310.52	7973.38
20	7886.92	6923.78	8460.76	8675.55	6526.71	6912.82	7081.20	7754.93	8126.13	7772.78
21	7712.94	6712.88	8330.32	8527.05	6349.27	6688.12	6878.41	7561.72	7950.24	7580.00
22	7546.76	6513.14	8204.90	8384.50	6180.66	6475.77	6686.00	7377.70	7782.16	7400.23
23	7387.77	6323.63	8084.12	8247.45	6020.17	6274.71	6503.12	7202.15	7621.29	7226.76
24	7235.45	6143.55	7967.66	8115.53	5867.17	6084.01	6329.01	7034.42	7467.11	7060.96
25	7089.31	5972.15	7855.23	7988.36	5721.10	5902.87	6163.02	6873.93	7319.13	6902.26
26	6948.94	5808.78	7746.56	7865.66	5581.44	5730.56	6004.54	6720.18	7176.92	6750.17
27	6813.93	5652.87	7641.43	7747.12	5447.76	5566.41	5853.04	6572.70	7040.11	6604.24
28	6683.96	5503.90	7539.62	7632.49	5319.65	5409.85	5708.03	6431.07	6908.35	6464.05
29	6558.70	5361.38	7440.92	7521.55	5196.74	5260.35	5569.10	6294.92	6781.33	6329.24
30	6437.88	5224.90	7345.18	7414.07	5078.70	5117.43	5435.83	6163.91	6658.75	6199.48
31	6321.22	5094.06	7252.22	7309.87	4965.23	4980.66	5307.88	6037.73	6540.35	6074.46
32	6208.49	4968.51	7161.89	7208.77	4856.04	4849.65	5184.92	5916.08	6425.91	5953.90
33	6099.47	4847.94	7074.06	7110.60	4750.90	4724.04	5066.64	5798.72	6315.20	5837.54
34	5993.97	4732.04	6988.61	7015.21	4649.56	4603.50	4952.78	5685.40	6208.02	5725.16
35	5891.79	4620.54	6905.42	6922.47	4551.82	4487.73	4843.09	5575.90	6104.18	5616.54
36	5792.76	4513.19	6824.37	6832.24	4457.48	4376.45	4737.33	5470.01	6003.52	5511.47
37	5696.73	4409.77	6745.38	6744.41	4366.35	4269.40	4635.30	5367.56	5905.87	5409.78
38	5603.55	4310.06	6668.34	6658.87	4278.27	4166.37	4536.78	5268.36	5811.09	5311.30
39	5513.09	4213.87	6593.17	6575.51	4193.08	4067.11	4441.61	5172.26	5719.04	5215.86
40	5425.21	4121.00	6519.79	6494.23	4110.65	3971.44	4349.61	5079.10	5629.59	5123.31
41	5339.79	4031.30	6448.13	6414.95	4030.83	3879.17	4260.62	4988.75	5542.63	5033.53
42	5256.73	3944.61	6378.10	6337.58	3953.50	3790.12	4174.50	4901.07	5458.04	4946.38
43	5175.93	3860.77	6309.65	6262.05	3878.54	3704.14	4091.11	4815.94	5375.72	4861.75
44	5097.27	3779.65	6242.72	6188.27	3805.84	3621.06	4010.32	4733.25	5295.57	4779.52
45	5020.69	3701.12	6177.24	6116.18	3735.31	3540.76	3932.01	4652.89	5217.50	4699.58

Tot Obs.	56084	72650	7457	72650	14856	20646	69298	3523	72650
R-Square	0.821404	0.685012	0.845733	0.685012	0.701578	0.911894	0.940948	0.542451	0.685012
Intercept	9.967355839	9.977765539	10.14659895	9.977765539	10.04187605	10.04178382	9.96821693	10.40716754	9.977765539
Age Coeff	-0.225566627	-0.228454858	-0.28520728	-0.228454858	-0.24312952	-0.26309234	-0.215873944	-0.36410587	-0.228454858

Age	County=50	County=51=AB8	County=52	County=53=AB8	County=54	County=55=AB4	County=56	County=57	County=58=AB8
1	17013.96	17142.41	19175.56	17142.41	18011.15	17653.54	17194.47	22995.68	17142.41
2	15496.30	15594.62	17038.91	15594.62	16285.64	15830.84	15723.71	19776.39	15594.62
3	14424.21	14502.41	15562.28	14502.41	15074.55	14560.89	14681.04	17615.20	14502.41
4	13578.22	13641.28	14417.30	13641.28	14123.81	13569.76	13855.94	15977.80	13641.28
5	12874.11	12925.08	13478.57	12925.08	13335.99	12752.61	13167.52	14661.82	12925.08
6	12269.02	12310.01	12682.60	12310.01	12661.65	12056.29	12574.62	13565.62	12310.01
7	11737.72	11770.25	11992.20	11770.25	12071.66	11449.56	12052.99	12630.05	11770.25
8	11263.89	11289.15	11383.39	11289.15	11547.24	10912.30	11586.93	11817.31	11289.15
9	10836.29	10855.22	10839.77	10855.22	11075.46	10430.68	11165.62	11101.66	10855.22
10	10446.81	10460.15	10349.51	10460.15	10647.00	9994.73	10781.25	10464.71	10460.15
11	10089.35	10097.74	9903.80	10097.74	10254.86	9596.99	10427.94	9892.82	10097.74
12	9759.24	9763.19	9495.87	9763.19	9893.67	9231.76	10101.18	9375.62	9763.19
13	9452.78	9452.74	9120.40	9452.74	9559.21	8894.52	9797.40	8904.97	9452.74
14	9166.98	9163.34	8773.15	9163.34	9248.06	8581.66	9513.72	8474.43	9163.34
15	8899.41	8892.50	8450.63	8892.50	8957.44	8290.22	9247.80	8078.74	8892.50
16	8648.05	8638.17	8149.97	8638.17	8685.05	8017.76	8997.67	7713.63	8638.17
17	8411.21	8398.61	7868.79	8398.61	8428.95	7762.24	8761.71	7375.51	8398.61
18	8187.45	8172.37	7605.04	8172.37	8187.51	7521.93	8538.51	7061.39	8172.37
19	7975.53	7958.17	7357.01	7958.17	7959.32	7295.34	8326.88	6768.72	7958.17
20	7774.40	7754.93	7123.21	7754.93	7743.18	7081.20	8125.80	6495.32	7754.93
21	7583.12	7561.72	6902.33	7561.72	7538.03	6878.41	7934.36	6239.31	7561.72
22	7400.88	7377.70	6693.27	7377.70	7342.96	6686.00	7751.78	5999.07	7377.70
23	7226.98	7202.15	6495.03	7202.15	7157.15	6503.12	7577.37	5773.17	7202.15
24	7060.77	7034.42	6306.74	7034.42	6979.90	6329.01	7410.51	5560.37	7034.42
25	6901.70	6873.93	6127.63	6873.93	6810.55	6163.02	7250.66	5359.57	6873.93
26	6749.25	6720.18	5957.00	6720.18	6648.55	6004.54	7097.31	5169.78	6720.18
27	6602.99	6572.70	5794.23	6572.70	6493.38	5853.04	6950.04	4990.13	6572.70
28	6462.49	6431.07	5638.78	6431.07	6344.58	5708.03	6808.45	4819.86	6431.07
29	6327.39	6294.92	5490.15	6294.92	6201.73	5569.10	6672.17	4658.26	6294.92
30	6197.35	6163.91	5347.87	6163.91	6064.46	5435.83	6540.88	4504.70	6163.91
31	6072.06	6037.73	5211.55	6037.73	5932.42	5307.88	6414.28	4358.62	6037.73
32	5951.26	5916.08	5080.79	5916.08	5805.31	5184.92	6292.10	4219.51	5916.08
33	5834.68	5798.72	4955.27	5798.72	5682.82	5066.64	6174.08	4086.89	5798.72
34	5722.08	5685.40	4834.67	5685.40	5564.71	4952.78	6060.01	3960.33	5685.40
35	5613.25	5575.90	4718.71	5575.90	5450.72	4843.09	5949.66	3839.46	5575.90
36	5508.00	5470.01	4607.11	5470.01	5340.63	4737.33	5842.85	3723.92	5470.01
37	5406.12	5367.56	4499.63	5367.56	5234.24	4635.30	5739.38	3613.38	5367.56
38	5307.47	5268.36	4396.06	5268.36	5131.35	4536.78	5639.10	3507.53	5268.36
39	5211.86	5172.26	4296.17	5172.26	5031.80	4441.61	5541.86	3406.11	5172.26
40	5119.17	5079.10	4199.79	5079.10	4935.40	4349.61	5447.49	3308.86	5079.10
41	5029.24	4988.75	4106.73	4988.75	4842.02	4260.62	5355.87	3215.55	4988.75
42	4941.96	4901.07	4016.81	4901.07	4751.50	4174.50	5266.88	3125.94	4901.07
43	4857.20	4815.94	3929.90	4815.94	4663.72	4091.11	5180.40	3039.86	4815.94
44	4774.84	4733.25	3845.84	4733.25	4578.55	4010.32	5096.31	2957.09	4733.25
45	4694.79	4652.89	3764.50	4652.89	4495.87	3932.01	5014.51	2877.48	4652.89

Appendix 7.1-4

Mobile Home Accrual -Results

Tot Obs.	34364
R-Square	0.178236
Intercept	5264.222892
logage coef	-419.925795

Age	1 Param Estm
1	5264.222892
2	4973.152511
3	4802.887253
4	4682.08213
5	4588.378397
6	4511.816872
7	4447.085026
8	4391.011749
9	4341.551615
10	4297.308016
11	4257.284813
12	4220.746492
13	4187.134494
14	4156.014645
15	4127.042758
16	4099.941369
17	4074.483526
18	4050.481234
19	4027.777013
20	4006.237635
21	3985.749387
22	3966.214432
23	3947.547991
24	3929.676111
25	3912.533902
26	3896.064113
27	3880.215976
28	3864.944264
29	3850.208514
30	3835.972378
31	3822.203085
32	3808.870988
33	3795.949175
34	3783.413145
35	3771.240531
36	3759.410853
37	3747.905317
38	3736.706632
39	3725.798855
40	3715.167255
41	3704.79819
42	3694.679006
43	3684.797943
44	3675.144052
45	3665.70712

Appendix 7.1-5 – PC Accrual: Air Basin Results

R-Square	0.9499	0.9503	0.9499	0.9499	0.9383	0.9503	0.9503	0.9503	0.872	0.8811	0.9653	0.9514	0.6591	0.8776
Intercept	9.761838	9.624282	9.761838	9.761838	9.508686	9.624282	9.624282	9.624282	9.563329	9.516958	9.561448	9.579751	9.5045	9.497027
Age Coeff	-0.054805	-0.043001	-0.054805	-0.054805	-0.037785	-0.043001	-0.043001	-0.043001	-0.032963	-0.037601	-0.037745	-0.041323	-0.026337	-0.034679

Age	Basin = 1	Basin =2	Basin = 3	Basin = 4	Basin = 5	Basin = 6	Basin = 7	Basin = 8	Basin = 9	Basin = 10	Basin = 11	Basin = 12	Basin = 13	Basin = 14
1	16432.77	14490.97	16432.77	16432.77	12976.57	14490.97	14490.97	14490.97	13771.63	13086.77	13680.18	13883.11	13071.15	12866.06
2	15556.41	13881.05	15556.41	15556.41	12495.40	13881.05	13881.05	13881.05	13325.08	12603.83	13173.44	13321.11	12731.39	12427.52
3	14726.78	13296.80	14726.78	14726.78	12032.07	13296.80	13296.80	13296.80	12893.00	12138.71	12685.48	12781.86	12400.46	12003.94
4	13941.40	12737.15	13941.40	13941.40	11585.92	12737.15	12737.15	12737.15	12474.94	11690.76	12215.59	12264.44	12078.13	11594.79
5	13197.90	12201.05	13197.90	13197.90	11156.32	12201.05	12201.05	12201.05	12070.43	11259.34	11763.10	11767.96	11764.18	11199.58
6	12494.05	11687.51	12494.05	12494.05	10742.64	11687.51	11687.51	11687.51	11679.04	10843.84	11327.38	11291.58	11458.40	10817.85
7	11827.74	11195.59	11827.74	11827.74	10344.30	11195.59	11195.59	11195.59	11300.34	10443.67	10907.80	10834.49	11160.56	10449.13
8	11196.96	10724.37	11196.96	11196.96	9960.73	10724.37	10724.37	10724.37	10933.92	10058.27	10503.75	10395.90	10870.46	10092.98
9	10599.83	10272.99	10599.83	10599.83	9591.39	10272.99	10272.99	10272.99	10579.38	9687.09	10114.68	9975.07	10587.90	9748.96
10	10034.54	9840.60	10034.54	10034.54	9235.74	9840.60	9840.60	9840.60	10236.34	9329.61	9740.02	9571.27	10312.69	9416.67
11	9499.39	9426.41	9499.39	9499.39	8893.28	9426.41	9426.41	9426.41	9904.42	8985.32	9379.23	9183.82	10044.63	9095.71
12	8992.79	9029.66	8992.79	8992.79	8563.51	9029.66	9029.66	9029.66	9583.26	8653.73	9031.81	8812.05	9783.53	8785.69
13	8513.20	8649.61	8513.20	8513.20	8245.98	8649.61	8649.61	8649.61	9272.52	8334.38	8697.26	8455.33	9529.23	8486.23
14	8059.19	8285.55	8059.19	8059.19	7940.22	8285.55	8285.55	8285.55	8971.85	8026.82	8375.10	8113.05	9281.53	8196.98
15	7629.39	7936.81	7629.39	7629.39	7645.79	7936.81	7936.81	7936.81	8680.93	7730.61	8064.87	7784.63	9040.28	7917.59
16	7222.51	7602.76	7222.51	7222.51	7362.29	7602.76	7602.76	7602.76	8399.45	7445.33	7766.14	7469.50	8805.29	7647.72
17	6837.33	7282.76	6837.33	6837.33	7089.29	7282.76	7282.76	7282.76	8127.09	7170.57	7478.47	7167.13	8576.41	7387.05
18	6472.70	6976.23	6472.70	6472.70	6826.42	6976.23	6976.23	6976.23	7863.56	6905.96	7201.45	6876.99	8353.48	7135.27
19	6127.51	6682.60	6127.51	6127.51	6573.30	6682.60	6682.60	6682.60	7608.58	6651.11	6934.70	6598.61	8136.35	6892.06
20	5800.72	6401.34	5800.72	5800.72	6329.56	6401.34	6401.34	6401.34	7361.87	6405.66	6677.83	6331.49	7924.86	6657.15
21	5491.37	6131.91	5491.37	5491.37	6094.86	6131.91	6131.91	6131.91	7123.15	6169.28	6430.47	6075.19	7718.87	6430.25
22	5198.51	5873.82	5198.51	5198.51	5868.86	5873.82	5873.82	5873.82	6892.18	5941.61	6192.28	5829.26	7518.23	6211.07
23	4921.28	5626.59	4921.28	4921.28	5651.24	5626.59	5626.59	5626.59	6668.70	5722.35	5962.90	5593.28	7322.81	5999.37
24	4658.82	5389.77	4658.82	4658.82	5441.70	5389.77	5389.77	5389.77	6452.46	5511.18	5742.03	5366.86	7132.46	5794.89
25	4410.37	5162.92	4410.37	4410.37	5239.92	5162.92	5162.92	5162.92	6243.24	5307.80	5529.34	5149.61	6947.07	5597.37
26	4175.16	4945.61	4175.16	4175.16	5045.62	4945.61	4945.61	4945.61	6040.80	5111.93	5324.52	4941.15	6766.49	5406.59
27	3952.50	4737.45	3952.50	3952.50	4858.53	4737.45	4737.45	4737.45	5844.92	4923.28	5127.29	4741.13	6590.61	5222.30
28	3741.71	4538.06	3741.71	3741.71	4678.37	4538.06	4538.06	4538.06	5655.39	4741.60	4937.37	4549.20	6419.30	5044.30
29	3542.16	4347.05	3542.16	3542.16	4504.90	4347.05	4347.05	4347.05	5472.01	4566.62	4754.48	4365.05	6252.44	4872.37
30	3353.26	4164.09	3353.26	3353.26	4337.86	4164.09	4164.09	4164.09	5294.58	4398.10	4578.37	4188.35	6089.92	4706.30
31	3174.43	3988.82	3174.43	3174.43	4177.01	3988.82	3988.82	3988.82	5122.90	4235.80	4408.78	4018.80	5931.62	4545.89
32	3005.14	3820.93	3005.14	3005.14	4022.13	3820.93	3820.93	3820.93	4956.79	4079.48	4245.47	3856.11	5777.44	4390.94
33	2844.87	3660.11	2844.87	2844.87	3872.99	3660.11	3660.11	3660.11	4796.06	3928.94	4088.21	3700.01	5627.27	4241.28
34	2693.15	3506.06	2693.15	2693.15	3729.38	3506.06	3506.06	3506.06	4640.54	3783.95	3936.78	3550.23	5481.00	4096.72
35	2549.53	3358.49	2549.53	2549.53	3591.09	3358.49	3358.49	3358.49	4490.07	3644.31	3790.95	3406.52	5338.53	3957.08
36	2413.56	3217.13	2413.56	2413.56	3457.93	3217.13	3217.13	3217.13	4344.48	3509.83	3650.53	3268.62	5199.76	3822.21
37	2284.84	3081.73	2284.84	2284.84	3329.71	3081.73	3081.73	3081.73	4203.61	3380.30	3515.31	3136.30	5064.60	3691.93
38	2162.99	2952.02	2162.99	2162.99	3206.25	2952.02	2952.02	2952.02	4067.30	3255.56	3385.10	3009.34	4932.96	3566.09
39	2047.64	2827.77	2047.64	2047.64	3087.36	2827.77	2827.77	2827.77	3935.42	3135.42	3259.71	2887.52	4804.73	3444.54
40	1938.44	2708.75	1938.44	1938.44	2972.88	2708.75	2708.75	2708.75	3807.81	3019.72	3138.96	2770.63	4679.84	3327.14
41	1835.06	2594.74	1835.06	1835.06	2862.64	2594.74	2594.74	2594.74	3684.34	2908.28	3022.69	2658.48	4558.20	3213.73
42	1737.20	2485.53	1737.20	1737.20	2756.50	2485.53	2485.53	2485.53	3564.87	2800.96	2910.73	2550.86	4439.72	3104.19
43	1644.55	2380.91	1644.55	1644.55	2654.29	2380.91	2380.91	2380.91	3449.28	2697.59	2802.91	2447.60	4324.31	2998.39
44	1556.85	2280.70	1556.85	1556.85	2555.87	2280.70	2280.70	2280.70	3337.43	2598.04	2699.08	2348.52	4211.91	2896.19
45	1473.82	2184.71	1473.82	1473.82	2461.09	2184.71	2184.71	2184.71	3229.21	2502.17	2599.11	2253.45	4102.43	2797.47

R-Square	0.7566	0.9499	0.9499	0.8717	0.9499	0.5843	0.8853	0.9503	0.9058	0.9675	0.8228
Intercept	9.524713	9.761838	9.761838	9.593315	9.761838	9.672397	9.566693	9.624282	9.805313	9.582061	9.526736
Age Coeff	-0.035933	-0.054805	-0.054805	-0.04344	-0.054805	-0.0497	-0.039767	-0.043001	-0.055998	-0.038307	-0.032686

Age	County =1	County = 2	County =3	County =4	County =5	County =6	County =7	County =8	County =9	County =10	CA State
1	13210.67	16432.77	16432.77	14042.94	16432.77	15103.73	13724.34	14490.97	17142.48	13957.24	13280.47
2	12744.40	15556.41	15556.41	13445.97	15556.41	14371.42	13189.27	13881.05	16208.92	13432.70	12853.40
3	12294.58	14726.78	14726.78	12874.39	14726.78	13674.62	12675.07	13296.80	15326.20	12927.86	12440.07
4	11860.64	13941.40	13941.40	12327.10	13941.40	13011.61	12180.91	12737.15	14491.55	12442.00	12040.03
5	11442.02	13197.90	13197.90	11803.07	13197.90	12380.74	11706.01	12201.05	13702.36	11974.40	11652.85
6	11038.18	12494.05	12494.05	11301.32	12494.05	11780.45	11249.64	11687.51	12956.14	11524.37	11278.12
7	10648.58	11827.74	11827.74	10820.90	11827.74	11209.28	10811.05	11195.59	12250.56	11091.25	10915.44
8	10272.74	11196.96	11196.96	10360.91	11196.96	10665.79	10389.56	10724.37	11583.41	10674.41	10564.43
9	9910.16	10599.83	10599.83	9920.46	10599.83	10148.66	9984.51	10272.99	10952.59	10273.24	10224.70
10	9560.38	10034.54	10034.54	9498.75	10034.54	9656.60	9595.25	9840.60	10356.12	9887.15	9895.90
11	9222.95	9499.39	9499.39	9094.95	9499.39	9188.40	9221.16	9426.41	9792.14	9515.56	9577.67
12	8897.42	8992.79	8992.79	8708.33	8992.79	8742.90	8861.66	9029.66	9258.87	9157.94	9269.68
13	8583.39	8513.20	8513.20	8338.14	8513.20	8319.00	8516.17	8649.61	8754.64	8813.77	8971.59
14	8280.44	8059.19	8059.19	7983.68	8059.19	7915.65	8184.15	8285.55	8277.87	8482.52	8683.08
15	7988.18	7629.39	7629.39	7644.30	7629.39	7531.86	7865.08	7936.81	7827.07	8163.73	8403.86
16	7706.23	7222.51	7222.51	7319.34	7222.51	7166.67	7558.45	7602.76	7400.81	7856.91	8133.61
17	7434.24	6837.33	6837.33	7008.19	6837.33	6819.20	7263.77	7282.76	6997.77	7561.63	7872.05
18	7171.85	6472.70	6472.70	6710.27	6472.70	6488.57	6980.58	6976.23	6616.68	7277.44	7618.91
19	6918.72	6127.51	6127.51	6425.02	6127.51	6173.97	6708.43	6682.60	6256.34	7003.94	7373.90
20	6674.52	5800.72	5800.72	6151.89	5800.72	5874.62	6446.89	6401.34	5915.63	6740.71	7136.77
21	6438.95	5491.37	5491.37	5890.38	5491.37	5589.79	6195.55	6131.91	5593.47	6487.38	6907.27
22	6211.68	5198.51	5198.51	5639.98	5198.51	5318.77	5954.00	5873.82	5288.85	6243.57	6685.15
23	5992.44	4921.28	4921.28	5400.22	4921.28	5060.89	5721.88	5626.59	5000.83	6008.92	6470.17
24	5780.94	4658.82	4658.82	5170.66	4658.82	4815.51	5498.80	5389.77	4728.49	5783.09	6262.11
25	5576.90	4410.37	4410.37	4950.85	4410.37	4582.03	5284.42	5162.92	4470.98	5565.74	6060.73
26	5380.06	4175.16	4175.16	4740.39	4175.16	4359.87	5078.40	4945.61	4227.50	5356.57	5865.83
27	5190.17	3952.50	3952.50	4538.88	3952.50	4148.48	4880.41	4737.45	3997.27	5155.26	5677.20
28	5006.98	3741.71	3741.71	4345.93	3741.71	3947.34	4690.14	4538.06	3779.58	4961.51	5494.64
29	4830.26	3542.16	3542.16	4161.18	3542.16	3755.95	4507.28	4347.05	3573.75	4775.04	5317.94
30	4659.78	3353.26	3353.26	3984.29	3353.26	3573.84	4331.56	4164.09	3379.13	4595.58	5146.93
31	4495.31	3174.43	3174.43	3814.92	3174.43	3400.57	4162.69	3988.82	3195.10	4422.87	4981.42
32	4336.65	3005.14	3005.14	3652.75	3005.14	3235.69	4000.40	3820.93	3021.10	4256.65	4821.23
33	4183.59	2844.87	2844.87	3497.47	2844.87	3078.81	3844.44	3660.11	2856.58	4096.67	4666.19
34	4035.93	2693.15	2693.15	3348.79	2693.15	2929.53	3694.55	3506.06	2701.01	3942.71	4516.14
35	3893.48	2549.53	2549.53	3206.43	2549.53	2787.49	3550.52	3358.49	2553.92	3794.53	4370.91
36	3756.06	2413.56	2413.56	3070.13	2413.56	2652.34	3412.09	3217.13	2414.83	3651.92	4230.35
37	3623.49	2284.84	2284.84	2939.62	2284.84	2523.74	3279.07	3081.73	2283.32	3514.67	4094.31
38	3495.60	2162.99	2162.99	2814.66	2162.99	2401.38	3151.23	2952.02	2158.98	3382.58	3962.65
39	3372.22	2047.64	2047.64	2695.00	2047.64	2284.94	3028.37	2827.77	2041.40	3255.46	3835.22
40	3253.20	1938.44	1938.44	2580.44	1938.44	2174.16	2910.30	2708.75	1930.23	3133.11	3711.89
41	3138.37	1835.06	1835.06	2470.74	1835.06	2068.74	2796.84	2594.74	1825.11	3015.36	3592.52
42	3027.60	1737.20	1737.20	2365.71	1737.20	1968.44	2687.80	2485.53	1725.72	2902.03	3477.00
43	2920.75	1644.55	1644.55	2265.15	1644.55	1873.00	2583.01	2380.91	1631.73	2792.97	3365.18
44	2817.66	1556.85	1556.85	2168.86	1556.85	1782.19	2482.31	2280.70	1542.87	2688.00	3256.97
45	2718.21	1473.82	1473.82	2076.66	1473.82	1695.78	2385.53	2184.71	1458.85	2586.98	3152.23

R-Square	0.9503	0.9503	0.8776	0.9499	0.7505	0.8846	0.9503	0.9503	0.7878	0.9477
Intercept	9.624282	9.624282	9.497027	9.761838	9.571294	9.600487	9.624282	9.624282	9.512399	9.628672
Age Coeff	-0.043001	-0.043001	-0.034679	-0.054805	-0.041439	-0.042562	-0.043001	-0.043001	-0.025935	-0.040219

