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16. Abstract

This report documents the methodology used to develop the Houston-Galveston Nonattainment Counties gridded mobile source emissions inventories. Included in the report are an overview of the emission estimation methodology and the 24-hour traffic assignments used in the analyses; the methods used to estimate the seasonally adjusted time-of-day vehicle miles of travel and associated operating speeds; the estimation of the emission rates using the EPA's MOBILE5a program; and an outline of the method used to develop the emission estimates using the MOBILE5a emission rates.

These emission inventories were developed in support of the Coastal Oxidant Assessment of Southeast Texas Project (COAST), a large-scale study of ozone formation being conducted by the Texas Natural Resource Conservation Commission (TNRCC).

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DEVELOPMENT OF GRIDDED MOBILE SOURCE EMISSION ESTIMATES FOR THE HOUSTON GALVESTON NONATTAINMENT COUNTIES FY93, FY96, FY99, AND FY07 IN SUPPORT OF THE COAST PROJECT

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Research Study Number 0-1375
Research Study Title: Develop Air Quality Data for Federal Submission

Sponsored by the
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In Cooperation with
U.S. Department of Transportation
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TEXAS TRANSPORTATION INSTITUTE
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IMPLEMENTATION STATEMENT

This report documents the procedures used by the Texas Transportation Institute in developing the Houston-Galveston Nonattainment Counties Mobile Source Emissions Inventories for FY93, FY96, FY99, and FY07. The emissions inventories are submitted in support of the Coastal Oxidant Assessment for Southeast Texas (COAST) Project. COAST is a large-scale study conducted by the Texas Natural Resource Conservation Commission to model the formation of ozone in the Houston-Galveston and Beaumont-Port Arthur air quality nonattainment areas.

The software used for these procedures is described in Research Report 1279-9: "Texas Mobile Source Emissions Software Version 2.0: User's Manual." No further implementation of the materials in this report is needed.

The purpose of this report is to document procedures supporting State Implementation Plan submittals produced for and in cooperation with the Texas Natural Resource Conservation Commission. The State Implementation Plan-related materials being submitted to the Environmental Protection Agency by the Texas Natural Resource Conservation Commission are prepared in English units. Because this report is to document procedures supporting State Implementation Plan submittals, English units have been used to maintain consistency.

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the official views or policies of the Texas Department of Transportation. This report does not constitute a standard, specification, or regulation. Additionally, this report is not intended for construction, bidding, or permit purposes. George B. Dresser, Ph.D., is Principal Investigator for this project.

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EMISSION ESTIMATION METHODOLOGY

For the development of the emissions inventories, a series of 24-hour assignments was performed for the Houston-Galveston Area Council (HGAC) counties region for the 1993 base year and for 1996, 1999, and 2007. Summer VMT, speeds, and mobile source emissions estimates were developed for each of these assignments. The following briefly describes the methodology used in developing the estimates. The current networks for the region cover all HGAC counties. The emission estimates are developed by county. The emission estimation methodology provides complete coverage for the HGAC counties.

A series of programs (developed by the Texas Transportation Institute to facilitate the estimation of mobile source emissions) was used for the emission inventory analyses. The three programs used for computing the mobile source emissions for the HGAC counties analyses are:

PREPIN — The PREPIN program was developed for use in urban areas which do not have time-of-day assignments and speeds available for air quality analyses. The program inputs a 24-hour assignment and applies the needed seasonal adjustment factors and time-of-day factors to estimate time-of-day travel. The Dallas-Fort Worth speed models are used to estimate the operational time-of-day speeds on the links. The VMT and speeds by link are subsequently input to the IMPSUMA program for estimating emissions.

POLFAC5B — The POLFAC5B program obtains emission rates using MOBILE5a.

IMPSUMA — The IMPSUMA program applies the emission rates (obtained from POLFAC5B) and VMT mixes to the time-of-day VMT and speed estimates to estimate the emissions.

Using the PREPIN software, the HGAC counties' 24-hour assignments were used to develop seasonally adjusted time-of-day Tuesday - Saturday VMT and speed estimates for 24 time-of-day periods corresponding to the 24 hours of the day. The volumes and VMT are seasonally adjusted to represent the summer season (August) before the time-of-day volumes and speeds are estimated.

The POLFAC5B program was applied to develop the seasonal emission factors for each time-of-day period for each of the analysis years. The average August event day temperatures for the subject time-of-day period were estimated and input to the POLFAC5B application of the MOBILE5a model. A separate 24-hour application of MOBILE5a was used to develop the diurnal emission rates.

Finally, IMPSUMA was applied to estimate the emissions for each of the four time-of-day periods. The 24-hour diurnal estimates were computed using the 24-hour diurnal rates. The county emission estimates for each of the time-of-day periods and the diurnal estimates were summed to

develop the final emission estimates. The emissions were gridded into 4-kilometer grids for each of the 24 hour time-of-day periods and for the 24-hour period.

I. INTRODUCTION

This report documents the mobile source emissions estimation methodology used for the development of the FY93, FY96, FY99, and FY07 emissions inventories for Houston-Galveston Area Council (HGAC) counties. The remainder of this chapter provides an overview of the emission estimation methodology and the 24-hour traffic assignments used in the analyses. Chapter II describes the methods used to estimate the seasonally adjusted time-of-day vehicle miles of travel (VMT) and associated operating speeds. Chapter III discusses estimating emission rates using the EPA's MOBILE5a program. Chapter IV discusses the method used to develop the emission estimates (inventories) using the MOBILE5a emission rates.

OVERVIEW OF EMISSION ESTIMATION METHODOLOGY

For the COAST project, a series of 24-hour assignments was performed for the HGAC region for the 1993 base year and for 1996, 1999, and 2007. Summer mobile source emissions estimates were developed for each of these assignments. A new series of programs (i.e., the POLFAC5B, PREPIN, and IMPSUMA programs developed by TTI) was used for these analyses. The following briefly describes the methodology and software used in developing the estimates.

PREPIN — The PREPIN program was developed for use in urban areas which do not have time-of-day assignments and speeds available for air quality analyses. The program inputs a 24-hour assignment and applies the needed seasonal adjustment factors. The time-of-day factors are applied to the seasonally adjusted 24-hour assignment results to estimate the directional time-of-day travel. The HGAC speed models are used to estimate the operational time-of-day speeds by direction on the links. Special intrazonal links are defined, and the VMT and speeds for intrazonal trips are estimated. These VMT and speeds by link are subsequently input to the IMPSUMA program for the application of MOBILE5a emission factors.

POLFAC5B — The POLFAC5B program is used to apply the EPA's MOBILE5a program to obtain the emission FACTORS (rates). The MOBILE5a emission factors are obtained for eight vehicle types and 63 speeds (i.e., 3 mph through 65 mph) for each vehicle type. Hence, there are 504 factors (i.e., 8 x 63 = 504) for each pollution type for each county. Three pollution types were computed: VOC, CO and NOX; for a given county there are 1,512 emission factors. These emission factors are output to an ASCII file for subsequent input to the IMPSUMA program. POLFAC5B is applied for each time-of-day time period being used. These time-of-day emission factors are applied using the IMPSUMA program to time-of-day VMT estimates by link.

IMPSUMA The IMPSUMA program applies the emission rates (obtained from POLFAC5B) and VMT mixes to the time-of-day VMT and speed estimates to estimate the emissions. The basic inputs to IMPSUMA are:

1. Data specifying the number of counties in the region and their names.
2. Names of the roadway types used in the study. These roadway types are used to summarize the emission results.
3. VMT mix by county and roadway type.
4. MOBILE5a emission factors developed using POLFAC5B by county.
5. Specification of the units for reporting emissions (grams, pounds, or tons).
6. Abbreviated assignment results by link input for the subject time period. PREPIN allows the user to estimate the VMT and speed on each link by time period. For each link, the following information is input to IMPSUMA: county number, roadway type number, VMT on link, operational speed estimate, and link distance.

Using these input data, the VMT for each link is stratified by the eight vehicle types; and the MOBILE5a emissions factors are applied to estimate the mobile source emissions for that link. The emissions for each county and emission type are reported by both roadway type and vehicle type (i.e., cross-classified by roadway type and vehicle type).

Using the PREPIN software, the HGAC 24-hour assignments were used to develop seasonally adjusted time-of-day AAWT VMT and speed estimates for 24-hour time-of-day periods corresponding to the 24 hours of the day. Separate time-of-day Tuesday to Saturday VMT and speed estimates were developed for the summer (August) season.

POLFAC5B was applied to develop the seasonal emission factors for each time-of-day period for each of the application years. The average temperature for the subject season and subject time-of-day period were input to the POLFAC5B application of the MOBILE5a model. Separate 24-hour applications of MOBILE5a were used to develop the diurnal emissions rates.

Finally, IMPSUMA was applied to estimate the emissions for each of the 24 time-of-day periods. The 24-hour diurnal estimates were computed by applying the 24-hour diurnal rates to the time periods which experienced a temperature increase. Diurnal emissions only occur during periods of temperature rise. The emission estimates for each of the 24 time-of-day periods and the diurnal estimates were summed to develop the final emission estimates.

24-HOUR TRAFFIC ASSIGNMENTS

The 24-hour capacity-restrained traffic assignments were developed by HGAC (MPO). Table 1 summarizes the 24-hour traffic assignments, trip tables, and networks used in the analyses.