Age	County = 11	County = 12	County = 13	County = 14	County = 15	County = 16	County = 17	County = 18	County = 19	County = 20
1	14490.97	14490.97	12866.06	16432.77	13764.60	14156.44	14490.97	14490.97	13180.11	14595.27
2	13881.05	13881.05	12427.52	15556.41	13205.86	13566.56	13881.05	13881.05	12842.68	14019.91
3	13296.80	13296.80	12003.94	14726.78	12669.81	13001.25	13296.80	13296.80	12513.88	13467.24
4	12737.15	12737.15	11594.79	13941.40	12155.51	12459.50	12737.15	12737.15	12193.51	12936.34
5	12201.05	12201.05	11199.58	13197.90	11662.09	11940.33	12201.05	12201.05	11881.34	12426.38
6	11687.51	11687.51	10817.85	12494.05	11188.70	11442.79	11687.51	11687.51	11577.15	11936.52
7	11195.59	11195.59	10449.13	11827.74	10734.53	10965.98	11195.59	11195.59	11280.76	11465.97
8	10724.37	10724.37	10092.98	11196.96	10298.79	10509.04	10724.37	10724.37	10991.96	11013.97
9	10272.99	10272.99	9748.96	10599.83	9880.74	10071.14	10272.99	10272.99	10710.54	10579.79
10	9840.60	9840.60	9416.67	10034.54	9479.66	9651.48	9840.60	9840.60	10436.34	10162.73
11	9426.41	9426.41	9095.71	9499.39	9094.86	9249.32	9426.41	9426.41	10169.15	9762.10
12	9029.66	9029.66	8785.69	8925.79	8725.68	8863.91	9029.66	9029.66	9908.80	9377.27
13	8649.61	8649.61	8486.23	8513.20	8371.49	8494.56	8649.61	8649.61	9655.12	9007.61
14	8285.55	8285.55	8196.98	8059.19	8031.67	8140.60	8285.55	8285.55	9407.94	8652.52
15	7936.81	7936.81	7917.59	7629.39	7705.65	7801.39	7936.81	7936.81	9167.08	8311.43
16	7602.76	7602.76	7647.72	7222.51	7392.86	7476.31	7602.76	7602.76	8932.39	7983.79
17	7282.76	7282.76	7387.05	6837.33	7092.77	7164.78	7282.76	7282.76	8703.70	7669.06
18	6976.23	6976.23	7135.27	6472.70	6804.86	6866.23	6976.23	6976.23	8480.88	7366.74
19	6682.60	6682.60	6892.06	6127.51	6528.63	6580.12	6682.60	6682.60	8263.75	7076.33
20	6401.34	6401.34	6657.15	5800.72	6263.62	6305.94	6401.34	6401.34	8052.19	6797.38
21	6131.91	6131.91	6430.25	5491.37	6009.37	6043.18	6131.91	6131.91	7846.04	6529.42
22	5873.82	5873.82	6211.07	5198.51	5765.44	5791.36	5873.82	5873.82	7645.17	6272.02
23	5626.59	5626.59	5999.37	4921.28	5531.40	5550.04	5626.59	5626.59	7449.44	6024.77
24	5389.77	5389.77	5794.89	4658.82	5306.87	5318.78	5389.77	5389.77	7258.72	5787.27
25	5162.92	5162.92	5597.37	4410.37	5091.46	5097.15	5162.92	5162.92	7072.89	5559.13
26	4945.61	4945.61	5406.59	4175.16	4884.78	4884.76	4945.61	4945.61	6891.81	5339.98
27	4737.45	4737.45	5222.30	3952.50	4686.50	4681.22	4737.45	4737.45	6715.37	5129.48
28	4538.06	4538.06	5044.30	3741.71	4496.26	4486.15	4538.06	4538.06	6543.44	4927.27
29	4347.05	4347.05	4872.37	3542.16	4313.75	4299.22	4347.05	4347.05	6375.92	4733.03
30	4164.09	4164.09	4706.30	3353.26	4138.65	4120.08	4164.09	4164.09	6212.69	4546.45
31	3988.82	3988.82	4545.89	3174.43	3970.65	3948.40	3988.82	3988.82	6053.63	4367.22
32	3820.93	3820.93	4390.94	3005.14	3809.47	3783.87	3820.93	3820.93	5898.65	4195.06
33	3660.11	3660.11	4241.28	2844.87	3654.84	3626.20	3660.11	3660.11	5747.64	4029.69
34	3506.06	3506.06	4096.72	2693.15	3506.48	3475.10	3506.06	3506.06	5600.49	3870.84
35	3358.49	3358.49	3957.08	2549.53	3364.14	3330.30	3358.49	3358.49	5457.11	3718.24
36	3217.13	3217.13	3822.21	2413.56	3227.59	3191.53	3217.13	3217.13	5317.40	3571.67
37	3081.73	3081.73	3691.93	2284.84	3096.57	3058.54	3081.73	3081.73	5181.26	3430.87
38	2952.02	2952.02	3566.09	2162.99	2970.88	2931.09	2952.02	2952.02	5048.61	3295.62
39	2827.77	2827.77	3444.54	2047.64	2850.28	2808.96	2827.77	2827.77	4919.36	3165.70
40	2708.75	2708.75	3327.14	1938.44	2734.58	2691.91	2708.75	2708.75	4793.42	3040.91
41	2594.74	2594.74	3213.73	1835.06	2623.58	2579.74	2594.74	2594.74	4670.70	2921.03
42	2485.53	2485.53	3104.19	1737.20	2517.08	2472.25	2485.53	2485.53	4551.12	2805.88
43	2380.91	2380.91	2998.39	1644.55	2414.91	2369.23	2380.91	2380.91	4434.61	2695.27
44	2280.70	2280.70	2896.19	1556.85	2316.88	2270.51	2280.70	2280.70	4321.07	2589.02
45	2184.71	2184.71	2797.47	1473.82	2222.84	2175.90	2184.71	2184.71	4210.45	2486.96

R-Square	0.6242	0.9499	0.9503	0.9333	0.9503	0.9499	0.8978	0.9198	0.8751	0.4325
Intercept	9.471436	9.761838	9.624282	9.549857	9.624282	9.761838	9.518987	9.494015	9.716181	9.45297
Age Coeff	-0.035443	-0.054805	-0.043001	-0.03846	-0.043001	-0.054805	-0.03813	-0.042772	-0.060555	-0.027873

Age	County =21	County = 22	County =23	County =24	County =25	County =26	County =27	County =28	County =29	County =30
1	12531.40	16432.77	14490.97	13512.86	14490.97	16432.77	13106.41	12723.97	15609.36	12395.60
2	12095.03	15556.41	13881.05	13003.02	13881.05	15556.41	12616.07	12191.22	14692.19	12054.87
3	11673.85	14726.78	13296.80	12512.42	13296.80	14726.78	12144.08	11680.77	13828.90	11723.50
4	11267.35	13941.40	12737.15	12040.33	12737.15	13941.40	11689.74	11191.69	13016.34	11401.25
5	10874.99	13197.90	12201.05	11586.05	12201.05	13197.90	11252.40	10723.09	12251.53	11087.85
6	10496.30	12494.05	11687.51	11148.91	11687.51	12494.05	10831.43	10274.12	11531.65	10783.06
7	10130.79	11827.74	11195.59	10728.26	11195.59	11827.74	10426.20	9843.94	10854.08	10486.66
8	9778.02	11196.96	10724.37	10323.49	10724.37	11196.96	10036.13	9431.77	10216.31	10198.40
9	9437.52	10599.83	10272.99	9933.99	10272.99	10599.83	9660.66	9036.86	9616.02	9918.06
10	9108.89	10034.54	9840.60	9559.18	9840.60	10034.54	9299.23	8658.48	9051.00	9645.43
11	8791.70	9499.39	9426.41	9198.51	9426.41	9499.39	8951.33	8295.95	8519.19	9380.30
12	8485.55	8992.79	9029.66	8851.45	9029.66	8992.79	8616.44	7948.60	8018.62	9122.45
13	8190.06	8513.20	8649.61	8517.49	8649.61	8513.20	8294.08	7615.79	7547.46	8871.69
14	7904.87	8059.19	8285.55	8196.13	8285.55	8059.19	7983.78	7296.92	7103.98	8627.83
15	7629.60	7629.39	7936.81	7886.89	7936.81	7629.39	7685.09	6991.39	6686.57	8390.66
16	7363.92	7222.51	7602.76	7589.32	7602.76	7222.51	7397.57	6698.66	6293.68	8160.02
17	7107.49	6837.33	7282.76	7302.97	7282.76	6837.33	7120.81	6418.19	5923.87	7935.72
18	6860.00	6472.70	6976.23	7027.43	6976.23	6472.70	6854.41	6149.46	5575.80	7717.58
19	6621.11	6127.51	6682.60	6762.29	6682.60	6127.51	6597.97	5891.98	5248.18	7505.44
20	6390.55	5800.72	6401.34	6507.15	6401.34	5800.72	6351.12	5645.28	4939.80	7299.13
21	6168.02	5491.37	6131.91	6261.64	6131.91	5491.37	6113.51	5408.91	4649.55	7098.49
22	5953.23	5198.51	5873.82	6025.39	5873.82	5198.51	5884.79	5182.44	4376.35	6903.36
23	5745.93	4921.28	5626.59	5798.05	5626.59	4921.28	5664.63	4965.45	4119.21	6713.60
24	5545.84	4658.82	5389.77	5579.29	5389.77	4658.82	5452.70	4757.54	3877.17	6529.06
25	5352.72	4410.37	5162.92	5368.79	5162.92	4410.37	5248.71	4558.35	3649.36	6349.59
26	5166.33	4175.16	4945.61	5166.22	4945.61	4175.16	5052.34	4367.49	3434.93	6175.05
27	4986.43	3952.50	4737.45	4971.30	4737.45	3952.50	4863.32	4184.62	3233.10	6005.31
28	4812.79	3741.71	4538.06	4783.74	4538.06	3741.71	4681.37	4009.41	3043.13	5840.23
29	4645.20	3542.16	4347.05	4603.25	4347.05	3542.16	4506.23	3841.53	2864.32	5679.70
30	4483.44	3353.26	4164.09	4429.57	4164.09	3353.26	4337.65	3680.69	2696.02	5523.57
31	4327.32	3174.43	3988.82	4262.44	3988.82	3174.43	4175.36	3526.58	2537.60	5371.74
32	4176.63	3005.14	3820.93	4101.62	3820.93	3005.14	4019.16	3378.92	2388.50	5224.08
33	4031.19	2844.87	3660.11	3946.87	3660.11	2844.87	3868.79	3237.44	2248.16	5080.48
34	3890.82	2693.15	3506.06	3797.95	3506.06	2693.15	3724.05	3101.89	2116.06	4940.83
35	3755.33	2549.53	3358.49	3654.66	3358.49	2549.53	3584.72	2972.01	1991.72	4805.01
36	3624.56	2413.56	3217.13	3516.77	3217.13	2413.56	3450.61	2847.57	1874.69	4672.93
37	3498.34	2284.84	3081.73	3384.08	3081.73	2284.84	3321.52	2728.35	1764.54	4544.48
38	3376.52	2162.99	2952.02	3256.40	2952.02	2162.99	3197.25	2614.11	1660.86	4419.56
39	3258.95	2047.64	2827.77	3133.53	2827.77	2047.64	3077.64	2504.66	1563.27	4298.08
40	3145.46	1938.44	2708.75	3015.31	2708.75	1938.44	2962.49	2399.79	1471.42	4179.93
41	3035.93	1835.06	2594.74	2901.54	2594.74	1835.06	2851.66	2299.31	1384.96	4065.03
42	2930.21	1737.20	2485.53	2792.07	2485.53	1737.20	2744.97	2203.03	1303.58	3953.29
43	2828.18	1644.55	2380.91	2686.72	2380.91	1644.55	2642.28	2110.79	1226.99	3844.62
44	2729.69	1556.85	2280.70	2585.35	2280.70	1556.85	2543.43	2022.41	1154.89	3738.94
45	2634.64	1473.82	2184.71	2487.81	2184.71	1473.82	2448.27	1937.73	1087.03	3636.17

R-Square	0.9106	0.9499	0.9447	0.9384	0.9383	0.3724	0.872	0.667	0.8932	0.9094
Intercept	9.707183	9.761838	9.63062	9.626858	9.508686	9.532665	9.56333	9.354373	9.507635	9.599845
Age Coeff	-0.048997	-0.054805	-0.040332	-0.041842	-0.037785	-0.027777	-0.032964	-0.035343	-0.034044	-0.040337

Age	County =31	County = 32	County =33	County =34	County =35	County =36	County =37	County =38	County =39	County =40
1	15649.37	16432.77	14622.08	14545.20	12976.57	13425.19	13771.63	11148.16	13011.53	14178.87
2	14901.08	15556.41	14044.08	13949.15	12495.40	13057.41	13325.06	10761.03	12576.02	13618.32
3	14188.57	14726.78	13488.92	13377.53	12032.07	12699.70	12892.98	10387.35	12155.09	13079.93
4	13510.13	13941.40	12955.71	12829.34	11585.92	12351.80	12474.90	10026.64	11748.24	12562.82
5	12864.13	13197.90	12443.58	12303.61	11156.32	12013.42	12070.38	9678.46	11355.02	12066.16
6	12249.02	12494.05	11951.69	11799.42	10742.64	11684.32	11678.98	9342.37	10974.95	11589.13
7	11663.32	11827.74	11479.25	11315.90	10344.30	11364.23	11300.27	9017.95	10607.61	11130.96
8	11105.62	11196.96	11025.48	10852.19	9960.73	11052.91	10933.84	8704.79	10252.56	10690.91
9	10574.60	10599.83	10589.65	10407.48	9591.39	10750.12	10579.29	8402.51	9909.40	10268.25
10	10068.96	10034.54	10171.04	9980.99	9235.74	10455.62	10236.24	8110.73	9577.72	9862.30
11	9587.51	9499.39	9768.99	9571.99	8893.28	10169.19	9904.32	7829.08	9257.15	9472.40
12	9129.07	8927.79	9382.82	9179.74	8563.51	9890.61	9583.15	7557.21	8947.30	9097.92
13	8692.55	8513.20	9011.93	8803.56	8245.98	9619.66	9272.40	7294.78	8647.82	8738.24
14	8276.91	8059.19	8655.69	8442.81	7940.22	9356.13	8971.73	7041.46	8358.37	8392.78
15	7881.14	7629.39	8313.53	8096.83	7645.79	9099.82	8680.81	6796.94	8078.61	8060.98
16	7504.30	7222.51	7984.90	7765.03	7362.29	8850.53	8399.32	6560.91	7808.21	7742.29
17	7145.47	6837.33	7669.26	7446.83	7089.29	8608.08	8126.96	6333.08	7546.86	7436.21
18	6803.80	6472.70	7366.10	7141.67	6826.42	8372.26	7863.43	6113.16	7294.26	7142.22
19	6478.47	6127.51	7074.92	6849.01	6573.30	8142.90	7608.44	5900.88	7050.11	6859.86
20	6168.70	5800.72	6795.26	6568.35	6329.56	7919.83	7361.73	5695.96	6814.14	6588.66
21	5873.74	5491.37	6526.64	6299.19	6094.86	7702.87	7123.01	5498.17	6586.06	6328.18
22	5592.88	5198.51	6268.65	6041.06	5868.86	7491.85	6892.04	5307.24	6365.62	6078.00
23	5325.45	4921.28	6020.85	5793.50	5651.24	7286.61	6668.55	5122.94	6152.56	5837.71
24	5070.81	4658.82	5782.85	5556.09	5441.70	7087.00	6452.31	4945.04	5946.62	5606.92
25	4828.34	4410.37	5554.26	5328.41	5239.92	6892.85	6243.09	4773.32	5747.58	5385.26
26	4597.47	4175.16	5334.70	5110.06	5045.62	6704.02	6040.64	4607.57	5555.21	5172.35
27	4377.64	3952.50	5123.82	4900.65	4858.53	6520.37	5844.77	4447.56	5369.27	4967.87
28	4168.31	3741.71	4921.28	4699.83	4678.37	6341.74	5655.24	4293.12	5189.55	4771.47
29	3969.00	3542.16	4726.74	4507.24	4504.90	6168.01	5471.86	4144.04	5015.85	4582.83
30	3779.22	3353.26	4539.90	4322.54	4337.86	5999.04	5294.43	4000.13	4847.97	4401.65
31	3598.51	3174.43	4360.44	4145.41	4177.01	5834.70	5122.75	3861.23	4685.70	4227.63
32	3426.45	3005.14	4188.07	3975.53	4022.13	5674.86	4956.63	3727.14	4528.87	4060.50
33	3262.61	2844.87	4022.52	3812.62	3872.99	5519.40	4795.91	3597.71	4377.28	3899.97
34	3106.60	2693.15	3863.51	3656.38	3729.38	5368.19	4640.39	3472.78	4230.77	3745.79
35	2958.06	2549.53	3710.79	3506.55	3591.09	5221.13	4489.92	3352.19	4089.16	3597.70
36	2816.61	2413.56	3564.10	3362.86	3457.93	5078.10	4344.33	3235.78	3952.29	3455.47
37	2681.94	2284.84	3423.22	3225.05	3329.71	4938.99	4203.45	3123.41	3820.00	3318.86
38	2553.70	2162.99	3287.90	3092.89	3206.25	4803.69	4067.15	3014.95	3692.15	3187.65
39	2431.59	2047.64	3157.93	2966.15	3087.36	4672.09	3935.27	2910.26	3568.57	3061.63
40	2315.32	1938.44	3033.10	2844.60	2972.88	4544.10	3807.66	2809.19	3449.12	2940.59
41	2204.61	1835.06	2913.20	2728.03	2862.64	4419.62	3684.19	2711.64	3333.68	2824.33
42	2099.19	1737.20	2798.04	2616.24	2756.50	4298.54	3564.72	2617.48	3222.09	2712.68
43	1998.82	1644.55	2687.44	2509.03	2654.29	4180.78	3449.13	2526.59	3114.25	2605.43
44	1903.24	1556.85	2581.21	2406.21	2555.87	4066.25	3337.29	2438.85	3010.01	2502.43
45	1812.24	1473.82	2479.17	2307.61	2461.09	3954.86	3229.07	2354.16	2909.26	2403.50

R-Square	0.9527	0.9078	0.9662	0.9273	0.9517	0.9499	0.9503	0.8451	0.9588	0.9395
Intercept	9.538858	9.570334	9.538464	9.483992	9.596519	9.761838	9.624282	9.6484	9.558463	9.524085
Age Coeff	-0.044528	-0.043771	-0.037554	-0.036474	-0.042076	-0.054805	-0.043001	-0.044984	-0.040254	-0.038094

Age	County =41	County =42	County =43	County =44	County =45	County =46	County =47	County =48	County =49	County =50
1	13284.19	13719.36	13371.89	12676.66	14107.23	16432.77	14490.97	14815.30	13605.22	13173.88
2	12705.65	13131.80	12879.03	12222.62	13525.97	15556.41	13881.05	14163.62	13068.43	12681.47
3	12152.30	12569.41	12404.34	11784.85	12968.66	14726.78	13296.80	13540.60	12552.82	12207.47
4	11623.06	12031.10	11947.15	11362.75	12434.31	13941.40	12737.15	12944.99	12057.56	11751.18
5	11116.86	11515.84	11506.81	10955.78	11921.98	13197.90	12201.05	12375.57	11581.83	11311.95
6	10632.71	11022.66	11082.69	10563.37	11430.76	12494.05	11687.51	11831.21	11124.88	10889.14
7	10169.64	10550.59	10674.21	10185.03	10959.77	11827.74	11195.59	11310.79	10685.95	10482.13
8	9726.74	10098.74	10280.79	9820.23	10508.20	11196.96	10724.37	10813.26	10264.34	10090.33
9	9303.13	9666.24	9901.86	9468.50	10075.23	10599.83	10272.99	10337.61	9859.36	9713.18
10	8897.97	9252.27	9536.90	9129.37	9660.10	10034.54	9840.60	9882.89	9470.37	9350.13
11	8510.45	8856.02	9185.39	8802.39	9262.07	9499.39	9426.41	9448.17	9096.72	9000.64
12	8139.81	8476.75	8846.84	8487.11	8880.45	8992.79	9029.66	9032.57	8737.81	8664.22
13	7785.31	8113.71	8520.77	8183.13	8514.54	8513.20	8649.61	8635.25	8393.06	8340.37
14	7446.25	7766.23	8206.71	7890.04	8163.72	8059.19	8285.55	8255.41	8061.92	8028.63
15	7121.96	7433.63	7904.24	7607.44	7827.35	7629.39	7936.81	7892.28	7743.84	7728.54
16	6811.79	7115.27	7612.90	7334.97	7504.84	7222.51	7602.76	7545.12	7438.31	7439.66
17	6515.13	6810.54	7332.31	7072.25	7195.61	6837.33	7282.76	7213.23	7144.84	7161.59
18	6231.39	6518.87	7062.06	6818.94	6899.13	6472.70	6976.23	6895.94	6862.94	6893.91
19	5960.00	6239.69	6801.77	6574.71	6614.87	6127.51	6682.60	6592.61	6592.16	6636.23
20	5700.44	5972.46	6551.07	6339.23	6342.31	5800.72	6401.34	6302.62	6332.07	6388.18
21	5452.18	5716.68	6309.62	6112.18	6080.99	5491.37	6131.91	6025.38	6082.24	6149.41
22	5214.73	5471.85	6077.06	5893.26	5830.44	5198.51	5873.82	5760.34	5842.27	5919.56
23	4987.62	5237.51	5853.07	5682.18	5590.20	4921.28	5626.59	5506.96	5611.77	5698.30
24	4770.40	5013.20	5637.34	5478.66	5359.87	4658.82	5389.77	5264.72	5390.36	5485.31
25	4562.65	4798.50	5429.56	5282.43	5139.03	4410.37	5162.92	5033.14	5177.68	5280.28
26	4363.94	4593.00	5229.44	5093.23	4927.28	4175.16	4945.61	4811.75	4973.40	5082.92
27	4173.88	4396.29	5036.70	4910.81	4724.26	3952.50	4737.45	4600.09	4777.18	4892.93
28	3992.11	4208.01	4851.06	4734.92	4529.61	3741.71	4538.06	4397.75	4588.70	4710.05
29	3818.24	4027.80	4672.26	4565.33	4342.98	3542.16	4347.05	4204.30	4407.65	4534.00
30	3651.96	3855.30	4500.05	4401.81	4164.03	3353.26	4164.09	4019.37	4233.75	4364.53
31	3492.91	3690.19	4334.19	4244.15	3992.46	3174.43	3988.82	3842.57	4066.71	4201.39
32	3340.79	3532.15	4174.44	4092.14	3827.96	3005.14	3820.93	3673.54	3906.26	4044.35
33	3195.29	3380.88	4020.58	3945.58	3670.24	2844.87	3660.11	3511.95	3752.14	3893.19
34	3056.13	3236.09	3872.39	3804.26	3519.01	2693.15	3506.06	3357.47	3604.10	3747.67
35	2923.04	3097.50	3729.67	3668.00	3374.02	2549.53	3358.49	3209.79	3461.90	3607.59
36	2795.73	2964.84	3592.20	3536.62	3235.00	2413.56	3217.13	3068.60	3325.31	3472.75
37	2673.98	2837.86	3459.80	3409.95	3101.70	2284.84	3081.73	2933.62	3194.11	3342.94
38	2557.52	2716.33	3332.28	3287.82	2973.90	2162.99	2952.02	2804.58	3068.09	3217.99
39	2446.14	2600.00	3209.46	3170.06	2851.37	2047.64	2827.77	2681.21	2947.04	3097.71
40	2339.61	2488.65	3091.17	3056.52	2733.89	1938.44	2708.75	2563.27	2830.77	2981.93
41	2237.71	2382.06	2977.23	2947.04	2621.24	1835.06	2594.74	2450.52	2719.08	2870.47
42	2140.26	2280.05	2867.50	2841.49	2513.24	1737.20	2485.53	2342.73	2611.80	2763.18
43	2047.05	2182.40	2761.81	2739.72	2409.68	1644.55	2380.91	2239.68	2508.75	2659.90
44	1957.90	2088.94	2660.02	2641.59	2310.40	1556.85	2280.70	2141.16	2409.77	2560.48
45	1872.63	1999.47	2561.98	2546.98	2215.20	1473.82	2184.71	2046.98	2314.69	2464.77

R-Square	0.9503	0.9626	0.9503	0.8967	0.9499	0.947	0.8713	0.7748
Intercept	9.624282	9.64235	9.624282	9.580216	9.761838	9.579868	9.583133	9.748768
Age Coeff	-0.043001	-0.046048	-0.043001	-0.037251	-0.054805	-0.039903	-0.04547	-0.057258

Age	County =51	County =52	County =53	County =54	County =55	County =56	County =57	County =58
1	14490.97	14710.28	14490.97	13946.24	16432.77	13904.46	13872.49	16179.66
2	13881.05	14048.26	13881.05	13436.28	15556.41	13360.56	13255.83	15279.27
3	13296.80	13416.04	13296.80	12944.98	14726.78	12837.93	12666.59	14428.98
4	12737.15	12812.26	12737.15	12471.63	13941.40	12335.74	12103.54	13626.01
5	12201.05	12235.66	12201.05	12015.60	13197.90	11853.20	11565.51	12867.73
6	11687.51	11685.01	11687.51	11576.24	12494.05	11389.53	11051.41	12151.65
7	11195.59	11159.14	11195.59	11152.95	11827.74	10944.00	10560.15	11475.41
8	10724.37	10656.93	10724.37	10745.13	11196.96	10515.90	10090.74	10836.81
9	10272.99	10177.33	10272.99	10352.23	10599.83	10104.55	9642.18	10233.75
10	9840.60	9719.31	9840.60	9973.69	10034.54	9709.29	9213.57	9664.24
11	9426.41	9281.90	9426.41	9609.00	9499.39	9329.48	8804.01	9126.43
12	9029.66	8864.18	9029.66	9257.64	8992.79	8964.54	8412.66	8618.55
13	8649.61	8465.26	8649.61	8919.12	8513.20	8613.87	8038.70	8138.93
14	8285.55	8084.29	8285.55	8592.99	8059.19	8276.92	7681.37	7686.00
15	7936.81	7720.47	7936.81	8278.78	7629.39	7953.15	7339.92	7258.28
16	7602.76	7373.02	7602.76	7976.06	7222.51	7642.04	7013.65	6854.36
17	7282.76	7041.20	7282.76	7684.41	6837.33	7343.10	6701.88	6472.92
18	6976.23	6724.32	6976.23	7403.42	6472.70	7055.86	6403.97	6112.70
19	6682.60	6421.70	6682.60	7132.71	6127.51	6779.86	6119.30	5772.53
20	6401.34	6132.70	6401.34	6871.90	5800.72	6514.65	5847.29	5451.29
21	6131.91	5856.70	6131.91	6620.62	5491.37	6259.81	5587.36	5147.93
22	5873.82	5593.13	5873.82	6378.54	5198.51	6014.94	5339.00	4861.45
23	5626.59	5341.42	5626.59	6145.30	4921.28	5779.65	5101.67	4590.91
24	5389.77	5101.03	5389.77	5920.59	4658.82	5553.57	4874.89	4335.43
25	5162.92	4871.47	5162.92	5704.10	4410.37	5336.33	4658.19	4094.16
26	4945.61	4652.23	4945.61	5495.53	4175.16	5127.58	4451.13	3866.33
27	4737.45	4442.86	4737.45	5294.58	3952.50	4927.01	4253.27	3651.17
28	4538.06	4242.92	4538.06	5100.98	3741.71	4734.28	4064.20	3447.98
29	4347.05	4051.97	4347.05	4914.46	3542.16	4549.08	3883.54	3256.10
30	4164.09	3869.61	4164.09	4734.76	3353.26	4371.14	3710.91	3074.90
31	3988.82	3695.47	3988.82	4561.63	3174.43	4200.15	3545.96	2903.78
32	3820.93	3529.16	3820.93	4394.83	3005.14	4035.85	3388.33	2742.19
33	3660.11	3370.33	3660.11	4234.13	2844.87	3877.98	3237.71	2589.59
34	3506.06	3218.65	3506.06	4079.31	2693.15	3726.28	3093.79	2445.48
35	3358.49	3073.80	3358.49	3930.14	2549.53	3580.52	2956.27	2309.39
36	3217.13	2935.47	3217.13	3786.43	2413.56	3440.46	2824.86	2180.87
37	3081.73	2803.36	3081.73	3647.98	2284.84	3305.88	2699.29	2059.51
38	2952.02	2677.20	2952.02	3514.59	2162.99	3176.56	2579.30	1944.90
39	2827.77	2556.71	2827.77	3386.08	2047.64	3052.30	2464.64	1836.66
40	2708.75	2441.65	2708.75	3262.26	1938.44	2932.90	2355.09	1734.45
41	2594.74	2331.77	2594.74	3142.97	1835.06	2818.18	2250.40	1637.93
42	2485.53	2226.83	2485.53	3028.05	1737.20	2707.94	2150.37	1546.78
43	2380.91	2126.61	2380.91	2917.33	1644.55	2602.01	2054.78	1460.70
44	2280.70	2030.91	2280.70	2810.65	1556.85	2500.22	1963.44	1379.42
45	2184.71	1939.51	2184.71	2707.88	1473.82	2402.42	1876.16	1302.65

7.0 Activity Changes

Each estimate of emissions used in inventory estimation has an activity counterpart. Grams per mile and gram per start emission rates are coupled with miles per day or start per day activity estimates to yield tons per day inventories.

All activity estimates were reviewed and many were revised in preparing EMFAC2000 for release. Although many of the data sources and methods of analysis were maintained, many notable changes were made in this update of the model in contrast to those estimates contained in MVEI7G.

- New population estimates were derived through the analysis of DMV data.
- Registration distributions, the population of vehicles by age, were revised, also using DMV data. The resulting estimates are reported for 45 model years for each vehicle class.
- Vehicle class and county specific mileage accrual rates were derived through the analysis of BAR smog check records.
- Vehicle class specific retention rates, the number of vehicles of a particular model year that remain in the fleet in a given calendar year, were also revised.
- Estimates of vehicle miles of travel for heavy-duty vehicles, buses and motorcycles are calculated in EMFAC2000 as the product of vehicle population and mileage accrual rates.
- EMFAC2000 also incorporates hourly and county specific estimates of temperature, speed, VMT, and humidity.

SECTION 7.6 LIGHT-DUTY AUTOMOBILE WEEKDAY ACTIVITY

This section discusses the development of light-duty automobile weekday activity estimates. A model year specific trips per day vehicle activity distribution was developed along with a set of new activity distribution matrices for time-on, time-off, trip-starts, trip-ends, speed, resting time, and VMT.

7.6.1 Introduction

In prior versions of the model, activity was categorized into 6 uneven time periods. The hourly activity portion of EMFAC2000 was also modified to match the more resolved emission factors for running, starting, and evaporative emissions. The new activity estimates disaggregate activity into 24 hourly time periods, and the driving characteristics within each period are further disaggregated into bins. For example, a trip with a given mean speed will not only be assigned to the hour that the trip started but also to the appropriate mean speed bin. In MVEI7G, the number of trips were assigned to a given time period, whereas for EMFAC2000, the trip's duration will also be assigned to its respective period. Therefore, not only are the periods more finely resolved but an additional dimension will be added to the activity matrix.

7.6.2 Starts per Day Data Analysis

In EMFAC7F, the ARB used results from the California Department of Transportation (CalTrans) to estimate the number of trips per day for an average vehicle. CalTrans conducted statewide travel surveys requiring people to record their driving habits in diaries. From these statewide travel surveys, CalTrans estimated that people took approximately 3.76 trips per vehicle per day. The survey information only estimated trips from origin to destination, non-destination trips were not recorded. These non-destination trips include short side trips, and starts associated with shuffling cars at home or moving a car in a parking lot. Since emissions are produced whenever a vehicle is started, the CalTrans survey data were adjusted in MVEI7G to include these starts. For MVEI7G, the estimate of starts per day was modified to include instrumented vehicle data collected for the U.S. EPA in Baltimore, Maryland; Spokane, Washington; and Atlanta, Georgia, which yielded an estimated 6.35 starts per day per vehicle for light-duty automobiles. When combined with the population distribution by vehicle age, a fleet average distribution of starts per day by vehicle age was produced. For EMFAC2000, the methodology has not changed significantly from MVEI7G. The starts per day linearly decrease with vehicle age from 6.56 at age 1 to 3.72 starts per day at age 45.

For EMFAC2000 there are 45 age groups, an increase of 10 years from MVEI7G. The starts per day for the additional 10 age groups was developed by estimating the percent decrease for years 34 and 35, and then applying it proportionally the remaining years. The starts per day by vehicle age is shown graphically in Figure 7.6-1 and in numerically in Table 7.6-1.

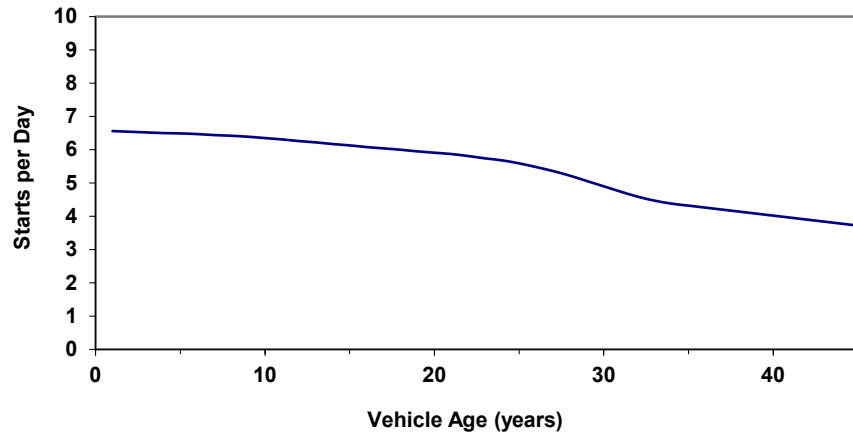


Figure 7.6-1. Starts per Day by Vehicle Age.

Table 7.6-1. Starts per Day by Age.

Age	Starts		Age	Starts
1	6.56		24	5.68
2	6.54		25	5.59
3	6.52		26	5.48
4	6.50		27	5.36
5	6.49		28	5.22
6	6.47		29	5.06
7	6.44		30	4.90
8	6.42		31	4.74
9	6.39		32	4.59
10	6.35		33	4.47
11	6.31		34	4.38
12	6.26		35	4.32
13	6.22		36	4.26
14	6.17		37	4.2
15	6.13		38	4.14
16	6.08		39	4.08
17	6.04		40	4.02
18	6.00		41	3.96
19	5.95		42	3.9
20	5.91		43	3.84
21	5.87		44	3.78
22	5.81		45	3.72
23	5.74			

7.6.3 Hourly Activity Data Analysis

The second-by-second instrumented vehicle data collected by the U.S. EPA for the cities of Baltimore, Maryland; Spokane, Washington; and Atlanta, Georgia, were used to characterize weekday trip activity. The analysis was designed to evaluate a whole day's worth of driving. The first and last day of driving were omitted because they may not have been representative. Drivers may have altered their trips for those days to have instrumentation installed or removed from their vehicle. However, the first and last day of driving was used in calculating information for the second day of driving (i.e. soak time) and the day before the last day of driving (i.e. driving which starts on the second to the last day of driving and continued into the last day). The Atlanta instrumented vehicle data set contained several problems including: data only collected at two second rather than one second intervals for a vehicle exchange or individual trip, and some trips had missing speed data. For these vehicles, the entire vehicle exchange was deleted instead of the individual trip because deleting trips would cause erroneous estimates of extended soaks, decreased trips per day, and decreased VMT for this analysis.

The weekday activity characteristics developed for EMFAC2000 include time-on, time-off, trip-starts, trip-ends, speed frequency distribution, resting time frequency distribution, and a VMT frequency distribution. A descriptions of the above activity characteristics are defined as follows:

Time-on

Time-on is used for estimating exhaust emissions. Time-on is the length of time a vehicle is running during a respective hour. If a vehicle's running time overflows into the next hour all of the time is counted in the hour when the vehicle was started. An example of this would be a vehicle that is started at 3:59 p.m. and shut off at 4:15 p.m. The total operating time of 16 minutes would be applied to 3:00 p.m. A two-dimensional time-on frequency distribution was also analyzed. The time-on frequency distribution was determined by binning the time-on events from one minute to two hours for each hour of the day.

Time-off

Time-off is used in calculating starting emissions in EMFAC2000. Time-off is the amount of time the vehicle is off (or soaking) prior to a trip-start. This event is applied to the hour that the start occurred. For example, if a vehicle ended a trip at 5:00 p.m. and was restarted at 7:00 a.m. the next day, this 14 hour time-off event is applied to 7:00 a.m. Time-off is used in calculating the cold start correction factors. A two-dimensional time-off frequency distribution was also determined by binning the time-off events from 5 minutes to 4 days for each hour of the day.

Trip-Starts

Trip-starts are used in determining the hourly trip distribution in EMFAC2000. The number of trip-starts is the number of times a vehicle was started during the respective hour. For example, a key-on event at 3:59 p.m. by a vehicle is counted as a start during the 3:00 p.m. hour. As part of the analyses, if a vehicle's engine apparently stalled and was restarted within 15 seconds, then the event was counted as only one start or trip.

Trip-Ends

Trip-ends are used in estimating evaporative emissions in EMFAC2000, and are calculated by determining the number of times a vehicle ended a trip (key-off) during a respective hour. For example, consider the same event mentioned above with the trip starting at 3:59 p.m. and ending at 4:15 p.m. In this case, a single trip-end is applied to 4:00 p.m.

Vehicle Miles Traveled

VMT is the distance traveled by a vehicle during a trip and is assigned to the respective hour. If a trip spans more than one hour, then the total distance is assigned to the hour in which the trip started. The distance was calculated from the speed data recorded on a second-by-second basis using the equation: distance = speed*time. A two-dimensional VMT by hour of the day frequency distribution was analyzed. The VMT frequency distribution was determined by binning the distance of each trip. For example, 0-1 mile trips were assigned to the 0 mile bin, 1-5 mile trips were assigned to the 5 mile bin, 5-10 mile trips were assigned to the 10 mile bin, and so on.

Speed Frequency Distributions

A two-dimensional frequency distribution was developed for mean speed by hour of the day to estimate running exhaust emissions and running evaporative losses within EMFAC2000. The speed distribution was determined by taking each trip's mean speed and then assigning it as a single count in an appropriate speed bin (i.e. 0-1 mph speeds are assigned to the 0 mph bin, 1-5 mph are assigned to the 5 mph bin, 5-10 mph is assigned to the 10 mph bin, and so on). This was done for each hour of the day.

Resting Time Frequency Distributions

In EMFAC2000, the resting time frequency distributions matrix is used to estimate evaporative emissions (i.e. hot soaks, diurnal, and resting losses) for vehicles at rest. The resting time distribution is the amount of time a vehicle will be off and is applied to the hour that the trip ended. This is in contrast to time-off, which is applied to the hour on which the trip started. Each trip has a resting event and it is assigned to the respective resting time bin for the hour that the trip-end occurred. The bins ranged in time from five minutes to 4 days. If a resting event extends beyond the first hour, an additional resting event is added to the next resting hour bin and next hour of the day. For example, if a vehicle was turned off at 5:00 p.m. and restarted at 7:00 a.m. the next day, a one hour event would be counted at 6:00 p.m., a two hour event would be counted at 7:00 p.m., a three hour event would be counted at 8:00 p.m., etc., until 7:00 a.m. the next morning. Therefore, a single key-off event for an individual vehicle yields multiple resting time events, whereas all other trip characteristics produce only one event for each trip.

Throughout this section, most of the analyses are simplified and shown as two-dimensional graphs. In actuality, the input matrices for the EMFAC2000 model include two-dimensional matrices, thus requiring three-dimensional graphs. For example, the speed distribution matrix contains the frequency distribution by hour of the day and by mean speed bin. Graphs representing all of the two-dimensional matrices are shown in Appendix 7.6.1, while the actual input matrices are shown in Appendix 7.6.2.

7.6.4 Time-On and Time-Off

Weekday time-on and time-off distributions for Atlanta, Baltimore, and Spokane are shown in Figure 7.6-2 and Figure 7.6-3, respectively. Time-on was calculated by summing the time-on for all vehicles during the respective hour and then dividing by the total time for all hours. As expected, there is an increase in time-on for the morning commute and a decrease in the amount of time-on prior to the noon hour. At approximately noon, the length of time-on increases again and then decreases temporarily with an increase in time-on until approximately 5:00 p.m. As shown in Figure 7.6-3, there is an increase in the time-off count from approximately 5 a.m. to 10 a.m. This is due to the fact that time-off is applied to the time the vehicle was started and a vehicle's initial trip normally occurs during the morning hours. The amount of time-off was calculated from the time a vehicle ended its last trip, and multiple soak days were also included in the data analysis and applied to the respective hour. Although the data analyzed show these increases in time-on and off for the morning commute, it should be noted that the number of events used to calculate the rates prior to 6 a.m. were fewer than were used for the peak morning commute hours. Even with this relative scarcity of data, the increase in time-on and off prior to the morning commute seems reasonable when compared to the rates estimated after 6 a.m.

A composite weekday time-on and time-off distribution was developed for incorporation into EMFAC2000 by combining the data from the three cities. The composite time-on and time-off distribution is shown in Figure 7.6-4.

The composite weekday time-on and time-off frequency distributions graphs by hour of the day and duration are shown in Figure 7.6-13 and Figure 7.6-14 of Appendix 7.6-1, while the actual matrices are shown in Table 7.6-2 and Table 7.6-3 of Appendix 7.6-2. Table 7.6-2 and Table 7.6-3 contain the time-on and time-off distribution matrices coded into EMFAC2000, while the information presented in Figure 7.6-2 through Figure 7.6-4 are summary statistics. The size of time-on and time-off distribution matrices are 30 X 24 and 33 X 24, respectively.

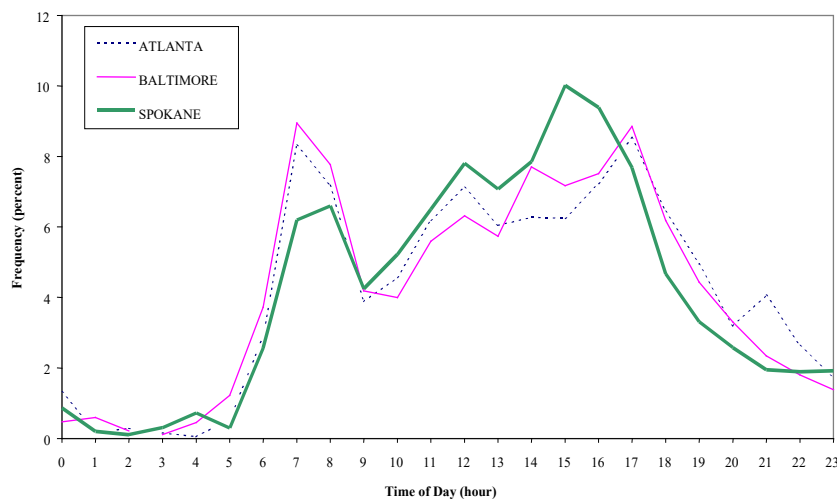


Figure 7.6-2. Weekday Time-On Activity Distribution for Trips in Atlanta, Baltimore, and Spokane.

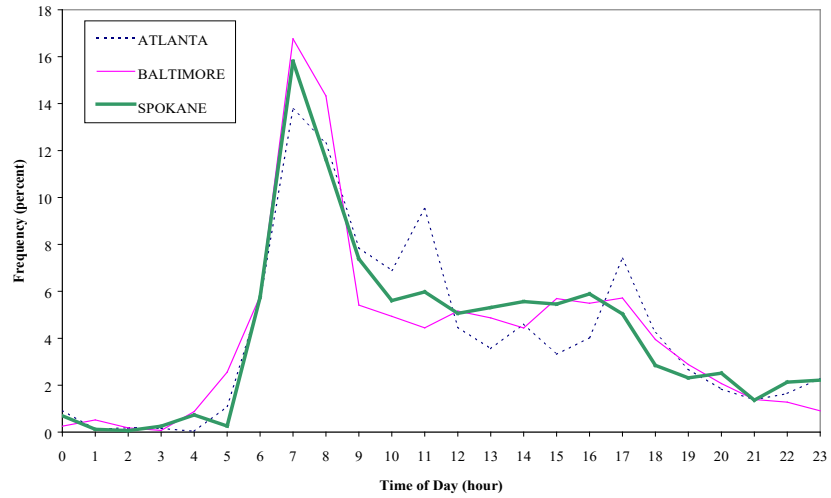


Figure 7.6-3. Weekday Time-Off Activity Distribution for Trips in Atlanta, Baltimore, and Spokane.

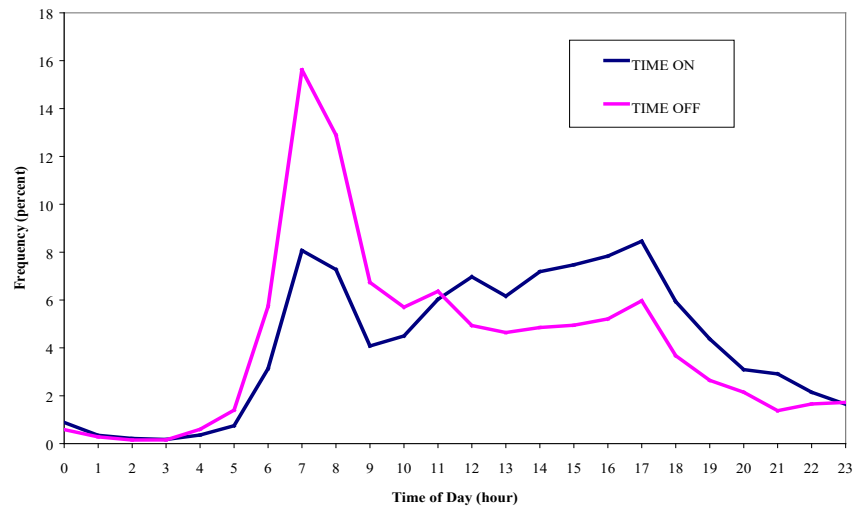


Figure 7.6-4. Combined Weekday Time-On and Off Activity Distribution.

7.6.5 Trip-Starts and Trip-Ends

The frequencies of trip-starts and trip-ends were determined on an hourly basis and are shown in Figure 7.6-5 and Figure 7.6-6. For this analysis, the frequencies of trip-starts and ends for a given hour were defined as the total trips (starts or ends) for all hours divided into the total trips (starts or ends) for that given hour. There are two distinct trip episodes, one for the morning commute and an additional increase in trips for midday, starting at approximately 11 a.m. These results show that the “typical” home-to-work and work-to-home commuter does not exist, unless

they are going home at lunchtime. A substantial percentage of trips are occurring between 11 a.m. and 6 p.m. The specific reason for this increase is unknown, however, it is believed people are trying to accomplish multiple errands during the lunch hour or during the afternoon hours.

Figure 7.6-7 compares the combined trip-start and trip-end profiles for EMFAC2000 to the trip-starts in MVEI7G. As can be seen in the figures, similar results for trip-starts and trip-ends were produced. This result is not surprising since most trips are less than an hour in length, thus ending in the same hour as the trip originated. The relatively small deviations from trip-starts and ends are the result of trips crossing different hours of operation. To compare composite trip-starts to the estimates from MVEI7G, the percentage of trip-starts for each period had to be evenly distributed within the period. The two trip-start profiles show reasonable agreement even though MVEI7G divides trip-starts into 6 uneven time periods¹. The weekday trip-start and trip-end matrices programmed into EMFAC2000 are shown in Table 7.6-4 of Appendix 7.6-2.

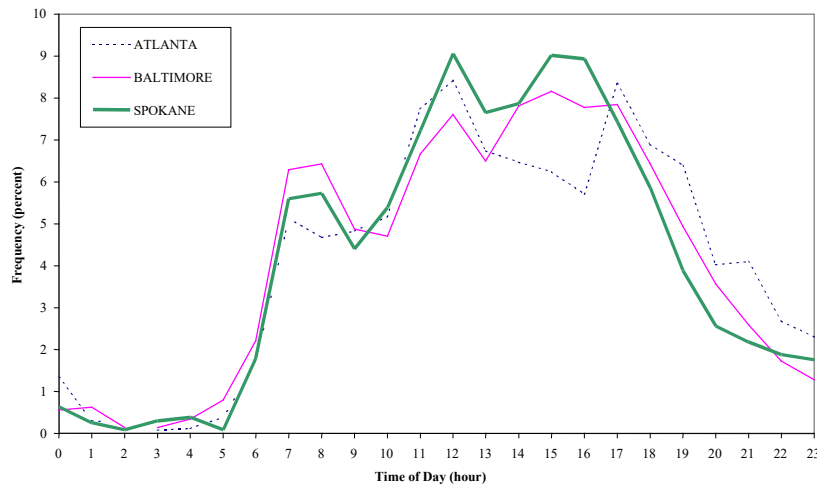


Figure 7.6-5. Weekday Trips-Starts Distribution for Atlanta, Baltimore, and Spokane.

¹ Air Resource Board, *Methodology for Estimating Emissions from On-Road Motor Vehicles*, November, 1996.

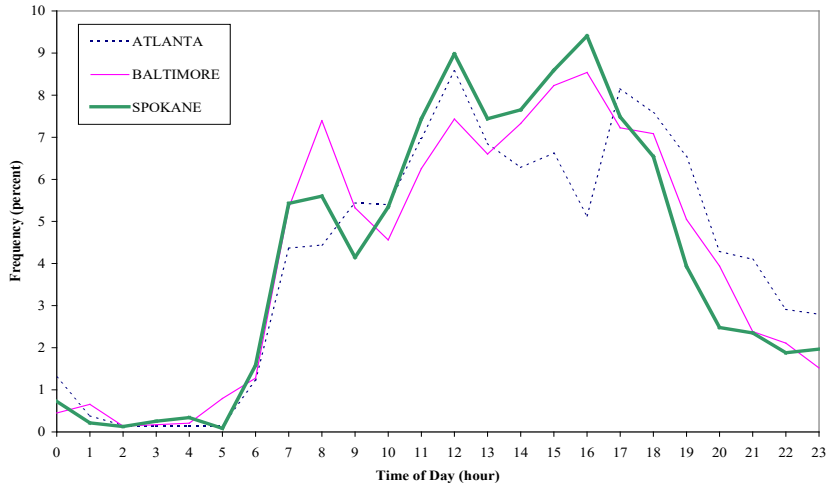


Figure 7.6-6. Weekday Trips-Ends Distribution for Atlanta, Baltimore, and Spokane.

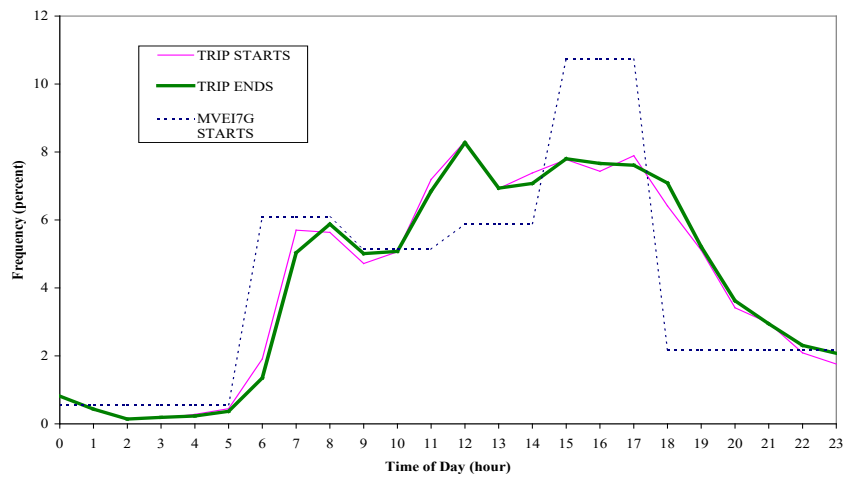


Figure 7.6-7. Combined Trip-Start and Trip-End Distribution Compared to MVEI7G.

7.6.6 Vehicle Miles Traveled

The distribution of VMT by time of day for the three cities was also determined and is shown in Figure 7.6-8. The composite VMT results and the current VMT estimate for MVEI7G are shown in Figure 7.6-9. The total VMT for each hour is the distance traveled summed across all vehicle trips which started during that hour. Like the distribution of trip-starts and trip-ends, there is an increase in the VMT for the morning commute and then an additional increase during the afternoon hours. The increase in VMT during the morning commute corresponds to the increase in the number of trip-starts of longer duration. In addition, there is an increase in VMT in the afternoon hours which corresponds to the increase in trips of shorter duration. An

investigation of the mean distance per trip showed a noticeable increase in the distance per trip for the morning hours relative to the afternoon hours. This increase can be noted in Figures 7.6-9 and 7.6-10, which show a modest increase in the VMT and a substantial decrease in mean trip time-on during the afternoon hours, respectively.

The composite weekday VMT distribution by hour of the day is shown graphically in Figure 7.6-15 of Appendix 7.6-1. The composite weekday VMT input matrix is also shown in Table 7.6-5 of Appendix 7.6-2.

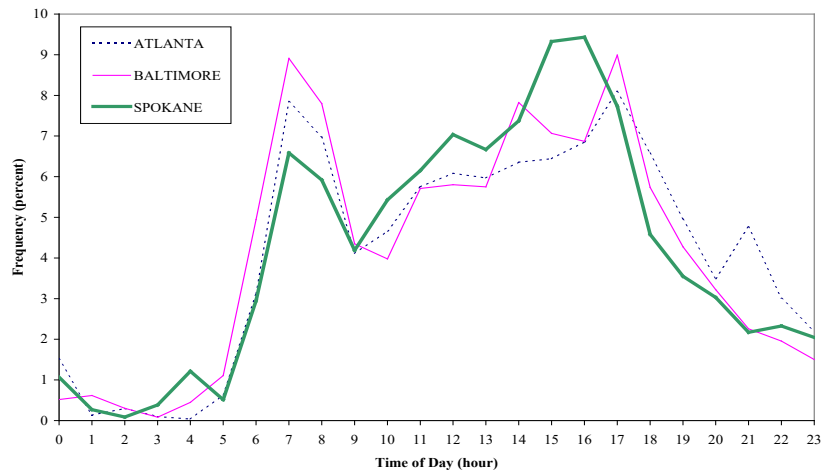


Figure 7.6-8. Weekday VMT Distribution for Atlanta, Baltimore, and Spokane.