Table 1
24-Hour Traffic Assignments

Traffic Assignment	Trip Table Year	Network Year
1. 1993 Base Year	1993	1993
2. 1996	1996	1996
3. 1999	1999	1999
4. 2007	2007	2007

II. ESTIMATION OF TIME-OF-DAY VMT AND SPEED

The time-of-day VMT and speed estimates for the Houston-Galveston region were developed using the PREPIN program. PREPIN is one of a series of programs developed by the Texas Transportation Institute to facilitate the application of EPA's MOBILE5a program in estimating mobile source emissions. The PREPIN program was developed for use in urban areas which do not have time-of-day assignments and speeds available for air quality analyses. The program inputs a 24-hour assignment and applies the needed seasonal adjustment factors. The time-of-day factors are applied to the seasonally adjusted 24-hour assignment results to estimate the directional time-of-day travel. The Houston-Galveston speed models were used to estimate the operational time-of-day speeds by direction on the links. Special intrazonal links are defined and the VMT and speeds for intrazonal trips are estimated. These VMT and speeds by link are subsequently input to the IMPSUMA program for the application of MOBILE5a emission rates.

For the development of gridded emissions, the HGAC 24-hour assignment was used as input to the PREPIN program. For a given application, 24 applications of PREPIN are run to estimate the directional VMT and speeds for each of the 24 one-hour time periods comprising the 24-hour period. Three PREPIN applications were performed to estimate gridded emissions for Houston-Galveston area. These three applications included weekday, Friday, and Saturday subject event days.

The PREPIN applications were used to develop VMT and speed estimates for the weekday, Friday, and Saturday subject days. The weekday PREPIN applications are used in conjunction with the Tuesday, Wednesday, and Thursday POLFAC5B application to develop gridded emission estimates for the respective subject day using IMPSUMA. The Friday and Saturday PREPIN applications are used in conjunction with the respective Friday and Saturday POLFAC5B applications using IMPSUMA.

For a given application of the PREPIN program for the Houston-Galveston area analyses, the following parameters and data were input to PREPIN:

- County table of equals
- Area type table of equals
- Seasonal adjustment factor
- Time-of-day factor
- Directional split estimates
- Time-of-day capacity factors
- Freeflow speed factors
- LOS E speed factors
- Speed reduction factors
- HPMS factor
- VMT factor
- Assignment trip table
- Zonal radii data

- Capacity restrained assignment results

The remainder of this section discusses the key input data used in the Houston-Galveston area PREPIN applications to prepare the time-of-day VMT and speed estimates. The primary output of PREPIN is a data set for the subject time period containing two records for each link (i.e., one record specifying the estimated time-of-day VMT and speed in the peak, or principal, direction and the second record specifying the estimated VMT and speed in the opposite direction). This data set is subsequently input to the IMPSUMA program which applies the MOBILE5a emission rates (developed using the POLFAC5B program) to estimate the mobile source emissions for each link. VMTSUM calculates the VMT by time period for input into IMPSUMA to incorporate the diurnal emissions into the appropriate time period. Finally, the SUMALL program combines the time-of-day emission estimates to obtain 24-hour gridded emissions.

COUNTY SPECIFICATIONS

The PREPIN program can process an assignment comprised of up to eight counties. Various summaries are produced by county and for the entire region. For a given application, the counties are numbered sequentially starting with one. The county table-of-equals data input to PREPIN specifies the zone numbers contained in each county. In the case of HGAC study area, the region is comprised of eight counties (i.e., Harris, Brazoria, Fort Bend, Waller, Montgomery, Liberty, Chambers, and Galveston counties). The zone-to-county table of equals was provided by HGAC for the gridded emission estimate applications.

Each link in the network is assigned an associated zone number. Using the link's associated zone number, the county within which the link is located is determined using these input data. The county number is included in the link record output data set produced by PREPIN. The specification of the county number in these data allow the IMPSUMA program to accumulate and report the mobile source emissions estimates by county and/or grid.

AREA TYPE SPECIFICATIONS

PREPIN allows various factors to be specified by area type number and functional classification number. The HGAC regional models use five area types for trip generation. Table 2 identifies the five network area types.

Table 2
Network Area Types

1. Central Business District (CBD)
2. Urban
3. Urban Fringe
4. Suburban
5. Rural

The HGAC network area type table-of-equals specifies the zones contained in each of the five area types. The area type in which the link is located is determined by using the link's associated zone number.

VMT CONTROL TOTALS

Future years VMT control totals (i.e. 1996, 1999, and 2007) were developed using a new methodology developed by TTI and agreed upon by TNRCC (May 3, 1995) to improve analysis consistency. The VMT control totals were constructed by drawing the best fit line for modeled (PREPIN) VMT estimates for the years 1993, 1996, 1999, and 2007 and anchoring the end point of the line at the 1993 HPMS value, which means that the 1993 HPMS value was the base control total used for 1993. Therefore, a slope of a best fit line was developed from modeled (PREPIN) future VMT estimates and extended in time from the 1993 HPMS value. Thus, the future VMT estimates (1996, 1999, and 2007) are based on a linear growth curve. Each VMT estimate was developed by county. These VMT values were then seasonally adjusted to obtain the VMT control totals. Table 3 shows the VMT control totals (not seasonally adjusted) developed using this methodology.

Table 3
VMT Control Totals by Year by County (Not Seasonally Adjusted)

County	VMT by Year for Specified County (not seasonally adjusted)			
	1993	1996	1999	2007
Brazoria	4,568,018	5,037,146	5,506,274	6,757,283
Chambers	1,547,069	1,662,395	1,777,722	2,085,259
Fort Bend	5,048,587	5,760,244	6,471,902	8,369,657
Galveston	5,161,855	5,438,778	5,715,701	6,454,162
Harris	72,758,958	77,121,972	81,484,985	93,119,686
Liberty	1,492,945	1,607,682	1,722,419	2,028,383
Montgomery	4,942,145	5,536,511	6,130,877	7,715,854
Waller	1,062,735	1,147,718	1,232,700	1,459,321

DEVELOPMENT OF VMT SEASONALLY ADJUSTED CONTROL TOTALS

The development of VMT seasonally adjusted control totals were developed by multiplying the non seasonally adjusted VMT control totals for each year and county by seasonal adjustment factors and VMT factors. The seasonal adjustment factors adjust the control total VMT to August and the VMT factors adjust the control total VMT to either weekday (Tuesday-Thursday), Friday, or Saturday VMT.

SEASONAL ADJUSTMENT FACTORS

Because travel on the highway system varies somewhat by season, PREPIN provides for the input and application of seasonal adjustment factors to account for the seasonal variations. The seasonal adjustment factors are applied to the 24-hour link volumes to estimate the seasonally adjusted 24-hour volumes and VMT. The seasonal adjustment factors shown in Table 4a were used in the analyses:

Table 4a
August Seasonal Adjustment Factors

County	August Seasonal Adjustment Factor
Harris	0.95831
Brazoria	1.09936
Fort Bend	0.96158
Waller	0.96227
Montgomery	0.98974
Liberty	1.02490
Chambers	1.19134
Galveston	1.16418

These factors were estimated using data from **1992 Annual Report Permanent Automatic Traffic Recorders** (published by the TxDOT). The following describes the procedures used to estimate the seasonal adjustment factors.

SEASONAL ADJUSTMENT FACTOR COMPUTATIONS

The travel models are assumed to simulate AWT for a typical school year (September through May) and weekday (Monday through Thursday). For purposes of estimating gridded emissions for August 17-21, 1993, 1996, 1999 and 2007 the (Monday through Thursday) AWT from the travel model was adjusted in two steps. The first step was to adjust Monday through Thursday travel to Tuesday through Saturday travel using the ratio of Monday through Thursday AAWT to Tuesday through Saturday AAWT for the September through May time period. The second step was to adjust the September through May, Monday through Thursday AAWT to August, Tuesday through Saturday AAWT. The two adjustment factors were then multiplied to provide the total adjustment factor. Data from the ATR stations were used to calculate the adjustment factors.

ATR data collection stations used in HGRTS for the gridded emission analysis are as follows:

County	ATR Site(s)	Location (City)
Brazoria	S203	Angleton
Chambers	S087	Anahuac
Fort Bend*	S203	Angleton
	A316	Houston
	S003	Houston
	S107	Baytown
	S139	Houston
	S157	Houston
	S182	Houston
	S022	Wharton
	S066	Wharton
Galveston	S204	Galveston
Harris	A316	Houston
	S003	Houston
	S107	Baytown
	S139	Houston
	S157	Houston
	S182	Houston
Liberty*	S087	Anahuac
	S086	Silsbee
	S117	Beaumont
Montgomery	S174	Houston
Waller*	S037	Anderson
	A316	Houston
	S003	Houston
	S107	Baytown
	S139	Houston
	S157	Houston
	S182	Houston
	S174	Houston

*1992 ATR data were unavailable. Seasonal adjustment estimates for these three counties were based on similar, adjacent county stations as noted.

VMT FACTORS

VMT factors are used to convert seasonally adjusted average annual daily traffic (AADT) to the desired day of week. The VMT adjustment factors used to estimate the gridded emission estimates for the specified event days are shown in Table 4b.

Table 4b
VMT Adjustment Factors by County and Day of the Week

County	VMT Adjustment Factors		
	Weekday	Friday	Saturday
Harris	1.14487	1.21466	0.90216
Brazoria	0.97453	1.09782	0.99647
Ft. Bend	1.14055	1.21153	0.90480
Waller	1.13508	1.20821	0.91046
Montgomery	1.06927	1.16508	0.96789
Liberty	1.06529	1.16714	0.95147
Chambers	0.78263	0.95205	1.11976
Galveston	0.89226	1.03524	1.08569

FINAL VMT CONTROL TOTALS

The final VMT control totals for each county by year and day of the week are presented in tables 4c, 4d, 4e, and 4f.