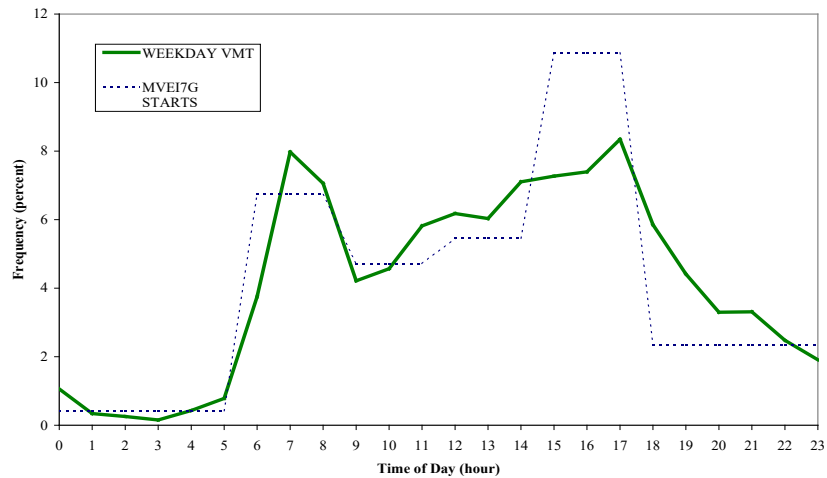


Figure 7.6-9. Combined Weekday VMT Distribution Compared to MVEI7G.

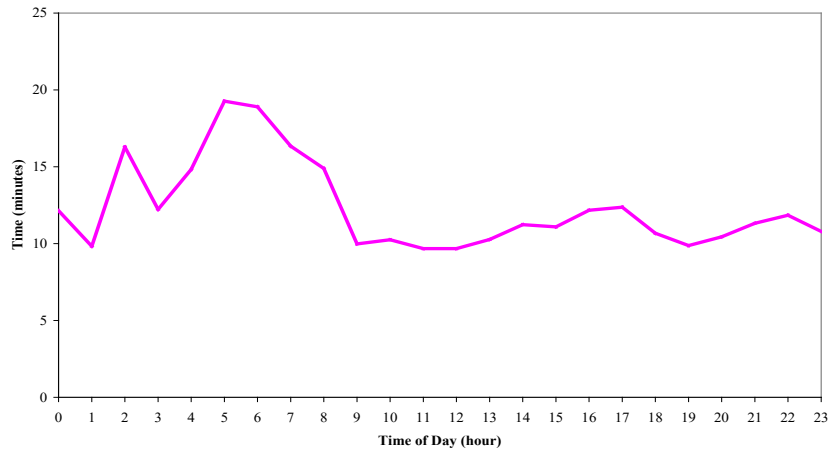


Figure 7.6-10. Composite Weekday Mean Time-on Distribution.

7.6.7 Speed Frequency Distribution

A composite weekday trip mean speed distribution was developed for the three cities and is shown in Figure 7.6-11. The weekday trip mean speed distribution was developed by first calculating the mean speed of each trip and then applying a count to the appropriate mean speed bin. Each mean speed bin was then divided by the total trips for the matrix to estimate the frequency distribution. A trip is a key-on to key-off event and includes all idle time during the trip. Figure 7.6-11 shows that a majority of trips have a mean speed of approximately 30mph. The idle time decreases the mean speed of trips.

Table 7.6-6 of Appendix 7.6-2 shows the composite weekday trip mean speed frequency distribution by hour of the day. The mean speed input matrix for EMFAC2000 is 16 X 24 and includes a range of mean speeds from 0 to 75mph.

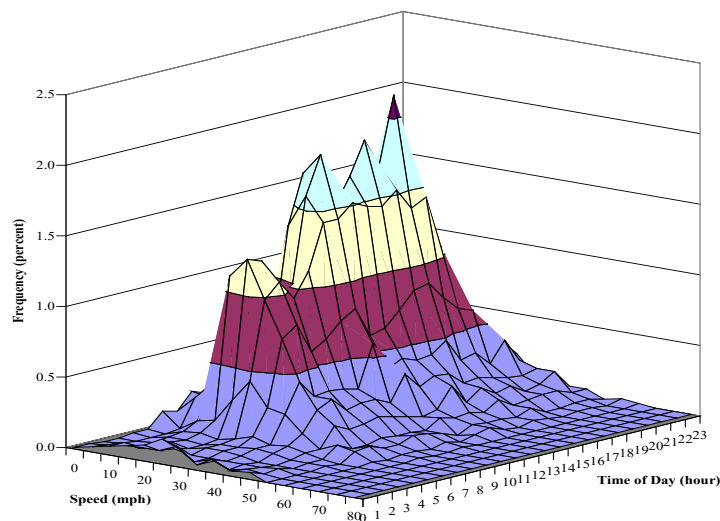


Figure 7.6-11. Combined Weekday Trip Mean Speed Frequency Distribution by Hour of Day for Atlanta, Baltimore, and Spokane.

7.6.8 Resting Time

Resting time is similar to time-off, however, the amount of time off is applied to the end of the trip. Figure 7.6-12 shows the percentage of the fleet at rest for all three cities combined. Almost 100 percent of the fleet is at rest during the evening hours from 12:00 a.m. to 5:00 a.m. There is a distinctive decrease in the amount of the fleet at rest between the hours of 5:00 a.m. and 7:00 a.m. This corresponds to the morning commute to work. There is a small increase in the percentage of vehicles at rest in the mid morning hours. From 11:00 a.m. to approximately 5:00 p.m. the percentage of the fleet at rest remains fairly constant at 70 percent. After 5:00 p.m. there is a constant increase in the percentage of vehicles at rest until 11:00 p.m.

A composite weekday resting time distribution graph by hour of the day and duration is shown in Figure 7.6-16 of Appendix 7.6-1. Table 7.6-7 of Appendix 7.6-2 shows the 129 X 24 resting time distribution matrix that is used in estimating evaporative emissions for EMFAC2000. The resting time bins were assigned a range varying from a resting time of 5 minutes to as long as 4 days.

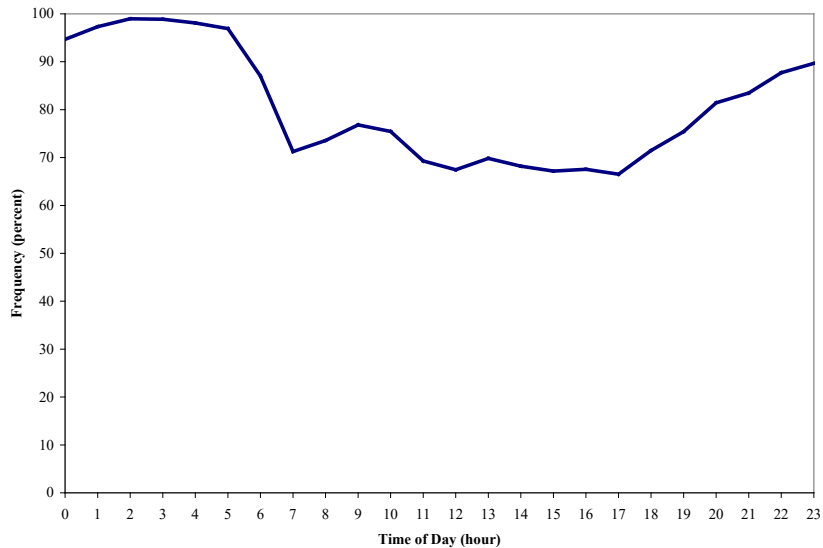


Figure 7.6-12. Percentage of Fleet at Rest for a Weekday.

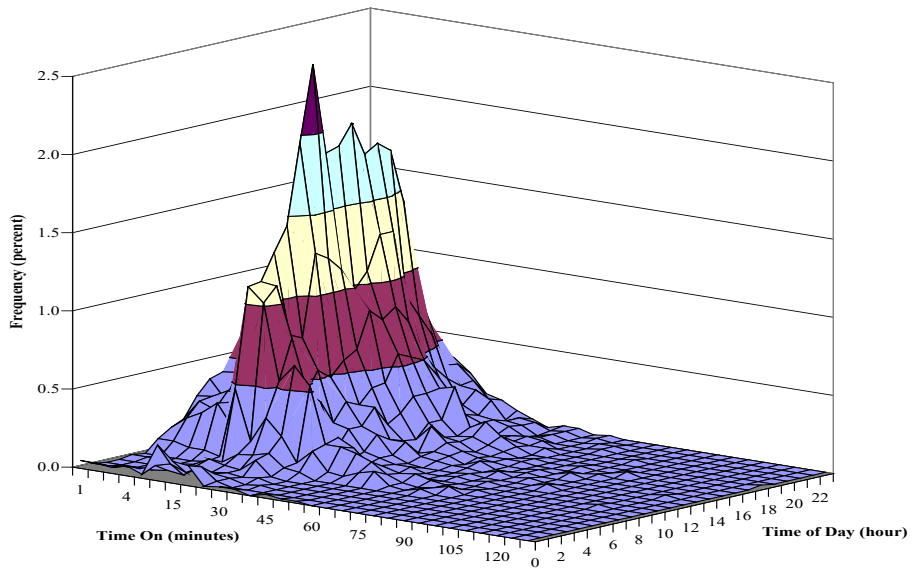


Figure 7.6-13. Combined Weekday Time-On Distribution by hour of day for Atlanta, Baltimore, and Spokane.

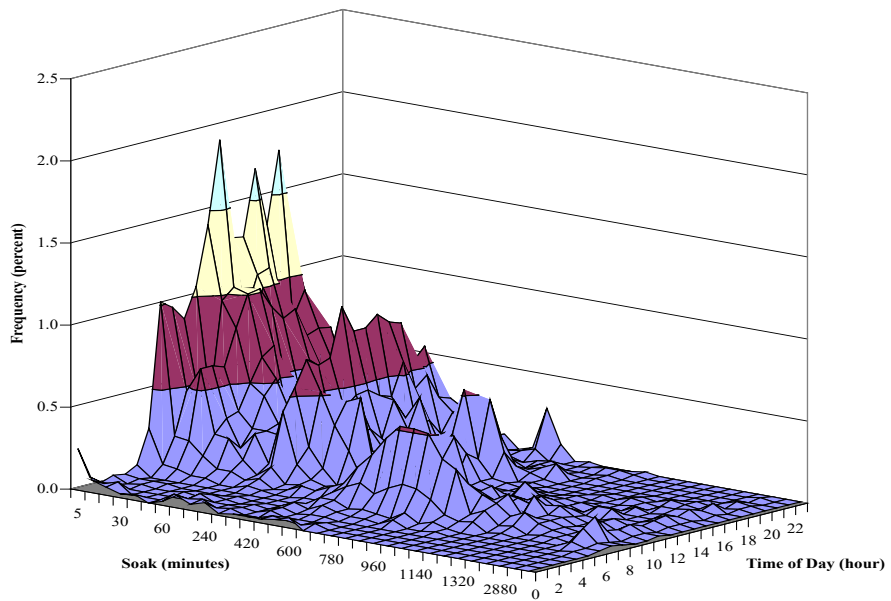


Figure 7.6-14. Combined Weekday Soak Time Distribution by Hour of the Day and Duration for Atlanta, Baltimore, and Spokane.

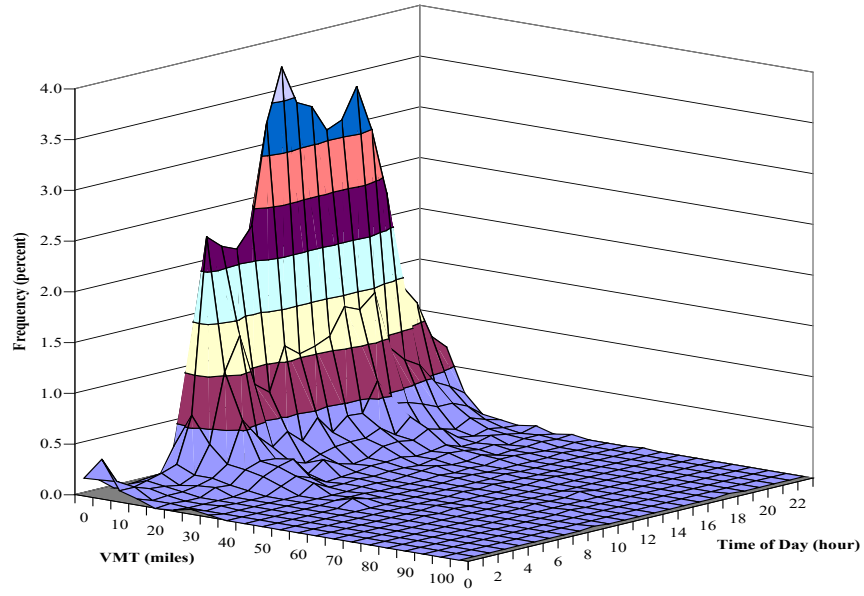


Figure 7.6-15. Combined Weekday VMT Frequency Distribution by hour of day for Atlanta, Baltimore, and Spokane.

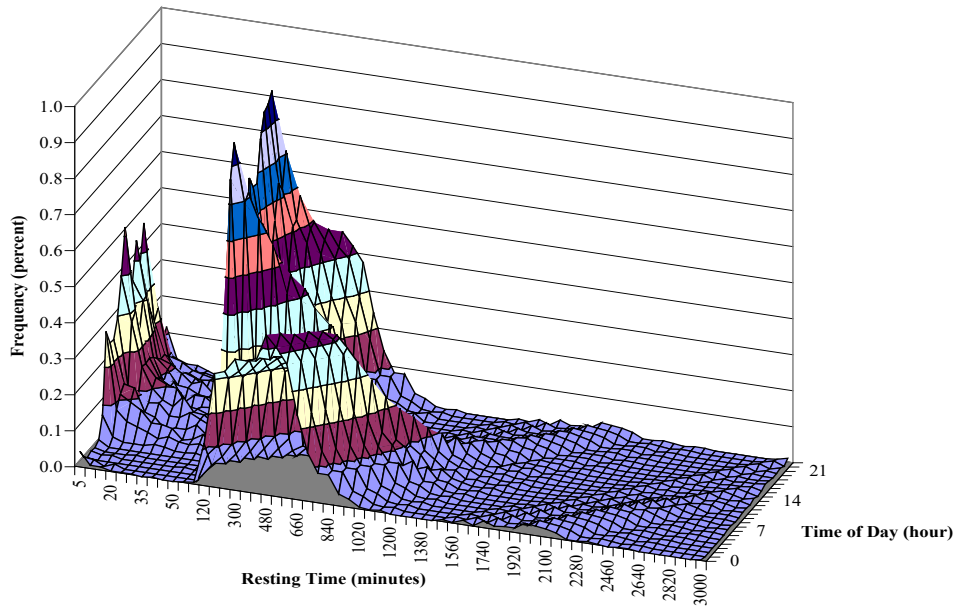


Figure 7.6-16. Combined Weekday Resting Time Distribution by Hour of the Day and Duration for Atlanta, Baltimore, and Spokane.

Table 7.6-2. Composite Weekday Time-On Frequency Distribution.

TIME OF DAY (hour)	1 MINUTES ON (%)	2 MINUTES ON (%)	3 MINUTES ON (%)	4 MINUTES ON (%)	5 MINUTES ON (%)	10 MINUTES ON (%)	15 MINUTES ON (%)	20 MINUTES ON (%)	25 MINUTES ON (%)	30 MINUTES ON (%)	35 MINUTES ON (%)	40 MINUTES ON (%)
0	0.05	0.05	0.04	0.06	0.03	0.23	0.14	0.13	0.01	0.03	0.03	0.00
1	0.01	0.01	0.03	0.03	0.06	0.09	0.05	0.10	0.03	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.04	0.03	0.00	0.01	0.00
3	0.00	0.00	0.00	0.04	0.01	0.04	0.01	0.03	0.01	0.03	0.00	0.00
4	0.01	0.01	0.00	0.00	0.01	0.06	0.04	0.03	0.10	0.01	0.00	0.00
5	0.00	0.00	0.00	0.00	0.01	0.03	0.09	0.10	0.13	0.05	0.04	0.00
6	0.08	0.08	0.05	0.05	0.03	0.47	0.15	0.32	0.22	0.06	0.15	0.04
7	0.13	0.20	0.26	0.33	0.19	1.11	1.02	0.54	0.65	0.54	0.18	0.18
8	0.17	0.29	0.26	0.32	0.23	1.12	1.11	0.79	0.46	0.27	0.20	0.15
9	0.29	0.31	0.36	0.34	0.34	1.29	0.78	0.41	0.38	0.09	0.04	0.03
10	0.38	0.27	0.40	0.36	0.29	1.44	0.74	0.55	0.23	0.20	0.08	0.05
11	0.41	0.42	0.61	0.68	0.56	1.95	1.26	0.48	0.34	0.20	0.17	0.05
12	0.42	0.78	0.66	0.59	0.68	2.44	1.21	0.57	0.31	0.31	0.11	0.11
13	0.31	0.46	0.47	0.46	0.79	1.85	1.12	0.62	0.40	0.18	0.09	0.03
14	0.47	0.56	0.38	0.69	0.47	1.87	0.97	0.85	0.41	0.23	0.08	0.18
15	0.34	0.60	0.52	0.64	0.52	2.00	1.07	0.78	0.57	0.32	0.17	0.09
16	0.32	0.48	0.45	0.50	0.46	1.79	1.29	0.84	0.54	0.32	0.17	0.08
17	0.41	0.52	0.56	0.37	0.59	1.84	1.29	0.73	0.50	0.33	0.36	0.11
18	0.32	0.33	0.61	0.57	0.47	1.77	0.85	0.52	0.38	0.27	0.06	0.10
19	0.33	0.32	0.46	0.45	0.43	1.43	0.71	0.40	0.20	0.13	0.09	0.03
20	0.22	0.27	0.20	0.23	0.29	0.87	0.57	0.31	0.15	0.10	0.09	0.06
21	0.14	0.23	0.27	0.22	0.32	0.62	0.36	0.24	0.23	0.18	0.06	0.05
22	0.09	0.14	0.15	0.14	0.20	0.42	0.34	0.26	0.15	0.03	0.06	0.05
23	0.23	0.15	0.10	0.14	0.06	0.34	0.27	0.15	0.13	0.08	0.04	0.00

Table 7.6-2 (cont.). Composite Weekday Time-On Frequency Distribution.

TIME OF DAY (hour)	45 MINUTES ON (%)	50 MINUTES ON (%)	55 MINUTES ON (%)	60 MINUTES ON (%)	65 MINUTES ON (%)	70 MINUTES ON (%)	75 MINUTES ON (%)	80 MINUTES ON (%)	85 MINUTES ON (%)	90 MINUTES ON (%)	95 MINUTES ON (%)	100 MINUTES ON (%)
0	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.03	0.06	0.09	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
7	0.15	0.11	0.05	0.01	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00
8	0.06	0.06	0.04	0.05	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.00
9	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.03	0.03	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
11	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00
12	0.04	0.03	0.01	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.00
13	0.05	0.04	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
14	0.09	0.05	0.03	0.01	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00
15	0.08	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
16	0.09	0.05	0.03	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.03	0.00
17	0.17	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.04	0.04	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.04	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
20	0.01	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
22	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.03	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-2 (cont.). Composite Weekday Time-On Frequency Distribution.

TIME OF DAY (hour)	105 MINUTES ON (%)	110 MINUTES ON (%)	115 MINUTES ON (%)	120 MINUTES ON (%)	125 MINUTES ON (%)	130 MINUTES ON (%)	TOTAL FLEET DISTRIBUTION (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.84
1	0.00	0.00	0.00	0.00	0.00	0.00	2.41
2	0.00	0.00	0.00	0.00	0.00	0.00	4.15
3	0.00	0.00	0.00	0.00	0.00	0.00	6.17
4	0.00	0.00	0.00	0.00	0.00	0.00	8.28
5	0.00	0.00	0.00	0.00	0.00	0.00	10.45
6	0.00	0.00	0.00	0.00	0.00	0.00	13.91
7	0.00	0.00	0.00	0.00	0.00	0.00	19.70
8	0.00	0.00	0.00	0.00	0.00	0.00	21.64
9	0.00	0.00	0.01	0.00	0.00	0.00	22.72
10	0.00	0.00	0.00	0.00	0.00	0.00	25.06
11	0.00	0.00	0.00	0.00	0.00	0.00	29.19
12	0.00	0.00	0.00	0.00	0.00	0.00	32.31
13	0.00	0.00	0.00	0.01	0.00	0.00	32.92
14	0.00	0.00	0.00	0.00	0.00	0.00	35.38
15	0.00	0.00	0.00	0.00	0.00	0.00	37.78
16	0.00	0.00	0.00	0.00	0.00	0.00	39.43
17	0.00	0.00	0.00	0.00	0.00	0.00	41.89
18	0.00	0.00	0.00	0.00	0.00	0.01	42.41
19	0.00	0.00	0.00	0.00	0.00	0.00	43.11
20	0.00	0.00	0.00	0.00	0.00	0.00	43.42
21	0.00	0.00	0.00	0.00	0.00	0.00	44.97
22	0.00	0.00	0.00	0.00	0.00	0.00	46.09
23	0.00	0.00	0.00	0.00	0.00	0.00	47.76

Table 7.6-3. Composite Weekday Time-Off Frequency Distribution.

TIME OF DAY (hour)	5 MINUTES OFF (%)	10 MINUTES OFF (%)	20 MINUTES OFF (%)	30 MINUTES OFF (%)	40 MINUTES OFF (%)	50 MINUTES OFF (%)	60 MINUTES OFF (%)	120 MINUTES OFF (%)	180 MINUTES OFF (%)	240 MINUTES OFF (%)	300 MINUTES OFF (%)	360 MINUTES OFF (%)
0	0.26	0.08	0.05	0.03	0.04	0.00	0.03	0.08	0.04	0.06	0.01	0.03
1	0.06	0.04	0.06	0.00	0.00	0.00	0.05	0.04	0.05	0.01	0.03	0.00
2	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.01	0.00
3	0.04	0.00	0.01	0.00	0.00	0.01	0.00	0.03	0.01	0.00	0.01	0.00
4	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.27	0.06	0.05	0.03	0.03	0.00	0.00	0.03	0.01	0.00	0.00	0.01
7	1.02	0.22	0.20	0.13	0.06	0.06	0.03	0.05	0.00	0.01	0.05	0.04
8	0.97	0.47	0.62	0.24	0.23	0.11	0.04	0.10	0.01	0.03	0.00	0.01
9	0.88	0.43	0.62	0.32	0.15	0.26	0.09	0.42	0.11	0.04	0.01	0.00
10	1.06	0.38	0.60	0.34	0.26	0.26	0.24	0.55	0.20	0.09	0.00	0.03
11	1.42	0.97	0.82	0.50	0.43	0.28	0.17	0.70	0.52	0.33	0.19	0.03
12	1.91	1.03	1.01	0.64	0.52	0.33	0.32	0.65	0.29	0.46	0.50	0.08
13	1.30	0.85	1.02	0.69	0.28	0.29	0.27	0.68	0.38	0.24	0.15	0.14
14	1.29	1.07	0.89	0.46	0.43	0.27	0.26	0.97	0.45	0.26	0.14	0.10
15	1.68	1.10	0.80	0.43	0.40	0.31	0.27	0.80	0.46	0.18	0.11	0.17
16	1.33	0.87	0.84	0.55	0.34	0.29	0.22	0.80	0.41	0.40	0.23	0.10
17	1.76	0.75	0.66	0.48	0.36	0.27	0.24	0.87	0.38	0.27	0.41	0.14
18	1.20	0.91	0.69	0.50	0.29	0.19	0.22	0.80	0.57	0.19	0.11	0.17
19	0.92	0.38	0.68	0.42	0.31	0.23	0.26	0.78	0.40	0.22	0.04	0.13
20	0.50	0.27	0.27	0.28	0.19	0.18	0.14	0.52	0.46	0.11	0.17	0.09
21	0.64	0.22	0.27	0.13	0.14	0.10	0.06	0.60	0.31	0.23	0.09	0.05
22	0.36	0.19	0.13	0.11	0.04	0.04	0.06	0.20	0.28	0.23	0.13	0.10
23	0.32	0.09	0.15	0.06	0.03	0.03	0.05	0.19	0.15	0.08	0.06	0.09
TOTAL	19.27	10.40	10.47	6.35	4.53	3.51	3.00	9.91	5.53	3.44	2.46	1.49

Table 7.6-3 (cont.) Composite Weekday Time-Off Frequency Distribution.

TIME OF DAY (hour)	420 MINUTES OFF (%)	480 MINUTES OFF (%)	540 MINUTES OFF (%)	600 MINUTES OFF (%)	660 MINUTES OFF (%)	720 MINUTES OFF (%)	780 MINUTES OFF (%)	840 MINUTES OFF (%)	900 MINUTES OFF (%)	960 MINUTES OFF (%)	1020 MINUTES OFF (%)	1080 MINUTES OFF (%)
0	0.03	0.03	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.03	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.04	0.01	0.05	0.03	0.01	0.01	0.00	0.04	0.00	0.00	0.01	0.00
5	0.01	0.06	0.06	0.03	0.04	0.03	0.01	0.06	0.01	0.04	0.01	0.00
6	0.01	0.08	0.13	0.17	0.11	0.17	0.20	0.19	0.14	0.06	0.04	0.05
7	0.08	0.11	0.23	0.32	0.43	0.52	0.52	0.51	0.37	0.32	0.06	0.10
8	0.01	0.09	0.09	0.18	0.22	0.27	0.26	0.26	0.48	0.22	0.17	0.13
9	0.03	0.01	0.03	0.08	0.11	0.06	0.17	0.10	0.10	0.15	0.11	0.17
10	0.03	0.01	0.03	0.05	0.09	0.09	0.08	0.08	0.04	0.17	0.06	0.00
11	0.03	0.01	0.00	0.01	0.05	0.03	0.06	0.01	0.05	0.10	0.09	0.06
12	0.00	0.06	0.00	0.00	0.03	0.03	0.03	0.05	0.05	0.06	0.04	0.03
13	0.09	0.04	0.05	0.01	0.00	0.00	0.03	0.01	0.04	0.03	0.06	0.01
14	0.20	0.10	0.08	0.03	0.01	0.00	0.01	0.00	0.10	0.04	0.03	0.00
15	0.23	0.18	0.28	0.18	0.03	0.00	0.00	0.00	0.03	0.01	0.01	0.00
16	0.06	0.13	0.54	0.13	0.03	0.01	0.00	0.01	0.00	0.00	0.01	0.00
17	0.03	0.10	0.42	0.47	0.17	0.00	0.01	0.00	0.00	0.00	0.00	0.01
18	0.05	0.01	0.08	0.22	0.06	0.04	0.01	0.00	0.00	0.00	0.00	0.00
19	0.10	0.06	0.01	0.00	0.03	0.05	0.09	0.00	0.00	0.00	0.00	0.00
20	0.04	0.04	0.04	0.00	0.04	0.03	0.01	0.00	0.01	0.00	0.00	0.00
21	0.04	0.03	0.00	0.03	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00
22	0.03	0.04	0.06	0.00	0.00	0.00	0.01	0.03	0.03	0.01	0.00	0.00
23	0.01	0.04	0.29	0.09	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
TOTAL	1.19	1.28	2.52	2.08	1.53	1.34	1.50	1.35	1.47	1.22	0.71	0.56

Table 7.6-3 (cont.) Composite Weekday Time-Off Frequency Distribution.

TIME OF DAY (hour)	1140 MINUTES OFF (%)	1200 MINUTES OFF (%)	1260 MINUTES OFF (%)	1320 MINUTES OFF (%)	1380 MINUTES OFF (%)	1440 MINUTES OFF (%)	2880 MINUTES OFF (%)	4320 MINUTES OFF (%)	5760 MINUTES OFF (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
6	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.01
7	0.03	0.04	0.00	0.01	0.01	0.00	0.10	0.03	0.03
8	0.06	0.10	0.05	0.03	0.01	0.00	0.15	0.01	0.01
9	0.05	0.05	0.05	0.03	0.01	0.01	0.05	0.00	0.00
10	0.15	0.05	0.05	0.01	0.03	0.00	0.04	0.01	0.00
11	0.08	0.09	0.04	0.01	0.04	0.00	0.05	0.01	0.01
12	0.04	0.05	0.03	0.01	0.04	0.01	0.03	0.00	0.00
13	0.04	0.01	0.06	0.06	0.01	0.01	0.04	0.01	0.00
14	0.04	0.03	0.04	0.01	0.01	0.01	0.05	0.01	0.00
15	0.01	0.00	0.00	0.04	0.01	0.03	0.03	0.01	0.00
16	0.00	0.00	0.01	0.00	0.04	0.04	0.05	0.00	0.00
17	0.00	0.03	0.01	0.00	0.00	0.01	0.03	0.01	0.00
18	0.00	0.01	0.00	0.03	0.01	0.00	0.05	0.00	0.00
19	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.50	0.47	0.34	0.24	0.24	0.13	0.74	0.17	0.06

Table 7.6-4. Composite Weekday Trip Start and Trip End Frequency Distributions.

TIME OF DAY (hour)	TRIP STARTS (%)	TRIP ENDS (%)
0	0.84	0.82
1	0.41	0.43
2	0.15	0.14
3	0.17	0.19
4	0.28	0.23
5	0.45	0.37
6	1.91	1.35
7	5.70	5.04
8	5.64	5.88
9	4.72	5.01
10	5.06	5.07
11	7.19	6.85
12	8.31	8.27
13	6.92	6.94
14	7.38	7.08
15	7.78	7.80
16	7.43	7.66
17	7.89	7.61
18	6.41	7.09
19	5.11	5.21
20	3.42	3.62
21	2.97	2.95
22	2.09	2.31
23	1.76	2.08

Table 7.6-5. Composite Weekday VMT Frequency Distribution.

TIME OF DAY (hour)	0 VMT (%)	5 VMT (%)	10 VMT (%)	15 VMT (%)	20 VMT (%)	25 VMT (%)	30 VMT (%)	35 VMT (%)	40 VMT (%)	45 VMT (%)	50 VMT (%)	55 VMT (%)
0	0.18	0.40	0.11	0.06	0.00	0.01	0.05	0.03	0.00	0.00	0.00	0.00
1	0.13	0.14	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.01	0.04	0.06	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
3	0.01	0.08	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.03	0.11	0.03	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.17	0.09	0.09	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00
6	0.28	0.61	0.36	0.19	0.17	0.13	0.06	0.00	0.00	0.01	0.06	0.00
7	1.08	2.34	1.03	0.59	0.22	0.19	0.13	0.09	0.00	0.01	0.03	0.00
8	1.12	2.21	1.35	0.40	0.20	0.23	0.08	0.01	0.00	0.01	0.00	0.00
9	1.25	2.14	0.84	0.26	0.14	0.05	0.00	0.01	0.01	0.00	0.00	0.00
10	1.34	2.34	0.73	0.37	0.09	0.15	0.01	0.03	0.01	0.00	0.00	0.00
11	2.19	3.32	1.15	0.24	0.14	0.08	0.03	0.01	0.00	0.00	0.00	0.00
12	2.72	3.83	1.03	0.43	0.18	0.04	0.05	0.03	0.01	0.00	0.00	0.00
13	1.76	3.45	1.07	0.26	0.19	0.06	0.05	0.03	0.03	0.01	0.01	0.00
14	2.02	3.37	1.14	0.38	0.19	0.14	0.06	0.01	0.04	0.00	0.01	0.00
15	2.36	3.10	1.39	0.37	0.26	0.15	0.04	0.04	0.01	0.01	0.00	0.01
16	1.88	3.16	1.33	0.65	0.15	0.13	0.05	0.06	0.01	0.00	0.00	0.00
17	1.90	3.46	1.45	0.40	0.29	0.20	0.08	0.05	0.04	0.03	0.00	0.00
18	1.80	3.00	0.88	0.37	0.10	0.17	0.03	0.03	0.00	0.03	0.00	0.00
19	1.49	2.34	0.73	0.32	0.10	0.05	0.03	0.04	0.01	0.01	0.00	0.00
20	0.96	1.39	0.64	0.26	0.06	0.03	0.06	0.00	0.01	0.00	0.01	0.00
21	0.80	1.19	0.43	0.26	0.14	0.06	0.04	0.03	0.03	0.00	0.00	0.00
22	0.54	0.82	0.36	0.19	0.09	0.04	0.01	0.03	0.01	0.01	0.00	0.00
23	0.59	0.68	0.26	0.08	0.05	0.03	0.05	0.00	0.03	0.00	0.00	0.00
TOTAL	26.45	43.65	16.63	6.27	2.90	1.97	0.92	0.51	0.26	0.14	0.13	0.01

Table 7.6-5 (cont.) Composite Weekday VMT Frequency Distribution.

TIME OF DAY (hour)	60 VMT (%)	65 VMT (%)	70 VMT (%)	75 VMT (%)	80 VMT (%)	85 VMT (%)	90 VMT (%)	95 VMT (%)	100 VMT (%)	105 VMT (%)	110 VMT (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.04	0.04	0.03	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.03

Table 7.6-6. Composite Weekday Mean Trip Speed Frequency Distribution.

TIME OF DAY (hour)	0 MPH SPEED (%)	5 MPH SPEED (%)	10 MPH SPEED (%)	15 MPH SPEED (%)	20 MPH SPEED (%)	25 MPH SPEED (%)	30 MPH SPEED (%)	35 MPH SPEED (%)	40 MPH SPEED (%)	45 MPH SPEED (%)	50 MPH SPEED (%)	55 MPH SPEED (%)
0	0.01	0.04	0.06	0.09	0.11	0.18	0.13	0.04	0.09	0.04	0.05	0.00
1	0.01	0.03	0.06	0.05	0.05	0.10	0.01	0.05	0.00	0.03	0.01	0.00
2	0.00	0.01	0.00	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.03	0.00
3	0.00	0.00	0.01	0.04	0.01	0.04	0.04	0.03	0.00	0.00	0.00	0.00
4	0.01	0.00	0.03	0.03	0.01	0.04	0.04	0.05	0.04	0.01	0.01	0.01
5	0.01	0.00	0.04	0.05	0.03	0.05	0.09	0.05	0.06	0.04	0.01	0.00
6	0.11	0.01	0.09	0.11	0.28	0.43	0.27	0.24	0.13	0.04	0.09	0.06
7	0.09	0.20	0.33	1.11	1.25	0.98	0.73	0.45	0.27	0.18	0.04	0.08
8	0.20	0.18	0.43	0.85	1.21	1.08	0.80	0.32	0.32	0.13	0.04	0.04
9	0.17	0.22	0.37	0.71	0.92	0.94	0.59	0.33	0.22	0.14	0.06	0.04
10	0.19	0.28	0.43	0.61	0.93	1.11	0.65	0.32	0.24	0.17	0.05	0.08
11	0.15	0.34	0.73	1.37	1.59	1.43	0.75	0.29	0.24	0.14	0.05	0.06
12	0.17	0.41	0.96	1.71	1.86	1.43	0.82	0.59	0.19	0.11	0.04	0.04
13	0.04	0.41	0.63	1.29	1.48	1.52	0.60	0.38	0.37	0.09	0.10	0.00
14	0.24	0.31	0.74	1.37	1.66	1.47	0.63	0.43	0.26	0.11	0.08	0.05
15	0.18	0.38	0.87	1.17	1.89	1.44	0.73	0.40	0.31	0.26	0.09	0.04
16	0.18	0.27	0.70	1.31	1.68	1.53	0.84	0.41	0.29	0.11	0.06	0.04
17	0.24	0.34	0.57	1.28	2.16	1.38	0.87	0.48	0.20	0.19	0.13	0.03
18	0.10	0.26	0.69	1.10	1.29	1.43	0.74	0.32	0.22	0.13	0.06	0.06
19	0.10	0.24	0.46	0.73	1.11	1.06	0.64	0.34	0.19	0.15	0.08	0.01
20	0.08	0.20	0.28	0.52	0.50	0.63	0.60	0.24	0.17	0.09	0.09	0.01
21	0.06	0.11	0.27	0.36	0.63	0.43	0.33	0.38	0.15	0.11	0.09	0.03
22	0.15	0.05	0.13	0.24	0.26	0.43	0.18	0.22	0.18	0.18	0.05	0.03
23	0.13	0.11	0.15	0.22	0.31	0.29	0.22	0.09	0.10	0.05	0.05	0.00
TOTAL	2.64	4.41	9.03	16.33	21.26	19.45	11.29	6.47	4.25	2.51	1.37	0.70

Table 7.6-6 (cont.) Composite Weekday Mean Trip Speed Frequency Distribution.

TIME OF DAY (hour)	60 MPH SPEED (%)	65 MPH SPEED (%)	70 MPH SPEED (%)	75 MPH SPEED (%)
0	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00
6	0.01	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
8	0.01	0.01	0.00	0.00
9	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
11	0.03	0.01	0.00	0.00
12	0.00	0.00	0.00	0.00
13	0.03	0.00	0.00	0.00
14	0.05	0.00	0.00	0.00
15	0.01	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00
17	0.03	0.00	0.00	0.00
18	0.01	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00
20	0.01	0.00	0.00	0.00
21	0.01	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00
23	0.03	0.01	0.00	0.00
TOTAL	0.24	0.04	0.00	0.00

Table 7.6-7. Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 5 min (%)	Resting 10 min (%)	Resting 15 min (%)	Resting 20 min (%)	Resting 25 min (%)	Resting 30 min (%)	Resting 35 min (%)	Resting 40 min (%)	Resting 45 min (%)	Resting 50 min (%)	Resting 55 min (%)	Resting 60 min (%)
0	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
1	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00
7	0.29	0.08	0.05	0.04	0.03	0.02	0.03	0.02	0.01	0.02	0.01	0.01
8	0.25	0.11	0.09	0.08	0.05	0.05	0.04	0.01	0.02	0.03	0.01	0.02
9	0.25	0.13	0.12	0.06	0.05	0.02	0.03	0.03	0.05	0.02	0.03	0.03
10	0.30	0.11	0.08	0.07	0.08	0.05	0.05	0.06	0.05	0.03	0.03	0.02
11	0.40	0.28	0.16	0.10	0.07	0.06	0.09	0.05	0.05	0.03	0.05	0.04
12	0.52	0.29	0.15	0.12	0.10	0.10	0.05	0.05	0.04	0.05	0.05	0.03
13	0.36	0.22	0.16	0.10	0.09	0.07	0.03	0.04	0.05	0.03	0.03	0.04
14	0.35	0.30	0.15	0.08	0.09	0.03	0.06	0.06	0.04	0.03	0.03	0.05
15	0.45	0.29	0.13	0.10	0.07	0.06	0.05	0.05	0.03	0.06	0.02	0.03
16	0.38	0.24	0.12	0.11	0.09	0.06	0.07	0.05	0.03	0.03	0.03	0.03
17	0.47	0.21	0.12	0.08	0.08	0.07	0.04	0.03	0.04	0.04	0.02	0.03
18	0.33	0.23	0.10	0.06	0.06	0.05	0.05	0.05	0.02	0.03	0.03	0.04
19	0.24	0.10	0.09	0.08	0.06	0.05	0.05	0.02	0.02	0.03	0.01	0.02
20	0.14	0.06	0.04	0.03	0.05	0.01	0.02	0.01	0.02	0.01	0.01	0.01
21	0.17	0.06	0.03	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00
22	0.09	0.05	0.03	0.01	0.02	0.01	0.01	0.00	0.00	0.01	0.00	0.01
23	0.11	0.03	0.02	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 120 min (%)	Resting 180 min (%)	Resting 240 min (%)	Resting 300 min (%)	Resting 360 min (%)	Resting 420 min (%)	Resting 480 min (%)	Resting 540 min (%)	Resting 600 min (%)	Resting 660 min (%)	Resting 720 min (%)	Resting 780 min (%)
0	0.12	0.32	0.33	0.37	0.37	0.37	0.45	0.41	0.37	0.24	0.14	0.08
1	0.08	0.11	0.30	0.32	0.36	0.37	0.37	0.44	0.41	0.37	0.23	0.13
2	0.03	0.06	0.10	0.29	0.32	0.36	0.36	0.37	0.43	0.41	0.37	0.23
3	0.03	0.03	0.06	0.10	0.29	0.32	0.34	0.36	0.37	0.43	0.41	0.37
4	0.05	0.03	0.03	0.06	0.10	0.29	0.32	0.33	0.34	0.36	0.42	0.41
5	0.08	0.05	0.03	0.03	0.06	0.10	0.29	0.30	0.31	0.32	0.34	0.41
6	0.22	0.08	0.04	0.02	0.02	0.06	0.09	0.24	0.23	0.25	0.26	0.28
7	0.77	0.21	0.08	0.04	0.02	0.02	0.04	0.06	0.19	0.15	0.13	0.18
8	0.86	0.69	0.20	0.07	0.04	0.01	0.01	0.04	0.05	0.15	0.11	0.09
9	0.56	0.71	0.64	0.19	0.07	0.03	0.01	0.01	0.03	0.05	0.11	0.07
10	0.46	0.40	0.62	0.56	0.18	0.07	0.03	0.01	0.01	0.02	0.02	0.10
11	0.51	0.30	0.29	0.52	0.42	0.16	0.06	0.02	0.01	0.01	0.02	0.01
12	0.71	0.31	0.20	0.20	0.46	0.39	0.15	0.05	0.01	0.00	0.00	0.02
13	0.68	0.51	0.21	0.12	0.16	0.41	0.36	0.14	0.03	0.01	0.00	0.00
14	0.67	0.42	0.37	0.15	0.09	0.11	0.34	0.31	0.09	0.02	0.01	0.00
15	0.78	0.44	0.30	0.28	0.11	0.07	0.09	0.29	0.18	0.03	0.01	0.00
16	0.85	0.55	0.36	0.23	0.18	0.07	0.06	0.06	0.15	0.09	0.01	0.01
17	0.86	0.64	0.41	0.30	0.14	0.14	0.07	0.05	0.03	0.03	0.06	0.01
18	0.88	0.61	0.51	0.34	0.28	0.11	0.10	0.06	0.03	0.02	0.02	0.03
19	0.65	0.71	0.52	0.46	0.33	0.25	0.09	0.09	0.05	0.03	0.01	0.01
20	0.57	0.49	0.57	0.49	0.42	0.31	0.24	0.09	0.08	0.04	0.03	0.01
21	0.44	0.46	0.42	0.49	0.45	0.40	0.30	0.23	0.08	0.08	0.03	0.03
22	0.39	0.39	0.40	0.39	0.47	0.42	0.39	0.29	0.18	0.08	0.08	0.03
23	0.33	0.34	0.37	0.37	0.38	0.45	0.42	0.38	0.24	0.14	0.08	0.08

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 840 min (%)	Resting 900 min (%)	Resting 960 min (%)	Resting 1020 min (%)	Resting 1080 min (%)	Resting 1140 min (%)	Resting 1200 min (%)	Resting 1260 min (%)	Resting 1320 min (%)	Resting 1380 min (%)	Resting 1440 min (%)	Resting 1500 min (%)
0	0.08	0.03	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
1	0.08	0.08	0.03	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
2	0.13	0.08	0.08	0.03	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00
3	0.23	0.13	0.08	0.08	0.03	0.02	0.01	0.00	0.01	0.00	0.00	0.00
4	0.37	0.21	0.13	0.08	0.08	0.03	0.02	0.01	0.00	0.01	0.00	0.00
5	0.38	0.34	0.18	0.11	0.08	0.08	0.03	0.02	0.01	0.00	0.01	0.00
6	0.31	0.28	0.28	0.14	0.11	0.06	0.08	0.02	0.02	0.01	0.00	0.01
7	0.18	0.21	0.17	0.23	0.11	0.09	0.04	0.05	0.02	0.02	0.00	0.00
8	0.13	0.13	0.15	0.11	0.19	0.09	0.07	0.03	0.04	0.02	0.01	0.00
9	0.07	0.09	0.09	0.10	0.09	0.16	0.07	0.05	0.02	0.03	0.01	0.01
10	0.05	0.06	0.08	0.06	0.08	0.06	0.12	0.06	0.04	0.02	0.02	0.01
11	0.07	0.03	0.05	0.07	0.05	0.07	0.06	0.09	0.04	0.03	0.01	0.01
12	0.01	0.07	0.02	0.04	0.06	0.04	0.06	0.06	0.08	0.04	0.02	0.01
13	0.01	0.01	0.03	0.02	0.03	0.05	0.03	0.05	0.05	0.06	0.03	0.02
14	0.00	0.01	0.00	0.02	0.02	0.03	0.04	0.02	0.03	0.05	0.06	0.02
15	0.00	0.00	0.01	0.00	0.01	0.01	0.02	0.03	0.02	0.02	0.04	0.05
16	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.02	0.03	0.02	0.02	0.04
17	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.02	0.02	0.02
18	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.02	0.02
19	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.01
20	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02
21	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
22	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
23	0.03	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 1560 min (%)	Resting 1620 min (%)	Resting 1680 min (%)	Resting 1740 min (%)	Resting 1800 min (%)	Resting 1860 min (%)	Resting 1920 min (%)	Resting 1980 min (%)	Resting 2040 min (%)	Resting 2100 min (%)	Resting 2160 min (%)	Resting 2220 min (%)
0	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.00
1	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.03	0.03	0.02	0.02
2	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.03	0.03	0.02
3	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.03	0.03
4	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.03
5	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.01	0.01
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01
7	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01
8	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
9	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
10	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
11	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
16	0.04	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
17	0.03	0.04	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00
18	0.02	0.03	0.03	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00
19	0.02	0.01	0.03	0.03	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00
20	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.00	0.00	0.01	0.01	0.00
21	0.02	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.00	0.00	0.01	0.01
22	0.00	0.02	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.00	0.00	0.01
23	0.01	0.00	0.02	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 2280 min (%)	Resting 2340 min (%)	Resting 2400 min (%)	Resting 2460 min (%)	Resting 2520 min (%)	Resting 2580 min (%)	Resting 2640 min (%)	Resting 2700 min (%)	Resting 2760 min (%)	Resting 2820 min (%)	Resting 2880 min (%)	Resting 2940 min (%)
0	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.03	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.03	0.03	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
6	0.01	0.03	0.03	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
7	0.01	0.01	0.03	0.02	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00
8	0.00	0.01	0.01	0.03	0.02	0.02	0.01	0.00	0.00	0.01	0.00	0.00
9	0.01	0.00	0.01	0.01	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.00
10	0.00	0.01	0.00	0.01	0.01	0.02	0.01	0.02	0.01	0.00	0.00	0.00
11	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.00
12	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.01	0.01	0.01	0.00
13	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.01	0.00	0.01
14	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00
15	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01
16	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01
17	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
23	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 3000 min (%)	Resting 3060 min (%)	Resting 3120 min (%)	Resting 3180 min (%)	Resting 3240 min (%)	Resting 3300 min (%)	Resting 3360 min (%)	Resting 3420 min (%)	Resting 3480 min (%)	Resting 3540 min (%)	Resting 3600 min (%)	Resting 3660 min (%)
0	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00
1	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01
2	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
3	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
21	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
22	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00
23	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 3720 min (%)	Resting 3780 min (%)	Resting 3840 min (%)	Resting 3900 min (%)	Resting 3960 min (%)	Resting 4020 min (%)	Resting 4080 min (%)	Resting 4140 min (%)	Resting 4200 min (%)	Resting 4260 min (%)	Resting 4320 min (%)	Resting 4380 min (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 4440 min (%)	Resting 4500 min (%)	Resting 4560 min (%)	Resting 4620 min (%)	Resting 4680 min (%)	Resting 4740 min (%)	Resting 4800 min (%)	Resting 4860 min (%)	Resting 4920 min (%)	Resting 4980 min (%)	Resting 5040 min (%)	Resting 5100 min (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 5160 min (%)	Resting 5220 min (%)	Resting 5280 min (%)	Resting 5340 min (%)	Resting 5400 min (%)	Resting 5460 min (%)	Resting 5520 min (%)	Resting 5580 min (%)	Resting 5640 min (%)	Resting 5700 min (%)	Resting 5760 min (%)	Resting 5820 min (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 5880 min (%)	Resting 5940 min (%)	Resting 6000 min (%)	Resting 6060 min (%)	Resting 6120 min (%)	Resting 6180 min (%)	Resting 6240 min (%)	Resting 6300 min (%)	Resting 6360 min (%)	Resting 6420 min (%)	Resting 6480 min (%)	Resting 6540 min (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Resting 6600 min (%)	Resting 6660 min (%)	Resting 6720 min (%)	Resting 6780 min (%)	Resting 6840 min (%)	Resting 6900 min (%)	Resting 6960 min (%)	Resting 7020 min (%)	Resting 7080 min (%)	Resting 7140 min (%)	Resting 7200 min (%)	Resting 7260 min (%)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.6-7 (cont) Composite Weekday Resting Time Frequency Distribution.

Time of Day (hour)	Total Fleet Distribution (%)
0	94.66
1	97.32
2	98.97
3	98.89
4	98.11
5	96.93
6	87.04
7	71.25
8	73.56
9	76.83
10	75.46
11	69.30
12	67.45
13	69.83
14	68.19
15	67.17
16	67.56
17	66.52
18	71.47
19	75.43
20	81.41
21	83.49
22	87.72
23	89.66

SECTION 11.0 HEAVY-DUTY TRUCK ACTIVITY ANALYSIS

11.1 Introduction

This section discusses the development of *hourly weekday* heavy-duty truck activity distributions, by vehicle weight class and fuel category, for trip starts, time-on (idle and non-idle trips), time-off, resting time, average duration for an idle trip and vehicle miles traveled (VMT) by speed. In addition, the average number of idle trips per day for each vehicle class was determined.

11.2 Data Sources

Data from instrumented heavy-duty trucks were available from two different sources: (1) two different data sets (referred to as JFA1 and JFA2 in this report) from Jack Faucett Associates (JFA) and (2) Battelle.

JFA1 Data: The instrumentation and data acquisition was carried out by JFA, as part of the contract work entitled “Heavy-Duty Truck Population Activity and Usage Patterns”. Instrumented data from 32 trucks including date and time the vehicle was turned on and off, average trip speed, trip length, time at idle and distribution of speed during the trip in terms of time spent at different speeds grouped in 5 mile per hour (mph) bins was collected by JFA. However, data from only 31 trucks were used in the analysis. The key-on to key-off events from the remaining truck seemed to be very short in duration and very frequent during the day without driving any appreciable distance. In order to avoid biasing the analysis towards this unusual driving behavior, the data from this truck were discarded. Furthermore, the first trip from each vehicle was deleted from the database assuming that this trip was performed to ensure proper functioning of the instrument, therefore, was not typical. Trips with a duration equal to 1 second or less were also eliminated from the database assuming that they were not real events and probably caused by noise in the instrumentation.

JFA2 Data: This data set was collected by JFA for the ARB under a contract entitled “Heavy-Duty Vehicle Fleet Characterization for Reduction of NOx and Particulate Matter Emissions in the South Coast Air Basin”. JFA collected second by second trip data from 25 vehicles which ARB staff converted into trip summary data (truck number, trip number, trip start date and time, trip end date and time, trip distance and average trip speed). Records with missing trip distance or average speed were deleted before the data set was merged with other data sets for analysis.

Battelle Data: The instrumentation and data acquisition was carried out by Battelle as part of the contract work entitled “Heavy Duty Truck Activity Data Project”. Battelle provided the ARB instrumented data from 91 trucks. The raw data were made available in the form of date and time the vehicle was turned on and off, trip length in miles and minutes, soak-time and hourly speed distribution in terms of time spent and distance

traveled at different speeds grouped in 5 mph bins. Trucks operated with fuels other than gasoline and diesel were not included in the analysis. Furthermore, observations with missing trip length and/or trip duration were discarded from the database.

11.3 Data Analysis

Data from Battelle's 91 instrumented trucks and JFA's 56 instrumented trucks were merged and used in this analysis. The composition of the truck fleet by fuel and gross vehicle weight (GVW) category is shown in Table 11.3-1. In analyzing trip-starts, time-on, time-off and VMT distributions, an observation is considered a weekday event if the key-on occurs during a weekday. While for the resting time distribution, an observation is considered a weekday event if the key-off event occurs on a weekday. In addition, if the key-off event occurs during a weekend and the resting time flows to the weekdays of the following week, then the part of the resting time occurring during the weekdays is included in the analysis while keeping track of the resting history of the vehicle during the weekend. In calculating the number of idle and non-idle trips per day, the days are the total number of weekdays the truck was instrumented and the trips are the total number of trips that occurred during these weekdays.

11.4 Definition of Variables

Idle trip and Non-idle trip:

An idle trip is a key-on to key-off event with a speed of less than 5 mph and a trip length of less than 5 miles. All other trips with speeds greater than or equal to 5 mph and trip length greater than or equal to 5 miles were considered non-idle trips. Table 11.4-1 shows the number of weekday idle trips and non-idle trips per day. Table 11.4-2 shows the average idle trip duration in minutes by time of the day. Table 11.4-3 shows the percent of idle trips and non-idle trips for each weight/fuel class.

Hourly weekday trip start distribution

Trips-starts are the number of times the vehicle was turned on during the respective hour. It is given as percent of the total number of starts during the 24 hours of the weekday. For example, if a trip started at 3:50 PM of a weekday and ended at 4:15 PM, the key-on event at 3:50 PM would be counted as one start applied to the 3:00 PM hour. Trip starts are used to estimate start emissions. Table 11.4-4 shows trip start distribution by time of day and vehicle weight/fuel class.

Hourly weekday time-on distribution

Time-on distribution is used to calculate running emissions. It is the difference in time between the key-on and key-off events and it is applied to the hour the vehicle was turned on. If a vehicle's running time overflows to the next hour all of the time is counted in the

hour when the vehicle started. For example if a vehicle is turned on at 3:50 PM and turned off at 4:15 PM, a frequency count of one would be applied to the 25-minute time-on bin at the 3:00 PM hour. Since heavy-duty trucks idle frequently without moving, in the EMFAC2000 model, running emissions for idle trips will be estimated separately from non-idle trips. For this reason, separate 24-hour time-on distributions are estimated for idle trips and non-idle trips. Vehicle class specific time-on frequency distributions by time of the day and time-on bins for non-idle trips and idle trips are given in Tables 11.4-5 to 11.4-14. The time-on events consist of 124 bins ranging from 1-minute to 600-minutes.