Table 4c
1993 Final VMT Control Totals

County	1993 Final VMT Control Total by Day of the Week		
	Weekday	Friday	Saturday
Brazoria	4,879,256	5,496,565	4,989,135
Chambers	1,415,123	1,721,474	2,024,717
Fort Bend	5,043,129	5,356,979	4,000,730
Galveston	5,372,391	6,233,302	6,537,068
Harris	79,153,787	83,978,913	62,373,145
Liberty	1,685,304	1,846,432	1,505,241
Montgomery	5,157,620	5,619,759	4,668,628
Waller	1,206,344	1,284,066	967,626

Note: The 1993 Final VMT control totals were developed in a previous analysis and are presented in this report to provide a single reference source for HGAC COAST VMT control totals used in emission inventory analysis. The complete description of the development of 1993 HGAC COAST VMT control totals are found in a technical memorandum sent to TNRCC dated October 19, 1994 with a subject line titled: Project 402711, Tasks 14, 15, 6, 8, and 10: Preparation of 1993 Gridded Mobile Source Emissions for the Houston-Galveston Eight-County Region for a Subject Summer Tuesday through Saturday (August 17-21, 1993). The primary author of the technical memorandum is George B. Dresser.

Table 4d
1996 Final VMT Control Totals

County	1996 Final VMT Control Total by Day of the Week		
	Weekday	Friday	Saturday
Brazoria	5,396,593	6,079,328	5,518,088
Chambers	1,549,980	1,885,513	2,217,659
Fort Bend	6,317,412	6,710,563	5,011,613
Galveston	5,649,537	6,554,844	6,874,281
Harris	84,613,627	89,771,581	66,675,719
Liberty	1,755,293	1,923,111	1,567,750
Montgomery	5,859,286	6,384,296	5,303,753
Waller	1,253,599	1,334,365	1,005,525

Table 4e
1999 Final VMT Control Totals

County	1999 Final VMT Control Total by Day of the Week		
	Weekday	Friday	Saturday
Brazoria	5,899,196	6,645,519	6,032,008
Chambers	1,657,510	2,016,319	2,371,507
Fort Bend	7,097,929	7,539,655	5,630,797
Galveston	5,937,190	6,888,596	7,224,296
Harris	89,400,465	94,850,219	70,447,759
Liberty	1,880,564	2,060,360	1,679,637
Montgomery	6,488,302	7,069,675	5,873,131
Waller	1,346,421	1,433,167	1,079,978

Table 4f
2007 Final VMT Control Totals

County	2007 Final VMT Control Total by Day of the Week		
	Weekday	Friday	Saturday
Brazoria	14,306,108	15,182,816	14,462,131
Chambers	1,958,307	2,379,089	2,795,627
Fort Bend	9,179,254	9,750,576	7,281,916
Galveston	6,704,270	7,778,603	8,157,664
Harris	142,525,640	148,628,058	121,303,425
Liberty	2,230,697	2442370	1994148
Montgomery	8,799,825	9,528,948	8,028,316
Waller	2,022,423	2,123,751	1,711,193

TIME-OF-DAY TRAVEL FACTORS

Field traffic volume counts were used to produce time-of-day volume factors by area type and functional classification. GET_PER, a FORTRAN program developed specifically to compile field data, was used to obtain 24 sets of PERFAC records for each hour of the day for input into PREPIN. This program was run for weekday, Friday, and Saturday applications. The Time-of-Day Travel factors are shown in Tables 5 through 19.

Table 5
Time-of-Day Factors by Period for Area Type 1 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010100	0.010100	0.008866	0.008866	0.005588	0.005588	0.010100	0.010100	0.008866	0.008866	0.008866	0.005588	0.005588
2	0.006458	0.006458	0.005825	0.005825	0.003886	0.003886	0.006458	0.006458	0.005825	0.005825	0.005825	0.003886	0.003886
3	0.005877	0.005877	0.004893	0.004893	0.003871	0.003871	0.005877	0.005877	0.004893	0.004893	0.004893	0.003871	0.003871
4	0.004803	0.004803	0.003173	0.003173	0.004225	0.004225	0.004803	0.004803	0.003173	0.003173	0.003173	0.004225	0.004225
5	0.006927	0.006927	0.004247	0.004247	0.008400	0.008400	0.006927	0.006927	0.004247	0.004247	0.004247	0.008400	0.008400
6	0.021775	0.021775	0.014491	0.014491	0.024647	0.024647	0.021775	0.021775	0.014491	0.014491	0.014491	0.024647	0.024647
7	0.059443	0.059443	0.045344	0.045344	0.040887	0.040887	0.059443	0.059443	0.045344	0.045344	0.045344	0.040887	0.040887
8	0.077119	0.077119	0.073845	0.073845	0.059637	0.059637	0.077119	0.077119	0.073845	0.073845	0.073845	0.059637	0.059637
9	0.060233	0.060233	0.067518	0.067518	0.051856	0.051856	0.060233	0.060233	0.067518	0.067518	0.067518	0.051856	0.051856
10	0.051291	0.051291	0.052463	0.052463	0.042856	0.042856	0.051291	0.051291	0.052463	0.052463	0.052463	0.042856	0.042856
11	0.050669	0.050669	0.049986	0.049986	0.041493	0.041493	0.050669	0.050669	0.049986	0.049986	0.049986	0.041493	0.041493
12	0.053513	0.053513	0.057882	0.057882	0.044709	0.044709	0.053513	0.053513	0.057882	0.057882	0.057882	0.044709	0.044709
13	0.053455	0.053455	0.060293	0.060293	0.049497	0.049497	0.053455	0.053455	0.060293	0.060293	0.060293	0.049497	0.049497
14	0.055161	0.055161	0.058553	0.058553	0.058641	0.058641	0.055161	0.055161	0.058553	0.058553	0.058553	0.058641	0.058641
15	0.058540	0.058540	0.061388	0.061388	0.056961	0.056961	0.058540	0.058540	0.061388	0.061388	0.061388	0.056961	0.056961
16	0.066064	0.066064	0.065776	0.065776	0.072408	0.072408	0.066064	0.066064	0.065776	0.065776	0.065776	0.072408	0.072408
17	0.074881	0.074881	0.075768	0.075768	0.082194	0.082194	0.074881	0.074881	0.075768	0.075768	0.075768	0.082194	0.082194
18	0.078598	0.078598	0.077365	0.077365	0.093205	0.093205	0.078598	0.078598	0.077365	0.077365	0.077365	0.093205	0.093205
19	0.056444	0.056444	0.058969	0.058969	0.082525	0.082525	0.056444	0.056444	0.058969	0.058969	0.058969	0.082525	0.082525
20	0.041705	0.041705	0.044604	0.044604	0.060560	0.060560	0.041705	0.041705	0.044604	0.044604	0.044604	0.060560	0.060560
21	0.033108	0.033108	0.034782	0.034782	0.045315	0.045315	0.033108	0.033108	0.034782	0.034782	0.034782	0.045315	0.045315
22	0.030035	0.030035	0.030965	0.030965	0.033546	0.033546	0.030035	0.030035	0.030965	0.030965	0.030965	0.033546	0.033546
23	0.025844	0.025844	0.025821	0.025821	0.022643	0.022643	0.025844	0.025844	0.025821	0.025821	0.025821	0.022643	0.022643
24	0.017935	0.017935	0.017183	0.017183	0.010427	0.010427	0.017935	0.017935	0.017183	0.017183	0.017183	0.010427	0.010427

Table 6
Time-of-Day Factors by Period for Area Type 2 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010100	0.010100	0.008866	0.008866	0.005588	0.005588	0.010100	0.010100	0.008866	0.008866	0.008866	0.005588	0.005588
2	0.006458	0.006458	0.005825	0.005825	0.003886	0.003886	0.006458	0.006458	0.005825	0.005825	0.005825	0.003886	0.003886
3	0.005877	0.005877	0.004893	0.004893	0.003871	0.003871	0.005877	0.005877	0.004893	0.004893	0.004893	0.003871	0.003871
4	0.004803	0.004803	0.003173	0.003173	0.004225	0.004225	0.004803	0.004803	0.003173	0.003173	0.003173	0.004225	0.004225
5	0.006927	0.006927	0.004247	0.004247	0.008400	0.008400	0.006927	0.006927	0.004247	0.004247	0.004247	0.008400	0.008400
6	0.021775	0.021775	0.014491	0.014491	0.024647	0.024647	0.021775	0.021775	0.014491	0.014491	0.014491	0.024647	0.024647
7	0.059443	0.059443	0.045344	0.045344	0.040887	0.040887	0.059443	0.059443	0.045344	0.045344	0.045344	0.040887	0.040887
8	0.077119	0.077119	0.073845	0.073845	0.059637	0.059637	0.077119	0.077119	0.073845	0.073845	0.073845	0.059637	0.059637
9	0.060233	0.060233	0.067518	0.067518	0.051856	0.051856	0.060233	0.060233	0.067518	0.067518	0.067518	0.051856	0.051856
10	0.051291	0.051291	0.052463	0.052463	0.042856	0.042856	0.051291	0.051291	0.052463	0.052463	0.052463	0.042856	0.042856
11	0.050669	0.050669	0.049986	0.049986	0.041493	0.041493	0.050669	0.050669	0.049986	0.049986	0.049986	0.041493	0.041493
12	0.053513	0.053513	0.057882	0.057882	0.044709	0.044709	0.053513	0.053513	0.057882	0.057882	0.057882	0.044709	0.044709
13	0.053455	0.053455	0.060293	0.060293	0.049497	0.049497	0.053455	0.053455	0.060293	0.060293	0.060293	0.049497	0.049497
14	0.055161	0.055161	0.058553	0.058553	0.058641	0.058641	0.055161	0.055161	0.058553	0.058553	0.058553	0.058641	0.058641
15	0.058540	0.058540	0.061388	0.061388	0.056961	0.056961	0.058540	0.058540	0.061388	0.061388	0.061388	0.056961	0.056961
16	0.066064	0.066064	0.065776	0.065776	0.072408	0.072408	0.066064	0.066064	0.065776	0.065776	0.065776	0.072408	0.072408
17	0.074881	0.074881	0.075768	0.075768	0.082194	0.082194	0.074881	0.074881	0.075768	0.075768	0.075768	0.082194	0.082194
18	0.078598	0.078598	0.077365	0.077365	0.093205	0.093205	0.078598	0.078598	0.077365	0.077365	0.077365	0.093205	0.093205
19	0.056444	0.056444	0.058969	0.058969	0.082525	0.082525	0.056444	0.056444	0.058969	0.058969	0.058969	0.082525	0.082525
20	0.041705	0.041705	0.044604	0.044604	0.060560	0.060560	0.041705	0.041705	0.044604	0.044604	0.044604	0.060560	0.060560
21	0.033108	0.033108	0.034782	0.034782	0.045315	0.045315	0.033108	0.033108	0.034782	0.034782	0.034782	0.045315	0.045315
22	0.030035	0.030035	0.030965	0.030965	0.033546	0.033546	0.030035	0.030035	0.030965	0.030965	0.030965	0.033546	0.033546
23	0.025844	0.025844	0.025821	0.025821	0.022643	0.022643	0.025844	0.025844	0.025821	0.025821	0.025821	0.022643	0.022643
24	0.017935	0.017935	0.017183	0.017183	0.010427	0.010427	0.017935	0.017935	0.017183	0.017183	0.017183	0.010427	0.010427