Hourly weekday time-off distribution

Time-off is used to calculate start emissions. It is the amount of time a vehicle is off prior to a trip start and is applied to the hour of the day the engine is turned on. For example, if a truck was turned off at 5:00 PM and then restarted at 7:00 AM the next day, a frequency count of one would be applied to the 14 hour time-off bin at the 7:00 AM hour. Tables 11.4-15 to 11.4-19 show vehicle class specific time-off distributions by hour of the day and time-off bins. The time-off events consist of 37 bins ranging from 5-minutes to seven days.

Hourly weekday resting time distribution

Resting time is the amount of time a vehicle will be off. It is the same as time-off except that it is applied to the hour the trip ended. The resting time is used to calculate evaporative emissions such as hot-soak, diurnal and resting losses. It is binned at 5-minute intervals for resting times less than or equal to 60 minutes and 60-minute intervals for resting times greater than 60 minutes. For each vehicle class, the weekday resting time frequency distribution is determined as follows:

- (a) If the trip ended on a weekday and the next trip started on a weekday of the same week, then a frequency count of one would be applied to each hour of the day the vehicle was resting at the appropriate resting time bins. In the above example, a frequency count of one would be applied to each hour starting with the 1-hour bin at 5:00 PM. A second count is applied to the 2-hour bin at 6:00 PM, a third count to the 3-hour bin at 7:00 PM, and so on, applying the last count on the 14-hour bin at 6:00 AM of the next day.
- (b) If the trip ended on a weekday and the next trip started on a weekend of the same week, then a frequency count of one would be applied to each hour of the weekday hours only. For example, starting with the 1-hour bin at 5:00 PM, frequency counts of one would be applied to each bin at each hour up to the 7-hour bin at 11:00 AM of Friday.
- (c) If the trip ended on a weekday and the next trip started on a weekday of the following week, then the resting time will be divided into three parts: (1) the part of the resting time that occurred during the weekdays, (2) the part of the resting time that occurred during the weekend (which will be equal to 48 hours), and (3) the part of the resting time that occurred during the weekdays of the following week. As an example,

consider a trip that ended on a Friday at 5:00 PM and the next trip that started at 6:00 am on Monday of the following week. The total resting time is 71 hours, of which 7 hours occur on a weekday of the first week, 48 hours occur during the weekend and the remaining 6 hours occur on a weekday of the following week. The first part will be distributed by applying a single count on each of the hours starting with the one-hour bin at 5:00 PM and ending with the 7-hour bin at 11:00 AM Friday. Then skipping the weekend hours and bins, i.e., the 8-hour to the 56-hour bins, the remaining resting time is distributed by applying a single count on each of the 6 hours, starting with the 57-hour bin at 12:00 AM Monday and ending with the 71-hour bin at 5:00 AM.

- (d) If a trip ended on a weekend and the next trip started on a weekday, then the part of the resting time that occurs during the weekday would be distributed by applying a single count to each bin and hour of the weekday. As an example, if a trip ended on a Sunday at 1:00 PM and the next trip started on a Monday at 1:00 PM of the following week, the total resting time would be 24 hours, 11 of which occur during the weekend and the remaining 13 occur during a weekday. Then the weekday part of the resting time would be distributed by applying a single count to each bin and hour of the weekday, starting with the 12-hour bin at 12:00 AM on Monday and ending with the 24-hour bin at 1:00 PM on Monday. Tables 11.4-20 to 11.4-24 give the resting time distributions by vehicle class.

Hourly Weekday Trip VMT distribution by Speed

The VMT distribution is the distribution of the distance traveled by a truck in a single trip at a certain average speed and hour of the day expressed as the percent of the total miles traveled in that hour. The average speed is binned in 5 mph intervals. The VMT distribution in conjunction with the speed correction factors are used to correct base emission rates for speeds other than the speed of the test cycle at which the base emission rates were calculated. Tables 11.4-25 to 11.4-29 give VMT distributions by vehicle class.

Table 11.3-1 Truck Statistics

Weight Class	Gross Vehicle Weight	Number of Trucks		
		Battelle	JFA1	JFA2
Heavy-Heavy Diesel	>33,000	33	15	14
Medium-Heavy Diesel	14,001 to 33,000 lb	28	6	5
Light-Heavy Diesel	8,501 to 33,000 lb	3	3	---
Medium-Heavy Gasoline	14,001 to 33,000 lb	0	3	5
Light-Heavy Gasoline	8,501 to 33,000 lb	27	4	1
Total Heavy Duty		91	31	25

Table 11.4-1 Idle Trips and Non-Idle Trips per Day

Weight Class	Idle Trips per Day	Non-Idle Trips per Day
HHDT	2.40	6.16
MHDT	1.03	20.82
LHDT	0.61	11.97
MHGT	1.52	21.3
LHGT	1.29	29.67

Table 11.4-2 Average Idle Time by Time of Day (Minutes)

Time of Day (Hour)	HHD	MHD	LHD	MHG	LHG
0	5.07	0.02	0.00	0.00	0.90
1	1.46	0.00	0.00	1.63	0.14
2	1.50	0.00	0.87	1.33	0.00
3	3.14	0.42	0.00	2.00	1.46
4	1.95	2.19	0.00	0.00	0.65
5	4.16	8.97	5.00	1.98	2.61
6	7.30	0.87	0.00	0.00	2.03
7	4.10	7.72	10.22	0.91	3.65
8	2.94	2.02	0.36	2.00	1.16
9	3.70	6.27	0.35	1.61	0.70
10	2.71	3.35	0.00	0.28	4.34
11	2.71	3.93	1.37	0.34	1.20
12	2.19	8.93	0.00	0.31	2.39
13	2.82	1.79	8.07	0.92	0.74
14	5.41	1.63	0.73	3.14	1.24
15	3.24	2.03	0.00	0.60	1.63
16	4.10	2.76	0.00	0.95	1.84
17	2.36	2.56	3.48	0.43	1.43
18	7.77	9.55	1.61	0.86	1.66
19	1.14	4.85	4.99	3.83	1.49
20	3.42	12.29	0.00	0.53	0.57
21	2.35	0.00	0.00	0.00	0.92
22	6.15	0.07	0.00	1.27	0.22
23	1.30	0.00	0.00	1.98	2.69

Table 11.4-3 Percent of Trips - Idle and Non-Idle

Vehicle Class	Idle Trips	Non-idle trips
HHD	26%	74%
MHD	5%	95%
LHD	5%	95%
MHG	6%	94%
LHG	4%	96%

Time of Day (Hour)	HHD	MHD	LHD	MHG	LHG
0	0.73	0.46	0.00	0.00	2.44
1	3.66	0.00	0.00	1.30	1.22
2	0.94	0.00	5.26	7.79	0.00
3	1.05	0.91	0.00	1.30	1.22
4	2.20	0.00	0.00	0.00	0.61
5	3.45	2.28	5.26	1.30	3.66
6	7.43	3.65	0.00	0.00	4.88
7	7.95	0.46	5.26	5.19	4.27
8	6.90	5.48	15.79	5.19	3.05
9	8.89	9.59	5.26	2.60	9.15
10	6.69	11.42	0.00	7.79	6.10
11	5.86	9.13	10.53	10.39	8.54
12	5.13	8.22	0.00	5.19	5.49
13	4.60	7.31	5.26	11.69	4.88
14	5.13	8.68	15.79	6.49	8.54
15	7.53	5.02	0.00	5.19	6.71
16	3.56	9.13	0.00	7.79	4.27
17	3.66	4.57	10.53	6.49	3.66
18	1.99	3.20	10.53	6.49	4.27
19	4.08	3.65	10.53	2.60	5.49
20	1.67	5.02	0.00	2.60	3.66
21	2.62	1.37	0.00	0.00	4.27
22	1.46	0.00	0.00	1.30	1.83
23	2.82	0.46	0.00	1.30	1.83

Table 11.4-4 Percent of Trip Starts by Time of Day

Time of Day (Hour)	HHD	MHD	LHD	MHG	LHG
0	1.96	0.15	2.82	0.75	0.53
1	2.63	0.07	2.82	0.34	0.51
2	1.63	0.02	2.05	1.42	0.56
3	2.52	0.07	0.51	0.34	0.25
4	2.43	0.07	1.03	0.34	0.56
5	4.51	0.59	0.51	1.01	0.36
6	5.97	0.98	0.26	1.17	0.38
7	7.32	0.94	2.05	1.68	0.51
8	6.94	4.65	4.87	4.36	3.33
9	8.71	18.83	18.46	16.00	16.18
10	7.49	16.36	7.69	10.39	14.99
11	6.38	13.74	9.23	13.57	13.56
12	5.91	9.47	6.92	8.12	8.37
13	5.47	6.52	4.36	6.03	7.63
14	5.36	8.16	7.69	6.53	8.12
15	5.47	9.23	6.41	8.79	8.32
16	3.92	6.50	7.18	5.53	6.49
17	2.63	1.57	4.62	4.94	2.82
18	2.65	0.74	1.54	4.27	1.45
19	2.32	0.55	1.79	2.51	1.27
20	1.93	0.52	2.31	1.09	1.15
21	2.13	0.20	1.28	0.08	0.79
22	1.63	0.07	2.31	0.42	0.87
23	2.07	0.02	1.28	0.34	0.99

Table 11.4-5

Hourly Weekday Time-On Distribution for Non-Idle Trips (in Percent)																					
Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Time-on in minutes																				
	1	2	3	4	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
0	0.038	0.188	0.075	0.075	0.113	0.450	0.225	0.000	0.038	0.000	0.038	0.038	0.188	0.188	0.113	0.000	0.000	0.000	0.038	0.000	0.075
1	0.000	0.338	0.188	0.188	0.188	0.113	0.075	0.038	0.038	0.188	0.225	0.038	0.038	0.075	0.150	0.113	0.038	0.000	0.000	0.000	0.075
2	0.000	0.225	0.075	0.075	0.038	0.225	0.038	0.075	0.000	0.075	0.038	0.000	0.113	0.263	0.075	0.000	0.038	0.188	0.038	0.038	0.000
3	0.038	0.075	0.075	0.000	0.038	0.263	0.038	0.038	0.038	0.225	0.150	0.075	0.263	0.075	0.113	0.075	0.113	0.225	0.225	0.000	0.000
4	0.000	0.000	0.150	0.075	0.113	0.188	0.150	0.075	0.188	0.150	0.038	0.038	0.263	0.113	0.075	0.113	0.038	0.038	0.038	0.000	0.038
5	0.300	0.188	0.188	0.038	0.150	0.525	0.113	0.300	0.188	0.188	0.150	0.188	0.225	0.038	0.075	0.263	0.225	0.000	0.038	0.038	0.000
6	0.150	0.113	0.225	0.075	0.038	0.638	0.338	0.488	0.300	0.075	0.113	0.188	0.000	0.113	0.150	0.075	0.113	0.075	0.150	0.113	0.113
7	0.150	0.413	0.263	0.488	0.188	1.238	0.563	0.563	0.150	0.338	0.225	0.225	0.075	0.188	0.038	0.038	0.113	0.113	0.150	0.150	0.075
8	0.263	0.375	0.300	0.113	0.188	1.313	0.901	0.450	0.413	0.113	0.113	0.225	0.225	0.150	0.113	0.038	0.075	0.038	0.075	0.113	0.038
9	0.638	0.525	0.225	0.488	0.263	2.064	0.675	0.750	0.338	0.075	0.338	0.263	0.225	0.038	0.113	0.038	0.150	0.038	0.000	0.075	0.075
10	0.188	0.338	0.413	0.413	0.263	1.201	0.750	0.563	0.150	0.413	0.338	0.300	0.113	0.150	0.150	0.188	0.150	0.113	0.188	0.038	0.038
11	0.150	0.263	0.375	0.075	0.225	0.976	0.675	0.338	0.338	0.225	0.113	0.225	0.263	0.075	0.263	0.038	0.075	0.113	0.150	0.188	0.038
12	0.113	0.338	0.300	0.338	0.188	0.826	0.563	0.300	0.225	0.413	0.413	0.375	0.150	0.113	0.113	0.075	0.038	0.038	0.075	0.075	0.075
13	0.225	0.300	0.263	0.150	0.113	0.750	0.788	0.263	0.300	0.225	0.075	0.150	0.113	0.113	0.075	0.375	0.038	0.075	0.075	0.075	0.075
14	0.488	0.901	0.263	0.075	0.188	0.638	0.263	0.338	0.300	0.263	0.113	0.188	0.113	0.113	0.075	0.075	0.225	0.038	0.113	0.075	0.075
15	0.788	0.488	0.188	0.113	0.113	0.413	0.413	0.263	0.038	0.263	0.225	0.338	0.038	0.038	0.188	0.038	0.038	0.000	0.075	0.188	0.075
16	0.563	0.300	0.075	0.038	0.113	0.338	0.263	0.150	0.263	0.150	0.113	0.150	0.113	0.150	0.038	0.038	0.113	0.150	0.000	0.113	0.075
17	0.263	0.150	0.188	0.225	0.075	0.150	0.225	0.000	0.075	0.038	0.075	0.113	0.038	0.075	0.113	0.000	0.113	0.000	0.000	0.075	0.000
18	0.413	0.113	0.150	0.525	0.150	0.338	0.038	0.075	0.038	0.075	0.038	0.038	0.000	0.000	0.150	0.000	0.038	0.075	0.075	0.038	0.000
19	0.150	0.225	0.075	0.075	0.038	0.113	0.150	0.075	0.075	0.075	0.038	0.038	0.113	0.038	0.038	0.075	0.000	0.038	0.000	0.000	0.000
20	0.188	0.038	0.150	0.038	0.113	0.113	0.075	0.000	0.075	0.113	0.075	0.150	0.000	0.075	0.000	0.038	0.038	0.000	0.000	0.000	0.113
21	0.075	0.000	0.188	0.225	0.038	0.300	0.113	0.075	0.038	0.038	0.038	0.038	0.075	0.000	0.000	0.000	0.000	0.038	0.000	0.038	0.075
22	0.150	0.075	0.113	0.075	0.113	0.375	0.113	0.000	0.038	0.038	0.075	0.000	0.150	0.000	0.000	0.000	0.000	0.000	0.038	0.038	0.000
23	0.225	0.188	0.038	0.000	0.113	0.188	0.263	0.000	0.038	0.038	0.113	0.000	0.000	0.113	0.075	0.000	0.038	0.038	0.075	0.113	0.038

Table 11.4-7

Hourly Weekday Time-On Distribution for Non-Idle Trips (in Percent)																
Light-Heavy Diesel Trucks																
Time of Day (hr)	Time-on in minutes															
	1	2	3	4	5	10	15	20	25	30	35	40	45	50	55	60+
0	0.000	0.269	1.075	0.269	0.269	0.538	0.000	0.538	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.269	0.806	0.000	0.269	0.000	0.269	0.806	0.000	0.538	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.538	0.000	0.000	0.000	0.000	0.269	0.000	0.269	0.269	0.000	0.269	0.000	0.269	0.000	0.000	0.000
3	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.269	0.000
4	0.269	0.000	0.000	0.000	0.000	0.269	0.000	0.538	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.269	0.269	0.000	0.269	0.000	0.269	0.269	0.269	0.000	0.000	0.269	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.806	0.538	0.269	0.806	0.806	0.806	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000
9	6.183	5.645	2.688	1.613	0.269	1.075	1.075	0.269	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000
10	1.075	1.882	1.075	1.344	0.806	0.538	0.806	0.538	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	3.226	1.613	0.806	1.075	0.000	1.075	1.075	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.538	1.613	1.344	1.075	0.269	1.344	0.538	0.269	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.806	0.538	0.269	0.538	0.806	0.269	0.538	0.269	0.269	0.000	0.000	0.000	0.000	0.000	0.000
14	1.344	2.419	0.269	1.613	0.538	0.806	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.538	1.882	0.806	0.806	0.269	1.613	0.538	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.538	1.075	1.075	1.344	1.075	1.613	0.269	0.269	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.806	0.269	0.538	1.075	0.269	0.538	0.538	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.269	0.000	0.000	0.269	0.269	0.000	0.000	0.000	0.269	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.538	0.000	0.269	0.538	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.269	0.806	0.000	0.269	0.806	0.000	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.269	0.000	0.000	0.000	0.000	0.806	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.269	0.000	0.269	0.269	0.269	1.075	0.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.269	0.000	0.269	0.000	0.000	0.538	0.000	0.000	0.000	0.000	0.000	0.269	0.000	0.000	0.000	0.000

Table 11.4-13

Hourly Weekday Time-On Distribution for Idle Trips (in Percent) Medium-Heavy Gasoline Trucks								
Time of Day (hr)	Time-on in minutes							
	1	2	3	4	5	10	15	20
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	1.299	0.000	0.000	0.000	0.000	0.000	0.000
2	2.597	3.896	0.000	1.299	0.000	0.000	0.000	0.000
3	0.000	1.299	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	1.299	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	3.896	1.299	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	3.896	0.000	0.000	1.299	0.000	0.000	0.000
9	1.299	0.000	1.299	0.000	0.000	0.000	0.000	0.000
10	7.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	9.091	1.299	0.000	0.000	0.000	0.000	0.000	0.000
12	5.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	9.091	1.299	1.299	0.000	0.000	0.000	0.000	0.000
14	5.195	0.000	0.000	0.000	0.000	0.000	1.299	0.000
15	3.896	1.299	0.000	0.000	0.000	0.000	0.000	0.000
16	6.494	0.000	0.000	1.299	0.000	0.000	0.000	0.000
17	6.494	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	2.597	3.896	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	1.299	0.000	0.000	1.299	0.000	0.000
20	2.597	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	1.299	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	1.299	0.000	0.000	0.000	0.000	0.000	0.000

Table 11.4-14

Hourly Weekday Time-On Distribution for Idle Trips (in Percent) Light-Heavy Gasoline Trucks								
Time of Day (hr)	Time-on in minutes							
	1	2	3	4	5	10	15	20+
0	1.220	1.220	0.000	0.000	0.000	0.000	0.000	0.000
1	1.220	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.610	0.000	0.610	0.000	0.000	0.000	0.000	0.000
4	0.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	1.829	0.000	0.000	0.000	1.220	0.610	0.000	0.000
6	1.829	1.220	0.610	0.000	1.220	0.000	0.000	0.000
7	1.220	0.000	0.000	0.000	3.049	0.000	0.000	0.000
8	1.220	1.220	0.610	0.000	0.000	0.000	0.000	0.000
9	6.707	2.439	0.000	0.000	0.000	0.000	0.000	0.000
10	1.829	1.829	0.000	0.000	0.000	1.220	1.220	0.000
11	4.878	3.049	0.000	0.000	0.000	0.610	0.000	0.000
12	3.049	0.610	0.000	0.000	1.220	0.610	0.000	0.000
13	3.049	1.829	0.000	0.000	0.000	0.000	0.000	0.000
14	4.878	2.439	0.610	0.000	0.610	0.000	0.000	0.000
15	3.659	1.829	0.000	0.000	0.610	0.610	0.000	0.000
16	1.829	1.220	0.000	0.610	0.610	0.000	0.000	0.000
17	1.220	1.220	1.220	0.000	0.000	0.000	0.000	0.000
18	1.829	1.220	0.610	0.000	0.000	0.610	0.000	0.000
19	3.659	0.000	1.220	0.000	0.610	0.000	0.000	0.000
20	3.049	0.610	0.000	0.000	0.000	0.000	0.000	0.000
21	1.829	2.439	0.000	0.000	0.000	0.000	0.000	0.000
22	1.829	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	1.220	0.610	0.000	0.000	0.000	0.000

Table 11.4-15

Hourly Weekday Time-Off Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Time-off in minutes																				
	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
0	0.112	0.056	0.365	0.140	0.393	0.028	0.084	0.056	0.056	0.056	0.000	0.056	0.140	0.000	0.000	0.056	0.000	0.028	0.056	0.028	0.028
1	0.813	0.308	0.701	0.196	0.084	0.140	0.056	0.140	0.028	0.000	0.000	0.056	0.056	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.337	0.112	0.112	0.224	0.252	0.028	0.000	0.084	0.056	0.000	0.028	0.028	0.000	0.056	0.084	0.028	0.028	0.028	0.056	0.028	0.000
3	0.224	0.112	0.561	0.280	0.224	0.140	0.084	0.140	0.056	0.028	0.028	0.112	0.028	0.028	0.028	0.000	0.028	0.112	0.028	0.000	0.000
4	0.224	0.308	0.617	0.280	0.084	0.112	0.028	0.056	0.140	0.000	0.140	0.084	0.000	0.000	0.056	0.000	0.028	0.056	0.028	0.056	0.000
5	0.869	0.533	0.701	0.421	0.196	0.168	0.056	0.168	0.112	0.224	0.196	0.084	0.056	0.000	0.084	0.028	0.056	0.056	0.112	0.112	0.056
6	1.374	0.252	0.421	0.701	0.337	0.252	0.365	0.224	0.056	0.056	0.000	0.028	0.056	0.056	0.084	0.112	0.196	0.140	0.224	0.084	0.084
7	1.598	1.178	1.542	0.729	0.617	0.224	0.280	0.561	0.028	0.028	0.000	0.000	0.000	0.056	0.000	0.000	0.056	0.028	0.028	0.028	0.056
8	1.907	0.785	1.206	0.897	0.617	0.337	0.112	0.561	0.028	0.056	0.056	0.000	0.000	0.028	0.028	0.028	0.056	0.000	0.000	0.000	0.028
9	2.356	1.430	1.907	1.010	0.701	0.224	0.168	0.505	0.084	0.028	0.028	0.000	0.028	0.000	0.056	0.000	0.028	0.000	0.000	0.028	0.000
10	1.767	0.925	1.739	0.813	0.589	0.561	0.365	0.533	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.028	0.000	0.000
11	1.570	0.841	1.290	0.645	0.617	0.393	0.252	0.589	0.056	0.000	0.000	0.056	0.000	0.028	0.000	0.028	0.000	0.028	0.000	0.000	0.000
12	1.066	0.813	1.346	0.981	0.505	0.280	0.280	0.421	0.112	0.028	0.000	0.000	0.028	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000
13	1.262	0.701	1.066	0.813	0.505	0.112	0.393	0.337	0.112	0.084	0.028	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000
14	1.346	0.841	1.122	0.813	0.280	0.196	0.224	0.308	0.084	0.056	0.084	0.028	0.028	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000
15	1.935	0.869	0.701	0.477	0.252	0.224	0.168	0.533	0.168	0.084	0.000	0.000	0.028	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	1.122	0.449	0.645	0.561	0.112	0.084	0.112	0.505	0.168	0.056	0.000	0.000	0.000	0.056	0.028	0.000	0.000	0.000	0.000	0.000	0.000
17	0.645	0.308	0.421	0.252	0.280	0.140	0.056	0.308	0.056	0.056	0.028	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000
18	0.505	0.224	0.477	0.056	0.196	0.084	0.112	0.337	0.196	0.224	0.056	0.000	0.000	0.056	0.000	0.000	0.028	0.000	0.000	0.000	0.000
19	0.981	0.056	0.365	0.224	0.084	0.084	0.056	0.140	0.028	0.056	0.140	0.084	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
20	0.224	0.112	0.337	0.280	0.084	0.168	0.140	0.308	0.140	0.084	0.056	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.561	0.308	0.365	0.224	0.168	0.056	0.000	0.084	0.112	0.056	0.084	0.028	0.028	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000
22	0.280	0.140	0.112	0.056	0.168	0.056	0.056	0.140	0.112	0.224	0.028	0.028	0.056	0.056	0.028	0.000	0.000	0.028	0.000	0.000	0.000
23	0.533	0.224	0.308	0.252	0.140	0.168	0.028	0.056	0.000	0.000	0.084	0.112	0.028	0.028	0.028	0.000	0.000	0.000	0.000	0.000	0.000

Table 11.4-15 (contd.)

Hourly Weekday Time-Off Distribution (in Percent)																
Heavy-Heavy Diesel Trucks																
Time of Day (hr)	Time-off in minutes															
	960	1020	1080	1140	1200	1260	1320	1380	1440	2880	4320	5760	7200	8640	10080	99999
0	0.028	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.112	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.028	0.000	0.000	0.000	0.000	0.000
4	0.000	0.056	0.028	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.056	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.112	0.028	0.028	0.000	0.000	0.000	0.000
6	0.252	0.112	0.056	0.028	0.028	0.000	0.028	0.000	0.000	0.140	0.196	0.000	0.000	0.000	0.000	0.000
7	0.084	0.000	0.028	0.000	0.000	0.028	0.000	0.000	0.000	0.028	0.084	0.000	0.000	0.000	0.000	0.000
8	0.196	0.000	0.028	0.000	0.028	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.028	0.028	0.028	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.056	0.000
10	0.056	0.000	0.000	0.028	0.000	0.028	0.000	0.000	0.000	0.000	0.056	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.028	0.028	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028
23	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.000

Table 11.4-16

Hourly Weekday Time-Off Distribution (in Percent) Medium-Heavy Diesel Trucks																					
Time of Day (hr)	Time-off in minutes																				
	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
0	0.021	0.021	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.021	0.000	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000
3	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.021	0.000
5	0.000	0.021	0.043	0.021	0.043	0.000	0.000	0.021	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.043	0.000	0.043	0.021
6	0.064	0.107	0.107	0.086	0.043	0.043	0.000	0.171	0.021	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.021	0.021	0.021	0.021	0.021
7	0.257	0.171	0.043	0.043	0.000	0.021	0.000	0.000	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.021	0.000	0.000	0.000
8	1.649	0.493	0.535	0.171	0.021	0.043	0.021	0.086	0.000	0.107	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.021	0.129	0.257	0.086
9	15.292	1.585	0.900	0.321	0.043	0.064	0.021	0.043	0.021	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.000	0.000
10	12.444	1.799	1.349	0.471	0.129	0.086	0.021	0.064	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	10.559	1.628	0.942	0.364	0.107	0.129	0.021	0.064	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	6.254	1.456	0.685	0.471	0.171	0.129	0.064	0.086	0.021	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	3.341	0.985	0.792	0.257	0.193	0.150	0.086	0.300	0.107	0.000	0.043	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	5.012	1.328	0.964	0.407	0.129	0.107	0.064	0.193	0.150	0.064	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	5.483	1.863	0.921	0.343	0.150	0.129	0.043	0.107	0.107	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	3.448	1.414	0.792	0.535	0.129	0.043	0.021	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.364	0.343	0.300	0.278	0.043	0.043	0.000	0.193	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.214	0.171	0.021	0.107	0.043	0.021	0.000	0.193	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.043	0.171	0.064	0.043	0.043	0.000	0.000	0.129	0.129	0.043	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000
20	0.086	0.086	0.150	0.000	0.021	0.000	0.000	0.086	0.107	0.064	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000
21	0.021	0.064	0.043	0.021	0.000	0.000	0.000	0.000	0.000	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000

Table 11.4-20

Hourly Weekday Resting Time Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	360	420	480	540	600
0	0.050	0.038	0.151	0.088	0.050	0.013	0.025	0.025	0.013	0.025	0.013	0.264	0.239	0.239	0.164	0.164	0.201	0.239	0.264	0.201	0.327
1	0.365	0.139	0.139	0.063	0.050	0.038	0.063	0.025	0.013	0.013	0.000	0.239	0.264	0.201	0.214	0.164	0.164	0.176	0.176	0.252	0.201
2	0.151	0.038	0.013	0.050	0.025	0.076	0.088	0.025	0.038	0.013	0.013	0.201	0.239	0.214	0.164	0.214	0.151	0.151	0.176	0.151	0.227
3	0.101	0.050	0.164	0.151	0.063	0.076	0.038	0.025	0.025	0.013	0.000	0.076	0.201	0.201	0.201	0.151	0.201	0.113	0.139	0.151	0.126
4	0.126	0.176	0.176	0.038	0.139	0.038	0.050	0.025	0.025	0.076	0.013	0.176	0.076	0.139	0.151	0.201	0.126	0.139	0.113	0.139	0.139
5	0.378	0.201	0.201	0.113	0.101	0.113	0.050	0.050	0.063	0.025	0.076	0.302	0.176	0.063	0.076	0.063	0.088	0.113	0.113	0.113	0.101
6	0.604	0.201	0.164	0.176	0.201	0.126	0.063	0.164	0.050	0.050	0.101	0.302	0.302	0.076	0.050	0.038	0.050	0.063	0.101	0.101	0.088
7	0.730	0.453	0.315	0.340	0.214	0.101	0.088	0.164	0.038	0.088	0.038	0.403	0.302	0.164	0.050	0.050	0.038	0.038	0.050	0.063	0.076
8	0.894	0.378	0.302	0.264	0.290	0.176	0.164	0.126	0.076	0.088	0.038	0.390	0.403	0.063	0.139	0.038	0.038	0.038	0.038	0.038	0.063
9	1.033	0.642	0.604	0.302	0.264	0.126	0.214	0.113	0.126	0.076	0.101	0.479	0.390	0.113	0.050	0.101	0.013	0.038	0.038	0.038	0.013
10	0.793	0.403	0.365	0.353	0.176	0.139	0.189	0.088	0.076	0.101	0.063	0.504	0.479	0.189	0.088	0.050	0.101	0.013	0.025	0.038	0.025
11	0.693	0.416	0.365	0.214	0.201	0.126	0.113	0.101	0.025	0.113	0.063	0.453	0.504	0.227	0.189	0.076	0.050	0.088	0.013	0.013	0.038
12	0.479	0.340	0.353	0.227	0.239	0.201	0.113	0.126	0.038	0.038	0.038	0.441	0.453	0.239	0.201	0.176	0.076	0.038	0.076	0.013	0.013
13	0.579	0.327	0.264	0.164	0.214	0.189	0.151	0.050	0.013	0.063	0.050	0.541	0.441	0.302	0.176	0.176	0.164	0.076	0.038	0.076	0.013
14	0.604	0.353	0.290	0.264	0.189	0.050	0.025	0.063	0.063	0.013	0.050	0.693	0.541	0.302	0.227	0.139	0.139	0.151	0.076	0.038	0.076
15	0.869	0.403	0.151	0.126	0.164	0.126	0.063	0.025	0.038	0.025	0.038	0.793	0.693	0.340	0.302	0.201	0.139	0.126	0.139	0.063	0.038
16	0.491	0.189	0.113	0.151	0.113	0.050	0.025	0.038	0.013	0.025	0.025	0.541	0.793	0.453	0.239	0.290	0.201	0.139	0.113	0.101	0.050
17	0.277	0.151	0.151	0.050	0.013	0.063	0.038	0.088	0.038	0.025	0.025	0.579	0.541	0.642	0.403	0.214	0.290	0.201	0.139	0.113	0.101
18	0.239	0.063	0.076	0.113	0.025	0.063	0.050	0.013	0.025	0.013	0.013	0.567	0.579	0.353	0.579	0.340	0.201	0.290	0.201	0.126	0.113
19	0.428	0.025	0.076	0.050	0.063	0.038	0.013	0.013	0.013	0.025	0.025	0.441	0.567	0.479	0.290	0.491	0.302	0.176	0.290	0.189	0.126
20	0.113	0.063	0.088	0.063	0.050	0.063	0.038	0.025	0.038	0.038	0.025	0.277	0.441	0.479	0.453	0.277	0.416	0.290	0.176	0.290	0.176
21	0.239	0.139	0.113	0.038	0.025	0.025	0.038	0.013	0.000	0.000	0.013	0.201	0.277	0.327	0.428	0.416	0.277	0.403	0.277	0.176	0.290
22	0.126	0.050	0.063	0.038	0.050	0.000	0.063	0.000	0.038	0.038	0.000	0.315	0.201	0.227	0.277	0.340	0.378	0.264	0.378	0.277	0.176
23	0.239	0.101	0.063	0.076	0.088	0.050	0.113	0.063	0.025	0.013	0.025	0.252	0.315	0.151	0.189	0.252	0.315	0.353	0.252	0.353	0.264

Table 11.4-20 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	3180	3240	3300	3360	3420	3480	3540	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140	4200	4260	4320	4380
0	0.038	0.025	0.013	0.038	0.025	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000
1	0.000	0.038	0.025	0.013	0.038	0.025	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000
2	0.025	0.000	0.038	0.025	0.013	0.038	0.025	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000
3	0.013	0.025	0.000	0.038	0.025	0.013	0.038	0.025	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013	0.000	0.000
4	0.000	0.013	0.025	0.000	0.038	0.025	0.013	0.038	0.013	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013	0.000
5	0.000	0.000	0.013	0.025	0.000	0.038	0.025	0.013	0.038	0.013	0.025	0.013	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000	0.013
6	0.000	0.000	0.000	0.013	0.025	0.000	0.025	0.025	0.013	0.025	0.013	0.013	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.013	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.013	0.025	0.000	0.013	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.013
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.025	0.000	0.013	0.000	0.000	0.000	0.013	0.013	0.000	0.000
9	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.025	0.000	0.013	0.000	0.000	0.000	0.013	0.013	0.000
10	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.013	0.000
11	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.013
12	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.013	0.000	0.000	0.000
13	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.000
14	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.013	0.000
15	0.013	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.013
16	0.000	0.013	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013	0.000
17	0.000	0.000	0.013	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013
18	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000

Table 11.4-20 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	4440	4500	4560	4620	4680	4740	4800	4860	4920	4980	5040	5100	5160	5220	5280	5340	5400	5460	5520	5580	5640
0	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.013	0.000	0.000	0.000	0.013
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.013	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.013	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000
6	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
7	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000
12	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000
13	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000
14	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
15	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.013	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.013	0.000	0.000	0.000

Table 11.4-20 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5700	5760	5820	5880	5940	6000	6060	6120	6180	6240	6300	6360	6420	6480	6540	6600	6660	6720	6780	6840	6900
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000
3	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
4	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013

Table 11.4-20 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Heavy-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	6960	7020	7080	7140	7200	7260	7320	7380	7440	7500	7560	7620	7680	7740	7800	7860	7920	7980	8040	8100	8160
0	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
1	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000

Table 11.4-21

Hourly Weekday Resting Time Distribution (in Percent) Medium-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	360	420	480	540	600
0	0.014	0.014	0.000	0.000	0.043	0.000	0.000	0.000	0.014	0.000	0.014	0.028	0.014	0.014	0.014	0.199	0.142	0.184	0.213	0.255	0.227
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.014	0.014	0.000	0.199	0.142	0.184	0.213	0.255
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.014	0.028	0.014	0.014	0.000	0.199	0.142	0.184	0.213
3	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.014	0.014	0.028	0.000	0.000	0.000	0.199	0.142	0.184
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.057	0.028	0.014	0.014	0.028	0.000	0.000	0.000	0.199	0.142
5	0.000	0.014	0.028	0.000	0.014	0.028	0.014	0.028	0.000	0.028	0.000	0.156	0.057	0.014	0.000	0.000	0.028	0.000	0.000	0.000	0.199
6	0.043	0.085	0.043	0.043	0.028	0.000	0.014	0.000	0.014	0.000	0.000	0.057	0.156	0.014	0.014	0.000	0.000	0.014	0.000	0.000	0.000
7	0.170	0.113	0.028	0.014	0.014	0.043	0.000	0.000	0.000	0.028	0.014	0.071	0.057	0.085	0.000	0.000	0.000	0.000	0.014	0.000	0.000
8	1.248	0.397	0.298	0.156	0.113	0.085	0.000	0.043	0.000	0.028	0.014	0.113	0.071	0.028	0.071	0.000	0.000	0.000	0.000	0.000	0.000
9	10.252	1.120	0.369	0.269	0.113	0.085	0.014	0.028	0.028	0.043	0.014	0.085	0.113	0.043	0.028	0.000	0.000	0.000	0.000	0.000	0.000
10	8.210	1.163	0.638	0.269	0.213	0.113	0.028	0.028	0.028	0.043	0.000	0.184	0.085	0.057	0.028	0.000	0.000	0.000	0.000	0.000	0.000
11	6.963	1.078	0.326	0.227	0.128	0.113	0.043	0.043	0.014	0.057	0.028	0.269	0.184	0.071	0.043	0.014	0.000	0.000	0.000	0.000	0.000
12	3.999	0.950	0.312	0.156	0.099	0.170	0.071	0.113	0.057	0.071	0.043	0.369	0.269	0.113	0.071	0.028	0.014	0.000	0.000	0.000	0.000
13	2.155	0.610	0.425	0.213	0.113	0.099	0.043	0.028	0.028	0.000	0.043	0.340	0.369	0.199	0.085	0.057	0.028	0.000	0.000	0.000	0.000
14	3.403	0.936	0.326	0.156	0.199	0.085	0.085	0.043	0.043	0.085	0.028	0.255	0.340	0.184	0.113	0.085	0.014	0.028	0.000	0.000	0.000
15	3.659	1.305	0.510	0.227	0.184	0.043	0.028	0.043	0.000	0.014	0.000	0.440	0.255	0.227	0.099	0.071	0.085	0.014	0.028	0.000	0.000
16	2.184	0.766	0.241	0.128	0.156	0.128	0.028	0.014	0.014	0.028	0.000	0.411	0.440	0.184	0.170	0.099	0.071	0.085	0.014	0.028	0.000
17	0.199	0.213	0.113	0.028	0.071	0.099	0.014	0.014	0.014	0.000	0.000	0.468	0.411	0.326	0.184	0.170	0.099	0.071	0.085	0.014	0.028
18	0.142	0.113	0.014	0.014	0.028	0.014	0.028	0.014	0.000	0.000	0.000	0.383	0.468	0.383	0.312	0.184	0.170	0.099	0.071	0.085	0.014
19	0.043	0.113	0.000	0.043	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.213	0.383	0.312	0.312	0.284	0.184	0.170	0.099	0.071	0.085
20	0.043	0.043	0.057	0.043	0.000	0.014	0.000	0.014	0.000	0.000	0.000	0.213	0.213	0.312	0.284	0.284	0.284	0.184	0.170	0.099	0.071
21	0.014	0.043	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.213	0.170	0.255	0.241	0.284	0.284	0.184	0.170	0.099
22	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.213	0.170	0.241	0.227	0.284	0.284	0.184	0.170
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.014	0.028	0.213	0.170	0.241	0.227	0.284	0.284	0.184

Table 11.4-21 (contd.)

Hourly Weekday Resting Time Distribution (in Percent)																					
Medium-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	660	720	780	840	900	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860
0	0.128	0.170	0.071	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000
1	0.227	0.113	0.170	0.071	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
2	0.255	0.227	0.113	0.170	0.071	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.213	0.255	0.213	0.099	0.170	0.071	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.170	0.213	0.255	0.213	0.099	0.170	0.057	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.142	0.170	0.199	0.255	0.170	0.099	0.142	0.057	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.184	0.142	0.142	0.184	0.255	0.142	0.099	0.142	0.057	0.028	0.043	0.000	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.156	0.142	0.142	0.170	0.255	0.128	0.071	0.085	0.028	0.014	0.028	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.128	0.128	0.057	0.156	0.156	0.085	0.057	0.043	0.000	0.000	0.014	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.014	0.043	0.014	0.014	0.057	0.071	0.028	0.043	0.000	0.000	0.014	0.000	0.028	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.014	0.043	0.014	0.000	0.043	0.071	0.014	0.028	0.000	0.000	0.014	0.000	0.014	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.014	0.043	0.014	0.000	0.043	0.071	0.014	0.014	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.043	0.014	0.000	0.043	0.057	0.014	0.014	0.000	0.000	0.014	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.043	0.000	0.000	0.014	0.028	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.028	0.000	0.000	0.000	0.000	0.014	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.028	0.000	0.000	0.000	0.000	0.014	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014	0.000	0.000	0.000	0.000	0.014
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014	0.000	0.000	0.000	0.000
18	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014	0.000	0.000	0.000
19	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014	0.000	0.000
20	0.085	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014	0.000
21	0.057	0.085	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014	0.014
22	0.099	0.057	0.071	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000	0.014
23	0.170	0.099	0.043	0.071	0.000	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.028	0.000	0.000

Table 11.4-22

Hourly Weekday Resting Time Distribution (in Percent) Light-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	360	420	480	540	600
0	0.104	0.209	0.209	0.209	0.104	0.104	0.000	0.104	0.000	0.104	0.000	0.000	0.209	0.000	0.104	0.000	0.209	0.209	0.209	0.000	0.209
1	0.418	0.000	0.104	0.000	0.104	0.000	0.209	0.104	0.000	0.000	0.000	0.104	0.000	0.104	0.000	0.104	0.000	0.209	0.209	0.209	0.000
2	0.313	0.209	0.000	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.104	0.000	0.104	0.000	0.104	0.000	0.209	0.209	0.209
3	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.209	0.104	0.104	0.000	0.104	0.000	0.104	0.000	0.209	0.209
4	0.104	0.000	0.104	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.209	0.104	0.104	0.000	0.104	0.000	0.104	0.000	0.209
5	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.104	0.209	0.104	0.104	0.000	0.104	0.000	0.104	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.104	0.104	0.209	0.104	0.104	0.000	0.104	0.000	0.104
7	0.104	0.000	0.000	0.000	0.104	0.000	0.104	0.000	0.104	0.000	0.000	0.209	0.104	0.104	0.104	0.209	0.104	0.104	0.000	0.104	0.000
8	0.940	0.104	0.104	0.000	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.627	0.209	0.104	0.104	0.104	0.209	0.104	0.104	0.000	0.104
9	6.165	0.627	0.313	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.627	0.627	0.209	0.000	0.104	0.104	0.209	0.104	0.104	0.000
10	2.299	0.418	0.418	0.104	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.627	0.522	0.209	0.000	0.104	0.104	0.209	0.104	0.104
11	2.717	0.313	0.000	0.000	0.209	0.104	0.000	0.000	0.000	0.000	0.000	0.522	0.000	0.418	0.313	0.104	0.000	0.104	0.104	0.209	0.104
12	1.254	0.731	0.209	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.418	0.522	0.000	0.418	0.209	0.104	0.000	0.104	0.104	0.209
13	0.940	0.209	0.000	0.000	0.104	0.000	0.000	0.000	0.104	0.104	0.000	0.418	0.418	0.418	0.000	0.209	0.209	0.104	0.000	0.104	0.104
14	1.672	0.627	0.209	0.000	0.000	0.104	0.000	0.000	0.000	0.104	0.000	0.418	0.418	0.313	0.418	0.000	0.000	0.104	0.104	0.000	0.104
15	1.567	0.313	0.209	0.209	0.209	0.000	0.104	0.000	0.000	0.000	0.000	0.313	0.418	0.209	0.209	0.209	0.000	0.000	0.104	0.000	0.000
16	1.463	0.418	0.000	0.418	0.209	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.313	0.313	0.209	0.209	0.209	0.000	0.000	0.104	0.000
17	0.836	0.104	0.209	0.209	0.104	0.418	0.000	0.000	0.000	0.000	0.000	0.522	0.000	0.313	0.313	0.104	0.209	0.104	0.000	0.000	0.104
18	0.104	0.104	0.104	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.418	0.522	0.000	0.209	0.313	0.104	0.209	0.104	0.000	0.000
19	0.104	0.104	0.000	0.000	0.104	0.000	0.104	0.000	0.000	0.000	0.000	0.313	0.418	0.418	0.000	0.209	0.313	0.104	0.209	0.104	0.000
20	0.000	0.104	0.000	0.104	0.209	0.104	0.104	0.000	0.000	0.104	0.000	0.104	0.313	0.209	0.313	0.000	0.209	0.313	0.104	0.209	0.104
21	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.104	0.209	0.000	0.000	0.104	0.104	0.209	0.209	0.313	0.000	0.209	0.313	0.104	0.209
22	0.000	0.104	0.104	0.104	0.209	0.209	0.000	0.000	0.000	0.104	0.000	0.000	0.104	0.104	0.209	0.209	0.313	0.000	0.209	0.313	0.104
23	0.104	0.104	0.000	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.209	0.000	0.104	0.104	0.209	0.209	0.313	0.000	0.209	0.313

Table 11.4-22 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Light-Heavy Diesel Trucks																					
Time of Day (hr)	Resting time in minutes																				
	3180	3240	3300	3360	3420	3480	3540	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140	4200	4260	4320	4380
0	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000
9	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000
10	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000
11	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104
12	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104
13	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.000	0.000	0.000	0.000	0.000	0.000

Table 11.4-23

Hourly Weekday Resting Time Distribution (in Percent) Medium-Heavy Gasoline Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	360	420	480	540	600
0	0.116	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.347	0.058	0.000	0.058	0.116	0.174	0.174	0.289	0.289	0.289
1	0.058	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.347	0.058	0.000	0.058	0.000	0.116	0.174	0.231	0.289
2	0.579	0.000	0.000	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.289	0.058	0.347	0.058	0.000	0.058	0.000	0.058	0.116	0.116
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.058	0.289	0.058	0.347	0.058	0.000	0.058	0.000	0.058	0.116
4	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.058	0.000	0.000	0.058	0.231	0.058	0.289	0.058	0.347	0.058	0.000	0.058	0.000	0.058
5	0.000	0.000	0.000	0.000	0.000	0.058	0.058	0.116	0.116	0.000	0.000	0.058	0.231	0.000	0.289	0.058	0.347	0.058	0.000	0.058	0.000
6	0.000	0.000	0.058	0.116	0.000	0.058	0.116	0.058	0.000	0.000	0.000	0.058	0.058	0.000	0.000	0.289	0.058	0.347	0.000	0.000	0.058
7	0.000	0.116	0.000	0.231	0.174	0.174	0.116	0.000	0.058	0.116	0.058	0.116	0.058	0.000	0.000	0.000	0.289	0.058	0.347	0.000	0.000
8	0.984	0.231	0.116	0.463	0.174	0.174	0.116	0.174	0.116	0.116	0.000	0.116	0.116	0.000	0.000	0.000	0.000	0.231	0.058	0.231	0.000
9	7.118	1.100	0.694	0.752	0.289	0.231	0.116	0.058	0.000	0.000	0.000	0.231	0.116	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	3.993	1.447	0.579	0.694	0.289	0.347	0.000	0.116	0.000	0.058	0.000	0.347	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	5.093	2.025	0.579	0.463	0.231	0.116	0.174	0.000	0.058	0.000	0.116	0.058	0.347	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	2.951	0.579	0.463	0.347	0.347	0.000	0.289	0.174	0.058	0.058	0.058	0.463	0.058	0.174	0.058	0.000	0.000	0.000	0.000	0.000	0.000
13	1.447	0.868	0.231	0.116	0.289	0.289	0.174	0.058	0.000	0.116	0.058	0.579	0.463	0.000	0.116	0.058	0.000	0.000	0.000	0.000	0.000
14	2.199	1.157	0.463	0.116	0.347	0.058	0.000	0.000	0.000	0.000	0.000	0.463	0.579	0.116	0.000	0.116	0.058	0.000	0.000	0.000	0.000
15	3.993	0.926	0.174	0.116	0.058	0.116	0.000	0.058	0.058	0.058	0.000	0.405	0.463	0.289	0.116	0.000	0.000	0.058	0.000	0.000	0.000
16	1.910	0.694	0.231	0.231	0.174	0.000	0.116	0.116	0.000	0.058	0.000	0.347	0.405	0.231	0.289	0.116	0.000	0.000	0.058	0.000	0.000
17	1.620	0.463	0.231	0.058	0.174	0.000	0.231	0.000	0.000	0.000	0.116	0.521	0.347	0.289	0.174	0.116	0.058	0.000	0.000	0.058	0.000
18	2.025	0.579	0.174	0.058	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.405	0.521	0.347	0.289	0.116	0.116	0.058	0.000	0.000	0.058
19	0.752	0.347	0.058	0.116	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.289	0.405	0.405	0.347	0.289	0.116	0.116	0.058	0.000	0.000
20	0.289	0.000	0.058	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.405	0.289	0.347	0.347	0.289	0.289	0.116	0.116	0.058	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.405	0.231	0.289	0.289	0.289	0.289	0.116	0.116	0.058
22	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116	0.058	0.347	0.231	0.289	0.289	0.289	0.289	0.116	0.116
23	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116	0.116	0.058	0.289	0.231	0.289	0.289	0.289	0.289	0.116

Table 11.4-23 (contd.)

Hourly Weekday Resting Time Distribution (in Percent) Medium-Heavy Gasoline Trucks																						
Time of Day (hr)	Resting time in minutes																					
	3240	3300	3360	3420	3480	3540	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140	4200	4260	4320	4380	4440	4500
0	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.058	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.058	0.058	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.058	0.058	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.058	0.058	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.000

Table 11.4-24

Hourly Weekday Resting Time Distribution (in Percent) Light-Heavy Gasoline Trucks																					
Time of Day (hr)	Resting time in minutes																				
	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	360	420	480	540	600
0	0.052	0.017	0.000	0.000	0.017	0.052	0.035	0.052	0.035	0.035	0.035	0.156	0.069	0.121	0.069	0.191	0.156	0.243	0.173	0.260	0.035
1	0.017	0.104	0.052	0.035	0.017	0.052	0.017	0.035	0.000	0.017	0.000	0.069	0.156	0.052	0.069	0.069	0.191	0.156	0.243	0.173	0.243
2	0.052	0.069	0.000	0.000	0.000	0.000	0.052	0.000	0.017	0.000	0.000	0.087	0.069	0.104	0.052	0.069	0.069	0.191	0.156	0.243	0.173
3	0.035	0.035	0.000	0.017	0.017	0.000	0.017	0.052	0.000	0.000	0.000	0.017	0.087	0.017	0.104	0.052	0.069	0.069	0.191	0.156	0.243
4	0.052	0.087	0.035	0.017	0.000	0.035	0.000	0.000	0.000	0.000	0.000	0.087	0.017	0.087	0.000	0.104	0.052	0.069	0.069	0.191	0.156
5	0.052	0.035	0.000	0.017	0.017	0.052	0.000	0.000	0.000	0.017	0.000	0.087	0.087	0.017	0.087	0.000	0.104	0.052	0.069	0.069	0.191
6	0.000	0.052	0.017	0.017	0.000	0.000	0.000	0.035	0.035	0.000	0.017	0.121	0.087	0.069	0.017	0.087	0.000	0.104	0.052	0.069	0.069
7	0.052	0.000	0.017	0.035	0.017	0.017	0.017	0.000	0.017	0.000	0.017	0.191	0.121	0.087	0.052	0.017	0.087	0.000	0.087	0.052	0.069
8	1.005	0.347	0.139	0.069	0.035	0.035	0.035	0.069	0.035	0.035	0.000	0.139	0.191	0.069	0.069	0.052	0.017	0.087	0.000	0.052	0.000
9	9.603	0.988	0.295	0.104	0.052	0.017	0.017	0.017	0.035	0.017	0.000	0.243	0.139	0.121	0.035	0.052	0.035	0.000	0.069	0.000	0.017
10	8.719	1.127	0.312	0.104	0.035	0.017	0.035	0.000	0.000	0.069	0.000	0.243	0.243	0.052	0.087	0.035	0.017	0.035	0.000	0.069	0.000
11	7.662	0.988	0.399	0.156	0.139	0.069	0.000	0.017	0.000	0.017	0.017	0.260	0.243	0.121	0.052	0.069	0.035	0.017	0.035	0.000	0.069
12	3.969	0.815	0.364	0.156	0.121	0.069	0.052	0.069	0.035	0.017	0.052	0.208	0.260	0.208	0.121	0.035	0.069	0.035	0.017	0.035	0.000
13	3.692	0.780	0.225	0.156	0.035	0.121	0.035	0.087	0.087	0.000	0.017	0.208	0.208	0.104	0.191	0.104	0.017	0.069	0.035	0.017	0.035
14	3.588	0.901	0.399	0.208	0.087	0.104	0.035	0.035	0.017	0.000	0.017	0.191	0.208	0.069	0.087	0.139	0.104	0.017	0.069	0.035	0.017
15	3.345	1.265	0.572	0.243	0.121	0.035	0.104	0.035	0.000	0.017	0.000	0.173	0.191	0.035	0.052	0.052	0.087	0.069	0.017	0.069	0.035
16	2.305	0.763	0.416	0.329	0.121	0.069	0.035	0.035	0.052	0.035	0.035	0.451	0.173	0.069	0.035	0.052	0.035	0.052	0.052	0.017	0.069
17	0.815	0.225	0.104	0.052	0.069	0.035	0.069	0.069	0.052	0.017	0.087	0.433	0.451	0.087	0.052	0.000	0.052	0.017	0.035	0.052	0.000
18	0.468	0.191	0.052	0.035	0.035	0.052	0.035	0.035	0.017	0.069	0.052	0.503	0.433	0.381	0.087	0.052	0.000	0.052	0.017	0.035	0.052
19	0.243	0.121	0.069	0.017	0.017	0.035	0.052	0.000	0.000	0.035	0.017	0.347	0.503	0.312	0.347	0.069	0.052	0.000	0.052	0.017	0.035
20	0.191	0.069	0.069	0.139	0.156	0.035	0.035	0.087	0.017	0.000	0.017	0.225	0.347	0.381	0.277	0.347	0.069	0.052	0.000	0.052	0.017
21	0.087	0.017	0.052	0.017	0.052	0.069	0.017	0.052	0.052	0.052	0.017	0.121	0.225	0.243	0.312	0.277	0.347	0.069	0.052	0.000	0.052
22	0.069	0.121	0.052	0.035	0.017	0.052	0.017	0.035	0.017	0.000	0.017	0.173	0.121	0.225	0.225	0.295	0.243	0.312	0.069	0.052	0.000
23	0.069	0.052	0.087	0.052	0.017	0.087	0.035	0.069	0.017	0.035	0.000	0.087	0.173	0.121	0.225	0.191	0.295	0.208	0.312	0.069	0.052