Table 7
Time-of-Day Factors by Period for Area Type 3 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.009899	0.009899	0.010740	0.010740	0.005588	0.005588	0.009899	0.009899	0.010740	0.010740	0.010740	0.005588	0.005588
2	0.005988	0.005988	0.006907	0.006907	0.003886	0.003886	0.005988	0.005988	0.006907	0.006907	0.006907	0.003886	0.003886
3	0.005155	0.005155	0.006124	0.006124	0.003871	0.003871	0.005155	0.005155	0.006124	0.006124	0.006124	0.003871	0.003871
4	0.003777	0.003777	0.003907	0.003907	0.004225	0.004225	0.003777	0.003777	0.003907	0.003907	0.003907	0.004225	0.004225
5	0.004681	0.004681	0.004999	0.004999	0.008400	0.008400	0.004681	0.004681	0.004999	0.004999	0.004999	0.008400	0.008400
6	0.012244	0.012244	0.013746	0.013746	0.024647	0.024647	0.012244	0.012244	0.013746	0.013746	0.013746	0.024647	0.024647
7	0.038290	0.038290	0.036543	0.036543	0.040887	0.040887	0.038290	0.038290	0.036543	0.036543	0.036543	0.040887	0.040887
8	0.077547	0.077547	0.058773	0.058773	0.059637	0.059637	0.077547	0.077547	0.058773	0.058773	0.058773	0.059637	0.059637
9	0.053864	0.053864	0.056626	0.056626	0.051856	0.051856	0.053864	0.053864	0.056626	0.056626	0.056626	0.051856	0.051856
10	0.045773	0.045773	0.046060	0.046060	0.042856	0.042856	0.045773	0.045773	0.046060	0.046060	0.046060	0.042856	0.042856
11	0.049657	0.049657	0.042817	0.042817	0.041493	0.041493	0.049657	0.049657	0.042817	0.042817	0.042817	0.041493	0.041493
12	0.054705	0.054705	0.054264	0.054264	0.044709	0.044709	0.054705	0.054705	0.054264	0.054264	0.054264	0.044709	0.044709
13	0.055931	0.055931	0.060487	0.060487	0.049497	0.049497	0.055931	0.055931	0.060487	0.060487	0.060487	0.049497	0.049497
14	0.057659	0.057659	0.061056	0.061056	0.058641	0.058641	0.057659	0.057659	0.061056	0.061056	0.061056	0.058641	0.058641
15	0.061588	0.061588	0.062705	0.062705	0.056961	0.056961	0.061588	0.061588	0.062705	0.062705	0.062705	0.056961	0.056961
16	0.069080	0.069080	0.066580	0.066580	0.072408	0.072408	0.069080	0.069080	0.066580	0.066580	0.066580	0.072408	0.072408
17	0.081243	0.081243	0.075315	0.075315	0.082194	0.082194	0.081243	0.081243	0.075315	0.075315	0.075315	0.082194	0.082194
18	0.088592	0.088592	0.080516	0.080516	0.093205	0.093205	0.088592	0.088592	0.080516	0.080516	0.080516	0.093205	0.093205
19	0.060774	0.060774	0.068529	0.068529	0.082525	0.082525	0.060774	0.060774	0.068529	0.068529	0.068529	0.082525	0.082525
20	0.045996	0.045996	0.053810	0.053810	0.060560	0.060560	0.045996	0.045996	0.053810	0.053810	0.053810	0.060560	0.060560
21	0.037494	0.037494	0.044524	0.044524	0.045315	0.045315	0.037494	0.037494	0.044524	0.044524	0.044524	0.045315	0.045315
22	0.032374	0.032374	0.037856	0.037856	0.033546	0.033546	0.032374	0.032374	0.037856	0.037856	0.037856	0.033546	0.033546
23	0.027675	0.027675	0.028272	0.028272	0.022643	0.022643	0.027675	0.027675	0.028272	0.028272	0.028272	0.022643	0.022643
24	0.020013	0.020013	0.018844	0.018844	0.010427	0.010427	0.020013	0.020013	0.018844	0.018844	0.018844	0.010427	0.010427

Table 8
Time-of-Day Factors by Period for Area Type 4 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.012058	0.012058	0.007230	0.007230	0.005588	0.005588	0.012058	0.012058	0.007230	0.007230	0.007230	0.005588	0.005588
2	0.008543	0.008543	0.004469	0.004469	0.003886	0.003886	0.008543	0.008543	0.004469	0.004469	0.004469	0.003886	0.003886
3	0.007630	0.007630	0.003407	0.003407	0.003871	0.003871	0.007630	0.007630	0.003407	0.003407	0.003407	0.003871	0.003871
4	0.006802	0.006802	0.003897	0.003897	0.004225	0.004225	0.006802	0.006802	0.003897	0.003897	0.003897	0.004225	0.004225
5	0.009587	0.009587	0.011269	0.011269	0.008400	0.008400	0.009587	0.009587	0.011269	0.011269	0.011269	0.008400	0.008400
6	0.025017	0.025017	0.039913	0.039913	0.024647	0.024647	0.025017	0.025017	0.039913	0.039913	0.039913	0.024647	0.024647
7	0.053346	0.053346	0.069782	0.069782	0.040887	0.040887	0.053346	0.053346	0.069782	0.069782	0.069782	0.040887	0.040887
8	0.058888	0.058888	0.073848	0.073848	0.059637	0.059637	0.058888	0.058888	0.073848	0.073848	0.073848	0.059637	0.059637
9	0.052111	0.052111	0.050499	0.050499	0.051856	0.051856	0.052111	0.052111	0.050499	0.050499	0.050499	0.051856	0.051856
10	0.049725	0.049725	0.047721	0.047721	0.042856	0.042856	0.049725	0.049725	0.047721	0.047721	0.047721	0.042856	0.042856
11	0.051473	0.051473	0.046411	0.046411	0.041493	0.041493	0.051473	0.051473	0.046411	0.046411	0.046411	0.041493	0.041493
12	0.053914	0.053914	0.048967	0.048967	0.044709	0.044709	0.053914	0.053914	0.048967	0.048967	0.048967	0.044709	0.044709
13	0.055094	0.055094	0.049400	0.049400	0.049497	0.049497	0.055094	0.055094	0.049400	0.049400	0.049400	0.049497	0.049497
14	0.056912	0.056912	0.050419	0.050419	0.058641	0.058641	0.056912	0.056912	0.050419	0.050419	0.050419	0.058641	0.058641
15	0.059225	0.059225	0.055513	0.055513	0.056961	0.056961	0.059225	0.059225	0.055513	0.055513	0.055513	0.056961	0.056961
16	0.063828	0.063828	0.066804	0.066804	0.072408	0.072408	0.063828	0.063828	0.066804	0.066804	0.066804	0.072408	0.072408
17	0.067577	0.067577	0.079738	0.079738	0.082194	0.082194	0.067577	0.067577	0.079738	0.079738	0.079738	0.082194	0.082194
18	0.070278	0.070278	0.084603	0.084603	0.093205	0.093205	0.070278	0.070278	0.084603	0.084603	0.084603	0.093205	0.093205
19	0.063623	0.063623	0.065777	0.065777	0.082525	0.082525	0.063623	0.063623	0.065777	0.065777	0.065777	0.082525	0.082525
20	0.050700	0.050700	0.044074	0.044074	0.060560	0.060560	0.050700	0.050700	0.044074	0.044074	0.044074	0.060560	0.060560
21	0.040109	0.040109	0.033823	0.033823	0.045315	0.045315	0.040109	0.040109	0.033823	0.033823	0.033823	0.045315	0.045315
22	0.035201	0.035201	0.028184	0.028184	0.033546	0.033546	0.035201	0.035201	0.028184	0.028184	0.028184	0.033546	0.033546
23	0.028106	0.028106	0.020766	0.020766	0.022643	0.022643	0.028106	0.028106	0.020766	0.020766	0.020766	0.022643	0.022643
24	0.020252	0.020252	0.013484	0.013484	0.010427	0.010427	0.020252	0.020252	0.013484	0.013484	0.013484	0.010427	0.010427

Table 9
Time-of-Day Factors by Period for Area Type 5 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.008328	0.008328	0.008328	0.008328	0.007434	0.007434	0.008328	0.008328	0.008328	0.008328	0.008328	0.007434	0.007434
2	0.005597	0.005597	0.005597	0.005597	0.005317	0.005317	0.005597	0.005597	0.005597	0.005597	0.005597	0.005317	0.005317
3	0.005041	0.005041	0.005041	0.005041	0.005081	0.005081	0.005041	0.005041	0.005041	0.005041	0.005041	0.005081	0.005081
4	0.005220	0.005220	0.005220	0.005220	0.005344	0.005344	0.005220	0.005220	0.005220	0.005220	0.005220	0.005344	0.005344
5	0.009802	0.009802	0.009802	0.009802	0.010055	0.010055	0.009802	0.009802	0.009802	0.009802	0.009802	0.010055	0.010055
6	0.032431	0.032431	0.032431	0.032431	0.035001	0.035001	0.032431	0.032431	0.032431	0.032431	0.032431	0.035001	0.035001
7	0.058439	0.058439	0.058439	0.058439	0.063301	0.063301	0.058439	0.058439	0.058439	0.058439	0.058439	0.063301	0.063301
8	0.065127	0.065127	0.065127	0.065127	0.074662	0.074662	0.065127	0.065127	0.065127	0.065127	0.065127	0.074662	0.074662
9	0.057696	0.057696	0.057696	0.057696	0.052600	0.052600	0.057696	0.057696	0.057696	0.057696	0.057696	0.052600	0.052600
10	0.050153	0.050153	0.050153	0.050153	0.045775	0.045775	0.050153	0.050153	0.050153	0.050153	0.050153	0.045775	0.045775
11	0.049354	0.049354	0.049354	0.049354	0.044184	0.044184	0.049354	0.049354	0.049354	0.049354	0.049354	0.044184	0.044184
12	0.051134	0.051134	0.051134	0.051134	0.040609	0.040609	0.051134	0.051134	0.051134	0.051134	0.051134	0.040609	0.040609
13	0.052098	0.052098	0.052098	0.052098	0.040003	0.040003	0.052098	0.052098	0.052098	0.052098	0.052098	0.040003	0.040003
14	0.053784	0.053784	0.053784	0.053784	0.043906	0.043906	0.053784	0.053784	0.053784	0.053784	0.053784	0.043906	0.043906
15	0.057768	0.057768	0.057768	0.057768	0.055400	0.055400	0.057768	0.057768	0.057768	0.057768	0.057768	0.055400	0.055400
16	0.064758	0.064758	0.064758	0.064758	0.064945	0.064945	0.064758	0.064758	0.064758	0.064758	0.064758	0.064945	0.064945
17	0.072302	0.072302	0.072302	0.072302	0.086133	0.086133	0.072302	0.072302	0.072302	0.072302	0.072302	0.086133	0.086133
18	0.077949	0.077949	0.077949	0.077949	0.097079	0.097079	0.077949	0.077949	0.077949	0.077949	0.077949	0.097079	0.097079
19	0.068824	0.068824	0.068824	0.068824	0.076325	0.076325	0.068824	0.068824	0.068824	0.068824	0.068824	0.076325	0.076325
20	0.048419	0.048419	0.048419	0.048419	0.049510	0.049510	0.048419	0.048419	0.048419	0.048419	0.048419	0.049510	0.049510
21	0.036253	0.036253	0.036253	0.036253	0.035284	0.035284	0.036253	0.036253	0.036253	0.036253	0.036253	0.035284	0.035284
22	0.030704	0.030704	0.030704	0.030704	0.028951	0.028951	0.030704	0.030704	0.030704	0.030704	0.030704	0.028951	0.028951
23	0.023658	0.023658	0.023658	0.023658	0.021653	0.021653	0.023658	0.023658	0.023658	0.023658	0.023658	0.021653	0.021653
24	0.015139	0.015139	0.015139	0.015139	0.011425	0.011425	0.015139	0.015139	0.015139	0.015139	0.015139	0.011425	0.011425

Table 10
Time-of-Day Factors by Period for Area Type 1 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010471	0.010471	0.011076	0.011076	0.007578	0.007578	0.010471	0.010471	0.011076	0.011076	0.011076	0.007578	0.007578
2	0.006731	0.006731	0.007169	0.007169	0.005304	0.005304	0.006731	0.006731	0.007169	0.007169	0.007169	0.005304	0.005304
3	0.006217	0.006217	0.006541	0.006541	0.004508	0.004508	0.006217	0.006217	0.006541	0.006541	0.006541	0.004508	0.004508
4	0.004850	0.004850	0.003954	0.003954	0.004842	0.004842	0.004850	0.004850	0.003954	0.003954	0.003954	0.004842	0.004842
5	0.006563	0.006563	0.004602	0.004602	0.008554	0.008554	0.006563	0.006563	0.004602	0.004602	0.004602	0.008554	0.008554
6	0.020103	0.020103	0.012871	0.012871	0.021823	0.021823	0.020103	0.020103	0.012871	0.012871	0.012871	0.021823	0.021823
7	0.055063	0.055063	0.041158	0.041158	0.037391	0.037391	0.055063	0.055063	0.041158	0.041158	0.041158	0.037391	0.037391
8	0.073058	0.073058	0.069485	0.069485	0.058855	0.058855	0.073058	0.073058	0.069485	0.069485	0.069485	0.058855	0.058855
9	0.057194	0.057194	0.064100	0.064100	0.054372	0.054372	0.057194	0.057194	0.064100	0.064100	0.064100	0.054372	0.054372
10	0.050046	0.050046	0.051805	0.051805	0.045419	0.045419	0.050046	0.050046	0.051805	0.051805	0.051805	0.045419	0.045419
11	0.051079	0.051079	0.052728	0.052728	0.047012	0.047012	0.051079	0.051079	0.052728	0.052728	0.052728	0.047012	0.047012
12	0.054594	0.054594	0.061134	0.061134	0.050043	0.050043	0.054594	0.054594	0.061134	0.061134	0.061134	0.050043	0.050043
13	0.056045	0.056045	0.063637	0.063637	0.058855	0.058855	0.056045	0.056045	0.063637	0.063637	0.063637	0.058855	0.058855
14	0.056870	0.056870	0.061811	0.061811	0.055926	0.055926	0.056870	0.056870	0.061811	0.061811	0.061811	0.055926	0.055926
15	0.060864	0.060864	0.061260	0.061260	0.059061	0.059061	0.060864	0.060864	0.061260	0.061260	0.061260	0.059061	0.059061
16	0.067715	0.067715	0.064926	0.064926	0.067538	0.067538	0.067715	0.067715	0.064926	0.064926	0.064926	0.067538	0.067538
17	0.074252	0.074252	0.070001	0.070001	0.069221	0.069221	0.074252	0.074252	0.070001	0.070001	0.070001	0.069221	0.069221
18	0.073460	0.073460	0.067750	0.067750	0.076697	0.076697	0.073460	0.073460	0.067750	0.067750	0.067750	0.076697	0.076697
19	0.055095	0.055095	0.054904	0.054904	0.075798	0.075798	0.055095	0.055095	0.054904	0.054904	0.054904	0.075798	0.075798
20	0.043837	0.043837	0.045147	0.045147	0.066562	0.066562	0.043837	0.043837	0.045147	0.045147	0.045147	0.066562	0.066562
21	0.035038	0.035038	0.035422	0.035422	0.048091	0.048091	0.035038	0.035038	0.035422	0.035422	0.035422	0.048091	0.048091
22	0.031029	0.031029	0.032764	0.032764	0.034848	0.034848	0.031029	0.031029	0.032764	0.032764	0.032764	0.034848	0.034848
23	0.027844	0.027844	0.030791	0.030791	0.024867	0.024867	0.027844	0.027844	0.030791	0.030791	0.030791	0.024867	0.024867
24	0.021981	0.021981	0.024963	0.024963	0.016813	0.016813	0.021981	0.021981	0.024963	0.024963	0.024963	0.016813	0.016813