Table 11.4-25

Hourly Weekday Trip VMT Distribution by Speed (in Percent) Heavy-Heavy Diesel Trucks																		
Time of Day (hr)	Speed (mph)																	
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90+
0	0.20	0.31	0.00	0.00	0.20	0.54	0.00	7.88	22.40	17.20	34.82	12.60	3.85	0.00	0.00	0.00	0.00	0.00
1	0.41	0.10	0.53	0.00	0.00	0.00	10.33	21.15	25.36	15.52	12.92	13.69	0.00	0.00	0.00	0.00	0.00	0.00
2	0.14	0.42	0.00	0.23	0.00	3.17	0.53	8.01	4.87	22.88	28.36	15.56	15.83	0.00	0.00	0.00	0.00	0.00
3	0.03	0.01	2.75	14.87	0.01	1.39	9.74	9.71	25.17	20.46	11.83	2.55	1.48	0.00	0.00	0.00	0.00	0.00
4	0.15	0.04	0.00	5.03	3.39	4.99	7.37	15.93	3.43	34.45	12.22	9.57	3.44	0.00	0.00	0.00	0.00	0.00
5	0.33	0.07	3.91	5.63	5.98	14.35	12.51	9.58	19.49	19.31	6.59	0.00	2.24	0.00	0.00	0.00	0.00	0.00
6	0.92	2.97	2.73	4.31	4.94	17.18	14.00	14.94	21.83	11.30	1.13	0.00	3.74	0.00	0.00	0.00	0.00	0.00
7	0.91	2.28	2.29	8.29	5.76	3.85	30.61	12.20	11.82	8.04	10.97	2.79	0.18	0.00	0.00	0.00	0.00	0.00
8	0.41	2.91	3.55	4.36	17.84	5.86	16.71	13.19	17.37	6.59	7.72	3.50	0.00	0.00	0.00	0.00	0.00	0.00
9	0.45	1.40	6.50	0.51	10.81	5.41	5.21	29.51	4.13	16.39	11.81	0.60	7.25	0.00	0.00	0.00	0.00	0.00
10	0.40	1.49	2.43	3.05	2.49	19.88	21.41	12.48	8.96	15.01	12.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.11	5.46	2.23	4.62	8.92	9.69	12.93	14.41	9.17	8.22	24.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.09	0.43	4.09	2.83	7.57	3.60	14.50	10.33	17.29	10.36	18.10	6.30	4.51	0.00	0.00	0.00	0.00	0.00
13	0.30	0.85	4.50	1.84	5.04	0.22	12.72	14.93	16.32	34.70	2.69	5.88	0.00	0.00	0.00	0.00	0.00	0.00
14	0.32	1.11	0.72	9.24	6.89	13.13	14.14	16.45	14.40	14.81	3.71	5.09	0.00	0.00	0.00	0.00	0.00	0.00
15	0.57	2.55	1.31	0.49	8.55	7.55	14.57	4.96	27.82	9.86	21.30	0.47	0.00	0.00	0.00	0.00	0.00	0.00
16	0.01	1.26	2.05	3.61	3.17	18.67	29.27	20.22	0.56	2.42	16.22	2.53	0.00	0.00	0.00	0.00	0.00	0.00
17	0.33	0.89	0.06	0.25	2.12	15.99	21.47	8.76	22.33	5.31	22.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.52	0.21	0.19	0.12	0.00	1.75	4.79	16.20	15.50	49.86	2.52	8.33	0.00	0.00	0.00	0.00	0.00	0.00
19	0.96	1.19	3.78	1.01	1.60	2.17	4.13	28.65	7.01	0.00	1.44	48.07	0.00	0.00	0.00	0.00	0.00	0.00
20	0.42	0.34	0.02	0.77	0.92	0.00	0.96	1.85	2.83	17.48	54.32	13.95	6.15	0.00	0.00	0.00	0.00	0.00
21	0.18	0.12	0.01	0.13	11.24	0.91	2.04	5.15	1.11	29.76	10.75	23.90	14.70	0.00	0.00	0.00	0.00	0.00
22	0.35	0.28	0.00	0.00	0.28	0.00	0.00	0.00	12.24	23.91	60.09	0.00	2.86	0.00	0.00	0.00	0.00	0.00
23	0.22	0.09	0.09	0.25	23.87	1.10	0.30	11.39	15.88	6.13	18.74	15.87	6.07	0.00	0.00	0.00	0.00	0.00

7.3 Retention Rates

Retention Rates are used to estimate how long vehicles remain in use. In EMFAC2000, these estimates are based on comparisons of DMV data covering consecutive calendar years. By observing the population of a specific model year of vehicles through time, a curve can be derived expressing what percentage of all vehicles sold remain in the fleet after a specified amount of time has elapsed. Because this approach looks at a specific model year over different calendar years, net migration effects, the influx of vehicles first sold outside of California that subsequently register in California, and those California vehicles which leave the state, are reflected implicitly.

Retention Rates are used in EMFAC2000 for both forecasting to future calendar years and back-casting for those years where registration information is unavailable. The figures below contrast the retention rates used by MVEI7G and EMFAC2000. EMFAC2000 assumes a higher retention rate, a longer useful life, for passenger cars compared to MVEI7G. Within EMFAC2000, trucks are assumed to last longer than cars, and diesel-fueled vehicles tend to last longer than their gasoline-powered equivalents.

Figure 7.1-1 Comparison of Passenger Car Retention Rates

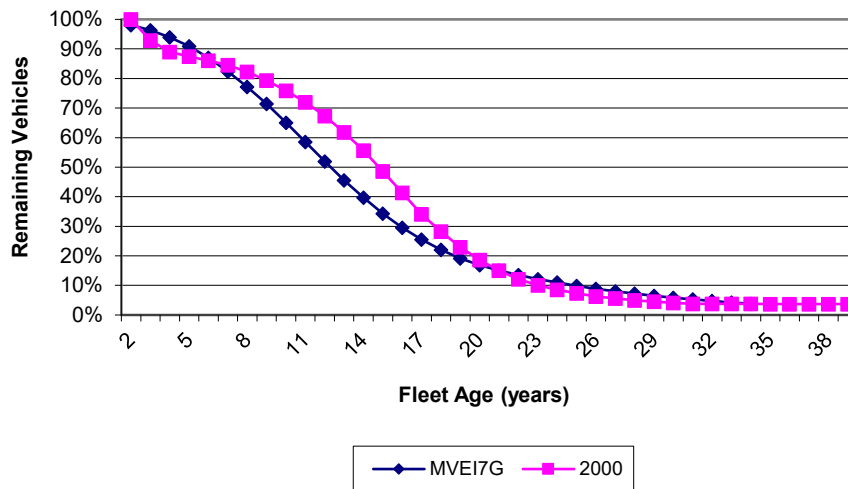
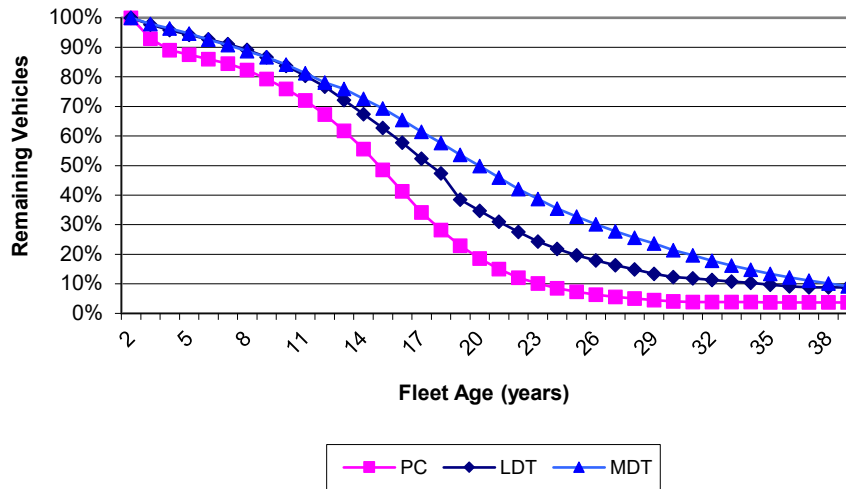


Figure 7.1-2 Retention Rates Used in EMFAC2000



7.4 Forecasting / Back Casting

Registration information for the years 1997 through 1999 were obtained from the Department of Motor Vehicles and incorporated into EMFAC2000. All other calendar year estimates produced by the model are either back cast from 1997 or forecast from 2000. As stated above, retention rates are used for this purpose.

As an example of back casting, assume that there are 1,000,000 1990 model year passenger cars registered in year 2000. Lets further assume that the retention rate for ten year old passenger cars is 80 percent. In back casting to 1990, the population of new vehicles would be calculated as $1,000,000 \times 100 / 80$, the year one retention rate divided by the year ten retention rate, which equals 1,250,000.

Forecasting is handled in a similar manner within EMFAC2000. Aging the fleet is accomplished by moving each model year's population down the retention rate curve and estimates of new vehicles sales are established by a growth factor which is set to match information provided by regional agencies.

Lets assume the year 2000 passenger car fleet numbers 10,000,000, the growth rate is two percent per year and the annual attrition rate, the number of passenger cars that fall out of the fleet each year is 10,000 according to the retention rate curve. In forecasting to year 2001, the model first ages the fleet by one year ($10,000,000 - 10,000 = 9,990,000$). Given that the fleet growth rate is two percent, the overall fleet in 2001 should be 10,200,000. Therefore, new vehicle sales for 2001 must be 210,000 passenger cars ($10,200,000 - 9,990,000$). EMFAC2000 is capable of back casts to 1970 and forecasts to 2040.

7.5 Vehicle Miles Traveled (VMT) and Speed

EMFAC2000 utilizes county specific estimates of vehicle miles of travel provided by transportation planning agencies. These estimates of current and future VMT are used for passenger cars, light trucks and medium-duty vehicles. For all other vehicle classes, EMFAC2000 calculates the class specific VMT as the product of the age-specific vehicle population and mileage accrual. Although this method of establishing VMT differs significantly from that of MVEI7G, the resulting estimates were within five percent of MVEI7G, statewide, and within ten percent of each county or air basin estimate for those counties or basins covered by a transportation planning agency.

For heavy-heavy duty trucks, over 33,000 pounds GVW, the fleet is also adjusted for the presence of out-of-state trucks, which are estimated to contribute approximately twenty five percent of the overall VMT for this class of vehicles according to the 1992 Truck Inventory and Use Survey (TIUS) conducted every five years by the U.S. Bureau of Census. An additive adjustment is also made to account for Mexican plated cars and trucks operating in California, which impact both San Diego and Imperial Counties.

In calculating VMT, EMFAC2000 assumes that all of a vehicle's mileage is accrued within the county of registration. Although a "cross county" VMT matrix is coded into EMFAC2000 for the purpose of allocating a portion of a vehicle's overall travel to other counties, this feature of the model is not currently invoked. Staff intends to randomly equip vehicles with global positioning systems (GPS) in order to populate the cross county matrix.

Those same planning agencies that provide estimates of VMT, also provide information needed to disaggregate the total VMT by speed. EMFAC2000 accepts VMT data in five mile per hour bins, from 5 to 65 miles per hour, in order to adjust the basic emission rates. For those areas which are not covered by a transportation planning agency, EMFAC2000 retains those speed distribution estimates from MVEI7G. Estimation of the travel habits of heavy-duty vehicles are outside of the capability of transportation planning agencies, EMFAC2000 uses instrumented truck data in order to estimate the speed distributions of these vehicles.

SECTION 7.2 COUNTY-SPECIFIC VEHICLE AGE DISTRIBUTION AND POPULATION MATRICES

This section describes the methodology used in developing refined vehicle age distribution matrices to be used in EMFAC2000. Accurate estimates of vehicle population are necessary for calculating ton per day emission estimates for exhaust and evaporative emissions while vehicle age distributions are important for calculating reliable average fleet emission factors.

7.2.1 Introduction

Compared to the previous statewide model year distributions, the EMFAC2000 age distributions have been resolved to the sub-county level. Another feature of the revised age distribution matrices is their resolution by fuel type and registration status. In addition, age distributions for calendar years 1997 and 1998 have been developed, forming the basis for empirically derived vehicle population growth rates.

In MVEI7G, statewide vehicle model year distributions were developed for the following seven vehicle classes: Light Duty Automobiles (LDA), Light Duty Trucks (LDT), Medium Duty Trucks (MDT), Heavy Duty Gasoline Trucks (HDGT), Heavy Duty Diesel Trucks (HDDT), Urban Diesel Transit Buses (UBD), and Motorcycles (MCY). A number of data sources were used in developing these model year distributions. In general, LDA distributions for calendar years 1978 through 1991 were based on annual Department of Motor Vehicle (DMV) year-first-sold reports but were projected for calendar years 1992 through 2005 based on calculated yearly retention rates. All of the truck class distributions were based on calendar year 1970 through 1975 Polk truck reports. UBD and MCY model year distributions were derived from DMV data and a 1975 Gallup report, respectively.

7.2.2 Methodology

For EMFAC2000, vehicle age distribution matrices were developed for calendar years 1997 and 1998 for the thirteen vehicle classes shown in Table 7.2-1, two fuel types, and 69 counties and sub-counties, and for vehicle ages ranging from 1 to 45 years. The thirteen vehicle classes were differentiated primarily on the basis of gross vehicle weight, as shown in Table 7.2-1.

Specific steps involved in development of the refined vehicle age distribution matrices are detailed in Steps (1) through (6) below and shown in the accompanying flowchart (Figure 7.2-1).

- (1) The EMFAC2000 vehicle age distributions were developed based on analysis of approximately 30 million DMV vehicle registration records provided by the California Energy Commission (CEC) for calendar years 1997 through 1999. Although the DMV registration data was obtained for calendar years 1995 and 1996, it was not included in the analysis because the data sets were missing vehicles where the registration paperwork was in the process of being completed (e.g. missing smog check certificates, proof of insurance, etc.). These missing vehicles were not counted in previous versions of EMFAC.

The registration databases used were generated by the DMV for the CEC on an annual basis, generally in the fall or summer of each calendar year. As such, the vehicle age distributions developed by the MVAB represent snapshots of the vehicle fleet at those particular times.

Table 7.2-1. Weights of vehicle classes used in EMFAC2000.

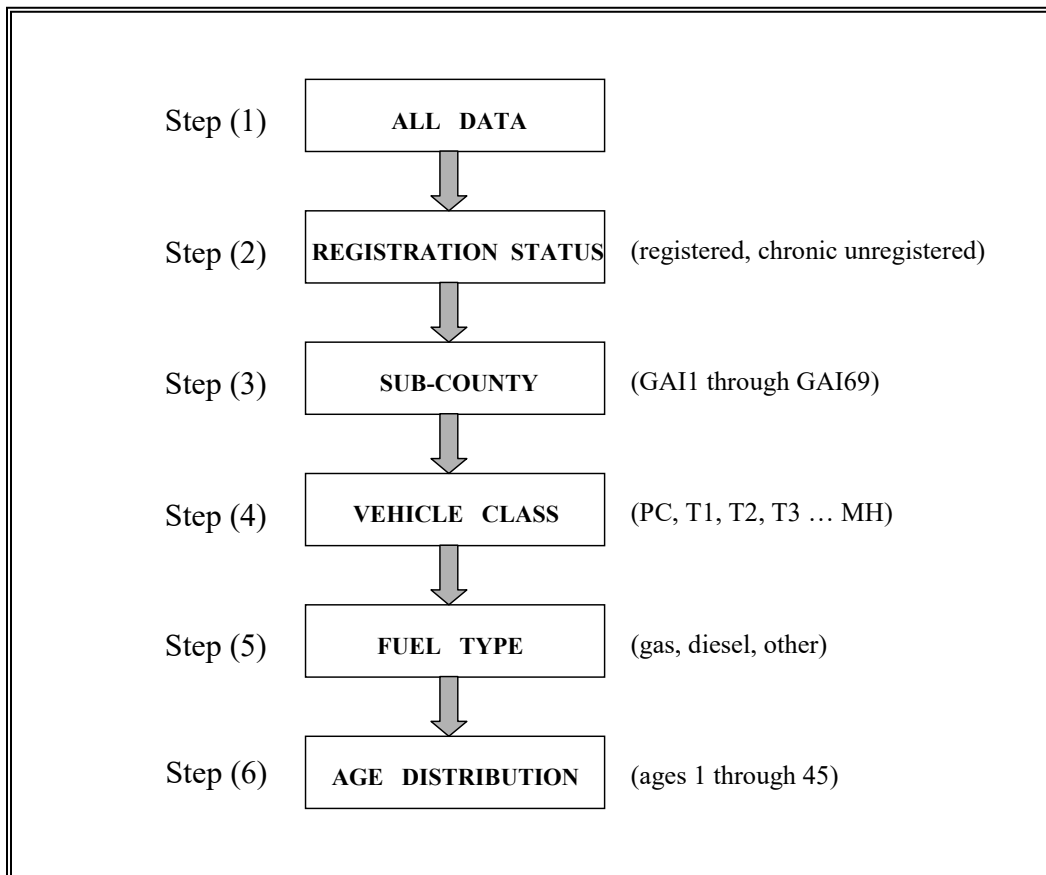
Vehicle Class	Code	Description	Vehicle Weight (lbs.)
1	PC	Passenger cars	ALL
2	T1	Light-duty trucks	0 - 3,750
3	T2	Light-duty trucks	3,751 - 5,750
4	T3	Medium-duty trucks	5,751 - 8,500
5	T4	Light-heavy duty trucks	8,501 - 10,000
6	T5	Light-heavy duty trucks	10,001 - 14,000
7	T6	Medium-heavy duty trucks	14,001 - 33,000
8	T7	Heavy-heavy duty trucks	33,001 - 60,000
9	T8	Line-haul trucks	60,000 +
10	UB	Urban buses	ALL
11	MC	Motorcycles	ALL
12	SB	School buses	ALL
13	MH	Motor homes	ALL

The original CEC/DMV registration database includes 55 fields for each of the approximately 30 million records. A program was written which extracted only those fields necessary for development of the vehicle age distributions. Duplicate fields were obtained for some of the parameters (fuel type, body style, and vehicle weight) in the DMV database because the data came from a variety of sources (e.g. DMV Master File, VINA decoder software). In general, the fields derived from the VINA software ('Fuel Type', 'Body Style') were used because the DMV Master File reporting rate was often poor. The Master File-derived fields ('Motive Power', 'Body Type Model') were used in those cases where VINA-derived data were not available.

- (2) Based on the DMV registration expiration date field, vehicles were classified either as registered, instantaneously unregistered, or chronically unregistered. Registered vehicles were assumed to include all currently registered vehicles. The registration status for instantaneously unregistered vehicles (those vehicles which have been unregistered for less than two years) was reevaluated using DMV data from a subsequent calendar year. If the registration status changed and became current within that time period, then the vehicle was counted as current. Chronic unregistered vehicles were assumed to be those vehicles which have been unregistered for two years or more. This distinction is made in the model to adjust for the assumption that chronically unregistered vehicles do not benefit from periodic smog check.

Table 7.2-2 summarizes the registration status of vehicles by vehicle class based on analysis of DMV data for calendar year 1997. This table shows that the percent of registered vehicles varies between approximately 90.6% and 98.9%, depending upon the vehicle class, while the percent of unregistered vehicles ranges between 1.1% and 9.4%. Based on these data, for calendar year 1997, approximately 92.7% of all vehicles in California were registered, while 7.3% were instantaneously unregistered. The fraction of instantaneously unregistered vehicles that registered within two years was subsequently considered registered, while the fraction that did not re-register was considered chronically unregistered.

Figure 7.2-1. Flowchart showing steps involved in development of vehicle age distribution matrices for EMFAC2000.



To validate the accuracy of the DMV registration rates, field surveys of automobile registration status were conducted in Southern California shopping mall parking lots in 1991.¹ These surveys suggest that almost 92% of light duty passenger cars were registered while only 7.8% and 0.56%, respectively, were instantaneously and chronically unregistered. These “real world” registered and

¹ Dulla, R.D., Horie, Y., and S. Sidawi (1991), Unregistered Vehicle Study Field Survey and Analysis. Report prepared for the California Air Resources Board (Contract No. A866-163) by Sierra Research, Sacramento, CA.

instantaneously unregistered rates are very comparable to the DMV registration rates for light duty passenger cars. As field surveys of the registration status of other vehicle classes (T1 and above) have not yet been conducted, it is not possible to validate the DMV-estimated registration rates for those classes.

The chronically unregistered vehicle fraction could not be accurately evaluated using the DMV registration data. Based on discussions with DMV staff, it was decided that the discrepancies between field and DMV chronically unregistered registration rates for light duty passenger cars were attributable to: 1) the DMV not purging the records of those vehicles which move out of state; 2) individuals not informing DMV of vehicles which have been junked; and 3) individuals failing to notify DMV of vehicles which have become non-operational.

Table 7.2-2. Registration status for 1997 calendar year vehicles by vehicle class based on DMV registration records.

Calendar Year	Code	% Registered	% Instantaneously Unregistered	Chronically Unregistered
1997	PC	92.0	7.44	0.56
	T1	92.0	7.44	0.56
	T2	93.1	6.34	0.56
	T3	93.1	6.34	0.56
	T4	91.7	7.74	0.56
	T5	94.1	5.34	0.56
	T6	93.2	6.24	0.56
	T7	92.6	6.84	0.56
	UB	98.4	1.04	0.56
	SB	96.1	3.34	0.56
	MC	90.1	9.34	0.56
	MH	92.5	6.94	0.56
	All Classes	92.7	6.74	0.56

For EMFAC2000, the DMV-inferred numbers of registered and instantaneously unregistered vehicles were used directly, given their reasonable agreement with field survey results, while the number of DMV-inferred chronically unregistered vehicles was adjusted to more closely approximate the field survey rate for light duty passenger cars (0.56%). This adjustment was performed for each vehicle class using the following series of equations:

$$CNCU_{class} = [UNCU_{class}][AF] \quad (7.2-1)$$

where $CNCU_{class}$ = corrected number of chronic unregistered vehicles for given vehicle class

$UNCU_{class}$ = uncorrected number of chronic unregistered vehicles for given vehicle class
 AF = chronic unregistered vehicle adjustment factor

$$AF = [SPCU_{class}/DPCU_{class}] \quad (7.2-2)$$

where $SPCU_{class}$ = % of chronic unregistered vehicles from field surveys (0.56%)

$DPCU_{class}$ = % of chronic unregistered vehicles for given class from DMV registration database

Given that field surveys of only light duty passenger cars have been conducted to date, we assumed the same field survey chronic unregistration rate of 0.56% for all vehicle classes. It should also be noted that field surveys of chronic unregistration rates have, to date, been performed only in Southern California but were assumed, for this analysis, to apply statewide.

- (3) As some counties (e.g. San Bernardino) fall within several air basins, it was necessary to resolve the EMFAC2000 vehicle age distributions to a sub-county or Global Area Index (GAI) spatial resolution (see Section 3.3 for GAI definitions). Vehicles were assigned to one of the 69 GAI based on their county and ZIP code of registration
- (4) Vehicles were binned into the thirteen vehicle classes shown in Table 7.2-1 based on the 'GVW Code' and 'Body Style' fields. It was originally intended to use the 'Manufacturers Base and Shipping Weight' field to bin vehicles because the weight is reported to the nearest pound, thus nominally ensuring proper classification of vehicles. However, comparison of a sample of the values reported in the 'Manufacturers Base and Shipping Weight' field with weights published in vehicle certification reports showed a discrepancy, suggesting the VINA software was incorrectly decoding the vehicle weights. As values for the 'GVW Code' field consistently agreed with weights shown in vehicle certification reports, the 'GVW Code' field was used as the main parameter for binning vehicles.

Not all of the vehicles could be assigned to vehicle classes based solely on the 'GVW Code' field. A number of the EMFAC2000 vehicle classes (T1 and T2, T3 and T4, T7 and T8) have the same 'GVW Code' value and therefore needed to be disaggregated using other parameters. As T1 and T2 vehicles could not be differentiated based on 'GVW Code' and 'Body Style', they were disaggregated using reported 1986 through 1994 calendar year production numbers. Due to limited availability of production number data, for 1985 and earlier model year vehicles, 1986 model year T1/T2 splits were assumed, while for 1997 and 1998 model year vehicles, 1996 model year T1/T2 splits were applied. To disaggregate

T3 and T4 vehicles, vehicles with Pickup, Van, or Sport Utility 'Body Styles' were assumed to be T3s while all other vehicles with the same 'GVW Code' were assumed to be T4s. All vehicles falling in the T7-T8 weight range (33,001-60,000+ lb) category were assumed to be T7s as there was no other parameter with which to disaggregate these vehicles. The T8 age distribution matrix provided in the current EMFAC2000 output is therefore empty and serves as a placeholder until such time as it is possible to disaggregate the T7 and T8 weight classes.

Vehicles with a "Bus" 'Body Style' were assigned to the Urban Bus (UB) and School Bus (SB) vehicle classes based on key words found in the 'Owner Name' field. For example, vehicles with the key word "transit" were assigned to the Urban Bus class while vehicles with the key word "university" were assigned to the School Bus category. Although it was possible to disaggregate church buses using key words, for EMFAC2000 these vehicles were assigned to the School Bus class. Vehicles with "Bus" 'Body Styles' that did not contain Urban Bus or School Bus key words were assigned to vehicle classes based on their 'GVW Code' field.

As 'GVW Codes' are nominally provided only for trucks, vehicles with missing 'GVW Codes' were generally assigned to the Passenger Car (PC) bin. However, those vehicles with missing GVW Codes and Body Style values not characteristic of PCs were assigned to one or more of the truck classes. These vehicles were assigned to the appropriate weight classes using a weighting distribution developed for those trucks for which both GVW Code and Body Style were reported.

- (5) Based on the Fuel Type field, vehicles were binned into one of following three fuel types: 'gasoline', 'diesel', 'electric', and 'other' (flex fuel, propane, and natural gas). Only gasoline, diesel fuel and electric populations were used in the final analysis.
- (6) Two vehicle age distribution matrices were developed as inputs to EMFAC2000: one for registered and instantaneously unregistered vehicles and another for chronically unregistered vehicles. The matrices, whose format is shown in Table 7.2-4, provide the number of vehicles ranging in age from 1 to 45 years for each of the 69 GAI, 58 counties, 13 vehicle classes, 3 calendar years, and 2 fuel types.

Table 7.2-3. Format of EMFAC2000 vehicle age distribution matrices.

AGE	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18
	19	20	21	22	23	24	25	26	27
	28	29	30	31	32	33	34	35	36
	37	38	39	40	41	42	43	44	45
e.g.	GAI=1, county=2, vehicle class=1, calendar year=1995, fuel type=G								
	6,	9,	16,	19,	23,	20,	30,	32,	38,
	36,	24,	32,	19,	21,	17,	18,	18,	19,
	16,	15,	6,	11,	10,	11,	8,	10,	10,
	8,	8,	14,	7,	10,	5,	2,	2,	2,
	12,	0,	0,	0,	0,	0,	0,	0,	0,
	GAI=1, county=2, vehicle class=1, calendar year=1996, fuel type=G								
	19,	26,	12,	16,	22,	23,	28,	30,	31,
	41,	33,	28,	40,	19,	17,	13,	16,	17,
	23,	14,	15,	5,	11,	11,	12,	9,	13,
	7,	12,	8,	14,	10,	9,	5,	3,	2,
	2,	11,	0,	0,	0,	0,	0,	0,	0,
	etc.....								