Table 11
Time-of-Day Factors by Period for Area Type 2 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010471	0.010471	0.011076	0.011076	0.007578	0.007578	0.010471	0.010471	0.011076	0.011076	0.011076	0.007578	0.007578
2	0.006731	0.006731	0.007169	0.007169	0.005304	0.005304	0.006731	0.006731	0.007169	0.007169	0.007169	0.005304	0.005304
3	0.006217	0.006217	0.006541	0.006541	0.004508	0.004508	0.006217	0.006217	0.006541	0.006541	0.006541	0.004508	0.004508
4	0.004850	0.004850	0.003954	0.003954	0.004842	0.004842	0.004850	0.004850	0.003954	0.003954	0.003954	0.004842	0.004842
5	0.006563	0.006563	0.004602	0.004602	0.008554	0.008554	0.006563	0.006563	0.004602	0.004602	0.004602	0.008554	0.008554
6	0.020103	0.020103	0.012871	0.012871	0.021823	0.021823	0.020103	0.020103	0.012871	0.012871	0.012871	0.021823	0.021823
7	0.055063	0.055063	0.041158	0.041158	0.037391	0.037391	0.055063	0.055063	0.041158	0.041158	0.041158	0.037391	0.037391
8	0.073058	0.073058	0.069485	0.069485	0.058855	0.058855	0.073058	0.073058	0.069485	0.069485	0.069485	0.058855	0.058855
9	0.057194	0.057194	0.064100	0.064100	0.054372	0.054372	0.057194	0.057194	0.064100	0.064100	0.064100	0.054372	0.054372
10	0.050046	0.050046	0.051805	0.051805	0.045419	0.045419	0.050046	0.050046	0.051805	0.051805	0.051805	0.045419	0.045419
11	0.051079	0.051079	0.052728	0.052728	0.047012	0.047012	0.051079	0.051079	0.052728	0.052728	0.052728	0.047012	0.047012
12	0.054594	0.054594	0.061134	0.061134	0.050043	0.050043	0.054594	0.054594	0.061134	0.061134	0.061134	0.050043	0.050043
13	0.056045	0.056045	0.063637	0.063637	0.058855	0.058855	0.056045	0.056045	0.063637	0.063637	0.063637	0.058855	0.058855
14	0.056870	0.056870	0.061811	0.061811	0.055926	0.055926	0.056870	0.056870	0.061811	0.061811	0.061811	0.055926	0.055926
15	0.060864	0.060864	0.061260	0.061260	0.059061	0.059061	0.060864	0.060864	0.061260	0.061260	0.061260	0.059061	0.059061
16	0.067715	0.067715	0.064926	0.064926	0.067538	0.067538	0.067715	0.067715	0.064926	0.064926	0.064926	0.067538	0.067538
17	0.074252	0.074252	0.070001	0.070001	0.069221	0.069221	0.074252	0.074252	0.070001	0.070001	0.070001	0.069221	0.069221
18	0.073460	0.073460	0.067750	0.067750	0.076697	0.076697	0.073460	0.073460	0.067750	0.067750	0.067750	0.076697	0.076697
19	0.055095	0.055095	0.054904	0.054904	0.075798	0.075798	0.055095	0.055095	0.054904	0.054904	0.054904	0.075798	0.075798
20	0.043837	0.043837	0.045147	0.045147	0.066562	0.066562	0.043837	0.043837	0.045147	0.045147	0.045147	0.066562	0.066562
21	0.035038	0.035038	0.035422	0.035422	0.048091	0.048091	0.035038	0.035038	0.035422	0.035422	0.035422	0.048091	0.048091
22	0.031029	0.031029	0.032764	0.032764	0.034848	0.034848	0.031029	0.031029	0.032764	0.032764	0.032764	0.034848	0.034848
23	0.027844	0.027844	0.030791	0.030791	0.024867	0.024867	0.027844	0.027844	0.030791	0.030791	0.030791	0.024867	0.024867
24	0.021981	0.021981	0.024963	0.024963	0.016813	0.016813	0.021981	0.021981	0.024963	0.024963	0.024963	0.016813	0.016813

Table 12
Time-of-Day Factors by Period for Area Type 3 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.009913	0.009913	0.010122	0.010122	0.007578	0.007578	0.009913	0.009913	0.010122	0.010122	0.010122	0.007578	0.007578
2	0.006020	0.006020	0.006657	0.006657	0.005304	0.005304	0.006020	0.006020	0.006657	0.006657	0.006657	0.005304	0.005304
3	0.005405	0.005405	0.005565	0.005565	0.004508	0.004508	0.005405	0.005405	0.005565	0.005565	0.005565	0.004508	0.004508
4	0.003451	0.003451	0.003320	0.003320	0.004842	0.004842	0.003451	0.003451	0.003320	0.003320	0.003320	0.004842	0.004842
5	0.004539	0.004539	0.004192	0.004192	0.008554	0.008554	0.004539	0.004539	0.004192	0.004192	0.004192	0.008554	0.008554
6	0.011386	0.011386	0.012277	0.012277	0.021823	0.021823	0.011386	0.011386	0.012277	0.012277	0.012277	0.021823	0.021823
7	0.033268	0.033268	0.030475	0.030475	0.037391	0.037391	0.033268	0.033268	0.030475	0.030475	0.030475	0.037391	0.037391
8	0.067127	0.067127	0.045693	0.045693	0.058855	0.058855	0.067127	0.067127	0.045693	0.045693	0.045693	0.058855	0.058855
9	0.048200	0.048200	0.047729	0.047729	0.054372	0.054372	0.048200	0.048200	0.047729	0.047729	0.047729	0.054372	0.054372
10	0.042227	0.042227	0.047547	0.047547	0.045419	0.045419	0.042227	0.042227	0.047547	0.047547	0.047547	0.045419	0.045419
11	0.048185	0.048185	0.051905	0.051905	0.047012	0.047012	0.048185	0.048185	0.051905	0.051905	0.051905	0.047012	0.047012
12	0.053645	0.053645	0.059541	0.059541	0.050043	0.050043	0.053645	0.053645	0.059541	0.059541	0.059541	0.050043	0.050043
13	0.056112	0.056112	0.065261	0.065261	0.058855	0.058855	0.056112	0.056112	0.065261	0.065261	0.065261	0.058855	0.058855
14	0.057979	0.057979	0.065823	0.065823	0.055926	0.055926	0.057979	0.057979	0.065823	0.065823	0.065823	0.055926	0.055926
15	0.062809	0.062809	0.064658	0.064658	0.059061	0.059061	0.062809	0.062809	0.064658	0.064658	0.064658	0.059061	0.059061
16	0.070705	0.070705	0.066171	0.066171	0.067538	0.067538	0.070705	0.070705	0.066171	0.066171	0.066171	0.067538	0.067538
17	0.079790	0.079790	0.073435	0.073435	0.069221	0.069221	0.079790	0.079790	0.073435	0.073435	0.073435	0.069221	0.069221
18	0.083257	0.083257	0.075965	0.075965	0.076697	0.076697	0.083257	0.083257	0.075965	0.075965	0.075965	0.076697	0.076697
19	0.062888	0.062888	0.065335	0.065335	0.075798	0.075798	0.062888	0.062888	0.065335	0.065335	0.065335	0.075798	0.075798
20	0.052739	0.052739	0.053896	0.053896	0.066562	0.066562	0.052739	0.052739	0.053896	0.053896	0.053896	0.066562	0.066562
21	0.043425	0.043425	0.045220	0.045220	0.048091	0.048091	0.043425	0.043425	0.045220	0.045220	0.045220	0.048091	0.048091
22	0.038043	0.038043	0.039092	0.039092	0.034848	0.034848	0.038043	0.038043	0.039092	0.039092	0.039092	0.034848	0.034848
23	0.031393	0.031393	0.033213	0.033213	0.024867	0.024867	0.031393	0.031393	0.033213	0.033213	0.033213	0.024867	0.024867
24	0.027492	0.027492	0.026885	0.026885	0.016813	0.016813	0.027492	0.027492	0.026885	0.026885	0.026885	0.016813	0.016813

Table 13
Time-of-Day Factors by Period for Area Type 4 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.012026	0.012026	0.008304	0.008304	0.007578	0.007578	0.012026	0.012026	0.008304	0.008304	0.008304	0.007578	0.007578
2	0.008176	0.008176	0.004828	0.004828	0.005304	0.005304	0.008176	0.008176	0.004828	0.004828	0.004828	0.005304	0.005304
3	0.007102	0.007102	0.004211	0.004211	0.004508	0.004508	0.007102	0.007102	0.004211	0.004211	0.004211	0.004508	0.004508
4	0.006289	0.006289	0.003863	0.003863	0.004842	0.004842	0.006289	0.006289	0.003863	0.003863	0.003863	0.004842	0.004842
5	0.008705	0.008705	0.008847	0.008847	0.008554	0.008554	0.008705	0.008705	0.008847	0.008847	0.008847	0.008554	0.008554
6	0.021736	0.021736	0.033127	0.033127	0.021823	0.021823	0.021736	0.021736	0.033127	0.033127	0.033127	0.021823	0.021823
7	0.046291	0.046291	0.063346	0.063346	0.037391	0.037391	0.046291	0.046291	0.063346	0.063346	0.063346	0.037391	0.037391
8	0.052832	0.052832	0.068754	0.068754	0.058855	0.058855	0.052832	0.052832	0.068754	0.068754	0.068754	0.058855	0.058855
9	0.047673	0.047673	0.047209	0.047209	0.054372	0.054372	0.047673	0.047673	0.047209	0.047209	0.047209	0.054372	0.054372
10	0.047236	0.047236	0.043680	0.043680	0.045419	0.045419	0.047236	0.047236	0.043680	0.043680	0.043680	0.045419	0.045419
11	0.051430	0.051430	0.046537	0.046537	0.047012	0.047012	0.051430	0.051430	0.046537	0.046537	0.046537	0.047012	0.047012
12	0.054352	0.054352	0.049545	0.049545	0.050043	0.050043	0.054352	0.054352	0.049545	0.049545	0.049545	0.050043	0.050043
13	0.056341	0.056341	0.050577	0.050577	0.058855	0.058855	0.056341	0.056341	0.050577	0.050577	0.050577	0.058855	0.058855
14	0.059094	0.059094	0.051995	0.051995	0.055926	0.055926	0.059094	0.059094	0.051995	0.051995	0.051995	0.055926	0.055926
15	0.061636	0.061636	0.057301	0.057301	0.059061	0.059061	0.061636	0.061636	0.057301	0.057301	0.057301	0.059061	0.059061
16	0.064633	0.064633	0.069406	0.069406	0.067538	0.067538	0.064633	0.064633	0.069406	0.069406	0.069406	0.067538	0.067538
17	0.065896	0.065896	0.080335	0.080335	0.069221	0.069221	0.065896	0.065896	0.080335	0.080335	0.080335	0.069221	0.069221
18	0.067191	0.067191	0.080906	0.080906	0.076697	0.076697	0.067191	0.067191	0.080906	0.080906	0.080906	0.076697	0.076697
19	0.063774	0.063774	0.066913	0.066913	0.075798	0.075798	0.063774	0.063774	0.066913	0.066913	0.066913	0.075798	0.075798
20	0.056371	0.056371	0.048225	0.048225	0.066562	0.066562	0.056371	0.056371	0.048225	0.048225	0.048225	0.066562	0.066562
21	0.044712	0.044712	0.036639	0.036639	0.048091	0.048091	0.044712	0.044712	0.036639	0.036639	0.036639	0.048091	0.048091
22	0.038399	0.038399	0.031367	0.031367	0.034848	0.034848	0.038399	0.038399	0.031367	0.031367	0.031367	0.034848	0.034848
23	0.031023	0.031023	0.025113	0.025113	0.024867	0.024867	0.031023	0.031023	0.025113	0.025113	0.025113	0.024867	0.024867
24	0.027080	0.027080	0.018950	0.018950	0.016813	0.016813	0.027080	0.027080	0.018950	0.018950	0.018950	0.016813	0.016813

Table 14
Time-of-Day Factors by Period for Area Type 5 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.008973	0.008973	0.008973	0.008973	0.008967	0.008967	0.008973	0.008973	0.008973	0.008973	0.008973	0.008967	0.008967
2	0.005736	0.005736	0.005736	0.005736	0.007051	0.007051	0.005736	0.005736	0.005736	0.005736	0.005736	0.007051	0.007051
3	0.004721	0.004721	0.004721	0.004721	0.005875	0.005875	0.004721	0.004721	0.004721	0.004721	0.004721	0.005875	0.005875
4	0.004711	0.004711	0.004711	0.004711	0.005854	0.005854	0.004711	0.004711	0.004711	0.004711	0.004711	0.005854	0.005854
5	0.008498	0.008498	0.008498	0.008498	0.010250	0.010250	0.008498	0.008498	0.008498	0.008498	0.008498	0.010250	0.010250
6	0.027827	0.027827	0.027827	0.027827	0.028670	0.028670	0.027827	0.027827	0.027827	0.027827	0.027827	0.028670	0.028670
7	0.051344	0.051344	0.051344	0.051344	0.053093	0.053093	0.051344	0.051344	0.051344	0.051344	0.051344	0.053093	0.053093
8	0.057468	0.057468	0.057468	0.057468	0.067710	0.067710	0.057468	0.057468	0.057468	0.057468	0.057468	0.067710	0.067710
9	0.051074	0.051074	0.051074	0.051074	0.050529	0.050529	0.051074	0.051074	0.051074	0.051074	0.051074	0.050529	0.050529
10	0.046968	0.046968	0.046968	0.046968	0.046922	0.046922	0.046968	0.046968	0.046968	0.046968	0.046968	0.046922	0.046922
11	0.049097	0.049097	0.049097	0.049097	0.048247	0.048247	0.049097	0.049097	0.049097	0.049097	0.049097	0.048247	0.048247
12	0.052333	0.052333	0.052333	0.052333	0.049296	0.049296	0.052333	0.052333	0.052333	0.052333	0.052333	0.049296	0.049296
13	0.054623	0.054623	0.054623	0.054623	0.050719	0.050719	0.054623	0.054623	0.054623	0.054623	0.054623	0.050719	0.050719
14	0.056576	0.056576	0.056576	0.056576	0.052184	0.052184	0.056576	0.056576	0.056576	0.056576	0.056576	0.052184	0.052184
15	0.059668	0.059668	0.059668	0.059668	0.058391	0.058391	0.059668	0.059668	0.059668	0.059668	0.059668	0.058391	0.058391
16	0.064626	0.064626	0.064626	0.064626	0.065526	0.065526	0.064626	0.064626	0.064626	0.064626	0.064626	0.065526	0.065526
17	0.070246	0.070246	0.070246	0.070246	0.076424	0.076424	0.070246	0.070246	0.070246	0.070246	0.070246	0.076424	0.076424
18	0.074505	0.074505	0.074505	0.074505	0.077805	0.077805	0.074505	0.074505	0.074505	0.074505	0.074505	0.077805	0.077805
19	0.069596	0.069596	0.069596	0.069596	0.070436	0.070436	0.069596	0.069596	0.069596	0.069596	0.069596	0.070436	0.070436
20	0.056791	0.056791	0.056791	0.056791	0.056080	0.056080	0.056791	0.056791	0.056791	0.056791	0.056791	0.056080	0.056080
21	0.042715	0.042715	0.042715	0.042715	0.039730	0.039730	0.042715	0.042715	0.042715	0.042715	0.042715	0.039730	0.039730
22	0.034921	0.034921	0.034921	0.034921	0.029614	0.029614	0.034921	0.034921	0.034921	0.034921	0.034921	0.029614	0.029614
23	0.027107	0.027107	0.027107	0.027107	0.023599	0.023599	0.027107	0.027107	0.027107	0.027107	0.027107	0.023599	0.023599
24	0.019875	0.019875	0.019875	0.019875	0.017026	0.017026	0.019875	0.019875	0.019875	0.019875	0.019875	0.017026	0.017026

Table 15
Time-of-Day Factors by Period for Area Type 1 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.022911	0.022911	0.023840	0.023840	0.014012	0.014012	0.022911	0.022911	0.023840	0.023840	0.023840	0.014012	0.014012
2	0.015420	0.015420	0.016897	0.016897	0.009597	0.009597	0.015420	0.015420	0.016897	0.016897	0.016897	0.009597	0.009597
3	0.014053	0.014053	0.015981	0.015981	0.005815	0.005815	0.014053	0.014053	0.015981	0.015981	0.015981	0.005815	0.005815
4	0.008927	0.008927	0.008574	0.008574	0.005529	0.005529	0.008927	0.008927	0.008574	0.008574	0.008574	0.005529	0.005529
5	0.008630	0.008630	0.007037	0.007037	0.005755	0.005755	0.008630	0.008630	0.007037	0.007037	0.007037	0.005755	0.005755
6	0.015599	0.015599	0.010068	0.010068	0.011058	0.011058	0.015599	0.015599	0.010068	0.010068	0.010068	0.011058	0.011058
7	0.029610	0.029610	0.019469	0.019469	0.018577	0.018577	0.029610	0.029610	0.019469	0.019469	0.019469	0.018577	0.018577
8	0.037068	0.037068	0.030413	0.030413	0.027843	0.027843	0.037068	0.037068	0.030413	0.030413	0.030413	0.027843	0.027843
9	0.043762	0.043762	0.041701	0.041701	0.042007	0.042007	0.043762	0.043762	0.041701	0.041701	0.041701	0.042007	0.042007
10	0.050848	0.050848	0.049928	0.049928	0.059093	0.059093	0.050848	0.050848	0.049928	0.049928	0.049928	0.059093	0.059093
11	0.056300	0.056300	0.057028	0.057028	0.068465	0.068465	0.056300	0.056300	0.057028	0.057028	0.057028	0.068465	0.068465
12	0.060863	0.060863	0.062926	0.062926	0.070981	0.070981	0.060863	0.060863	0.062926	0.062926	0.062926	0.070981	0.070981
13	0.064256	0.064256	0.065193	0.065193	0.071192	0.071192	0.064256	0.064256	0.065193	0.065193	0.065193	0.071192	0.071192
14	0.063009	0.063009	0.064643	0.064643	0.069489	0.069489	0.063009	0.063009	0.064643	0.064643	0.064643	0.069489	0.069489
15	0.063108	0.063108	0.064356	0.064356	0.066913	0.066913	0.063108	0.063108	0.064356	0.064356	0.064356	0.066913	0.066913
16	0.063158	0.063158	0.064895	0.064895	0.067696	0.067696	0.063158	0.063158	0.064895	0.064895	0.064895	0.067696	0.067696
17	0.060532	0.060532	0.060966	0.060966	0.065150	0.065150	0.060532	0.060532	0.060966	0.060966	0.060966	0.065150	0.065150
18	0.059662	0.059662	0.059252	0.059252	0.068254	0.068254	0.059662	0.059662	0.059252	0.059252	0.059252	0.068254	0.068254
19	0.056923	0.056923	0.059192	0.059192	0.063025	0.063025	0.056923	0.056923	0.059192	0.059192	0.059192	0.063025	0.063025
20	0.049759	0.049759	0.053003	0.053003	0.056275	0.056275	0.049759	0.049759	0.053003	0.053003	0.053003	0.056275	0.056275
21	0.044237	0.044237	0.044479	0.044479	0.046587	0.046587	0.044237	0.044237	0.044479	0.044479	0.044479	0.046587	0.046587
22	0.042319	0.042319	0.042461	0.042461	0.037908	0.037908	0.042319	0.042319	0.042461	0.042461	0.042461	0.037908	0.037908
23	0.038450	0.038450	0.041807	0.041807	0.027889	0.027889	0.038450	0.038450	0.041807	0.041807	0.041807	0.027889	0.027889
24	0.030595	0.030595	0.035890	0.035890	0.020867	0.020867	0.030595	0.030595	0.035890	0.035890	0.035890	0.020867	0.020867

Table 5
Time-of-Day Factors by Period for Area Type 1 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010100	0.010100	0.008866	0.008866	0.005588	0.005588	0.010100	0.010100	0.008866	0.008866	0.008866	0.005588	0.005588
2	0.006458	0.006458	0.005825	0.005825	0.003886	0.003886	0.006458	0.006458	0.005825	0.005825	0.005825	0.003886	0.003886
3	0.005877	0.005877	0.004893	0.004893	0.003871	0.003871	0.005877	0.005877	0.004893	0.004893	0.004893	0.003871	0.003871
4	0.004803	0.004803	0.003173	0.003173	0.004225	0.004225	0.004803	0.004803	0.003173	0.003173	0.003173	0.004225	0.004225
5	0.006927	0.006927	0.004247	0.004247	0.008400	0.008400	0.006927	0.006927	0.004247	0.004247	0.004247	0.008400	0.008400
6	0.021775	0.021775	0.014491	0.014491	0.024647	0.024647	0.021775	0.021775	0.014491	0.014491	0.014491	0.024647	0.024647
7	0.059443	0.059443	0.045344	0.045344	0.040887	0.040887	0.059443	0.059443	0.045344	0.045344	0.045344	0.040887	0.040887
8	0.077119	0.077119	0.073845	0.073845	0.059637	0.059637	0.077119	0.077119	0.073845	0.073845	0.073845	0.059637	0.059637
9	0.060233	0.060233	0.067518	0.067518	0.051856	0.051856	0.060233	0.060233	0.067518	0.067518	0.067518	0.051856	0.051856
10	0.051291	0.051291	0.052463	0.052463	0.042856	0.042856	0.051291	0.051291	0.052463	0.052463	0.052463	0.042856	0.042856
11	0.050669	0.050669	0.049986	0.049986	0.041493	0.041493	0.050669	0.050669	0.049986	0.049986	0.049986	0.041493	0.041493
12	0.053513	0.053513	0.057882	0.057882	0.044709	0.044709	0.053513	0.053513	0.057882	0.057882	0.057882	0.044709	0.044709
13	0.053455	0.053455	0.060293	0.060293	0.049497	0.049497	0.053455	0.053455	0.060293	0.060293	0.060293	0.049497	0.049497
14	0.055161	0.055161	0.058553	0.058553	0.058641	0.058641	0.055161	0.055161	0.058553	0.058553	0.058553	0.058641	0.058641
15	0.058540	0.058540	0.061388	0.061388	0.056961	0.056961	0.058540	0.058540	0.061388	0.061388	0.061388	0.056961	0.056961
16	0.066064	0.066064	0.065776	0.065776	0.072408	0.072408	0.066064	0.066064	0.065776	0.065776	0.065776	0.072408	0.072408
17	0.074881	0.074881	0.075768	0.075768	0.082194	0.082194	0.074881	0.074881	0.075768	0.075768	0.075768	0.082194	0.082194
18	0.078598	0.078598	0.077365	0.077365	0.093205	0.093205	0.078598	0.078598	0.077365	0.077365	0.077365	0.093205	0.093205
19	0.056444	0.056444	0.058969	0.058969	0.082525	0.082525	0.056444	0.056444	0.058969	0.058969	0.058969	0.082525	0.082525
20	0.041705	0.041705	0.044604	0.044604	0.060560	0.060560	0.041705	0.041705	0.044604	0.044604	0.044604	0.060560	0.060560
21	0.033108	0.033108	0.034782	0.034782	0.045315	0.045315	0.033108	0.033108	0.034782	0.034782	0.034782	0.045315	0.045315
22	0.030035	0.030035	0.030965	0.030965	0.033546	0.033546	0.030035	0.030035	0.030965	0.030965	0.030965	0.033546	0.033546
23	0.025844	0.025844	0.025821	0.025821	0.022643	0.022643	0.025844	0.025844	0.025821	0.025821	0.025821	0.022643	0.022643
24	0.017935	0.017935	0.017183	0.017183	0.010427	0.010427	0.017935	0.017935	0.017183	0.017183	0.017183	0.010427	0.010427

Table 6
Time-of-Day Factors by Period for Area Type 2 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010100	0.010100	0.008866	0.008866	0.005588	0.005588	0.010100	0.010100	0.008866	0.008866	0.008866	0.005588	0.005588
2	0.006458	0.006458	0.005825	0.005825	0.003886	0.003886	0.006458	0.006458	0.005825	0.005825	0.005825	0.003886	0.003886
3	0.005877	0.005877	0.004893	0.004893	0.003871	0.003871	0.005877	0.005877	0.004893	0.004893	0.004893	0.003871	0.003871
4	0.004803	0.004803	0.003173	0.003173	0.004225	0.004225	0.004803	0.004803	0.003173	0.003173	0.003173	0.004225	0.004225
5	0.006927	0.006927	0.004247	0.004247	0.008400	0.008400	0.006927	0.006927	0.004247	0.004247	0.004247	0.008400	0.008400
6	0.021775	0.021775	0.014491	0.014491	0.024647	0.024647	0.021775	0.021775	0.014491	0.014491	0.014491	0.024647	0.024647
7	0.059443	0.059443	0.045344	0.045344	0.040887	0.040887	0.059443	0.059443	0.045344	0.045344	0.045344	0.040887	0.040887
8	0.077119	0.077119	0.073845	0.073845	0.059637	0.059637	0.077119	0.077119	0.073845	0.073845	0.073845	0.059637	0.059637
9	0.060233	0.060233	0.067518	0.067518	0.051856	0.051856	0.060233	0.060233	0.067518	0.067518	0.067518	0.051856	0.051856
10	0.051291	0.051291	0.052463	0.052463	0.042856	0.042856	0.051291	0.051291	0.052463	0.052463	0.052463	0.042856	0.042856
11	0.050669	0.050669	0.049986	0.049986	0.041493	0.041493	0.050669	0.050669	0.049986	0.049986	0.049986	0.041493	0.041493
12	0.053513	0.053513	0.057882	0.057882	0.044709	0.044709	0.053513	0.053513	0.057882	0.057882	0.057882	0.044709	0.044709
13	0.053455	0.053455	0.060293	0.060293	0.049497	0.049497	0.053455	0.053455	0.060293	0.060293	0.060293	0.049497	0.049497
14	0.055161	0.055161	0.058553	0.058553	0.058641	0.058641	0.055161	0.055161	0.058553	0.058553	0.058553	0.058641	0.058641
15	0.058540	0.058540	0.061388	0.061388	0.056961	0.056961	0.058540	0.058540	0.061388	0.061388	0.061388	0.056961	0.056961
16	0.066064	0.066064	0.065776	0.065776	0.072408	0.072408	0.066064	0.066064	0.065776	0.065776	0.065776	0.072408	0.072408
17	0.074881	0.074881	0.075768	0.075768	0.082194	0.082194	0.074881	0.074881	0.075768	0.075768	0.075768	0.082194	0.082194
18	0.078598	0.078598	0.077365	0.077365	0.093205	0.093205	0.078598	0.078598	0.077365	0.077365	0.077365	0.093205	0.093205
19	0.056444	0.056444	0.058969	0.058969	0.082525	0.082525	0.056444	0.056444	0.058969	0.058969	0.058969	0.082525	0.082525
20	0.041705	0.041705	0.044604	0.044604	0.060560	0.060560	0.041705	0.041705	0.044604	0.044604	0.044604	0.060560	0.060560
21	0.033108	0.033108	0.034782	0.034782	0.045315	0.045315	0.033108	0.033108	0.034782	0.034782	0.034782	0.045315	0.045315
22	0.030035	0.030035	0.030965	0.030965	0.033546	0.033546	0.030035	0.030035	0.030965	0.030965	0.030965	0.033546	0.033546
23	0.025844	0.025844	0.025821	0.025821	0.022643	0.022643	0.025844	0.025844	0.025821	0.025821	0.025821	0.022643	0.022643
24	0.017935	0.017935	0.017183	0.017183	0.010427	0.010427	0.017935	0.017935	0.017183	0.017183	0.017183	0.010427	0.010427

Table 7
Time-of-Day Factors by Period for Area Type 3 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.009899	0.009899	0.010740	0.010740	0.005588	0.005588	0.009899	0.009899	0.010740	0.010740	0.010740	0.005588	0.005588
2	0.005988	0.005988	0.006907	0.006907	0.003886	0.003886	0.005988	0.005988	0.006907	0.006907	0.006907	0.003886	0.003886
3	0.005155	0.005155	0.006124	0.006124	0.003871	0.003871	0.005155	0.005155	0.006124	0.006124	0.006124	0.003871	0.003871
4	0.003777	0.003777	0.003907	0.003907	0.004225	0.004225	0.003777	0.003777	0.003907	0.003907	0.003907	0.004225	0.004225
5	0.004681	0.004681	0.004999	0.004999	0.008400	0.008400	0.004681	0.004681	0.004999	0.004999	0.004999	0.008400	0.008400
6	0.012244	0.012244	0.013746	0.013746	0.024647	0.024647	0.012244	0.012244	0.013746	0.013746	0.013746	0.024647	0.024647
7	0.038290	0.038290	0.036543	0.036543	0.040887	0.040887	0.038290	0.038290	0.036543	0.036543	0.036543	0.040887	0.040887
8	0.077547	0.077547	0.058773	0.058773	0.059637	0.059637	0.077547	0.077547	0.058773	0.058773	0.058773	0.059637	0.059637
9	0.053864	0.053864	0.056626	0.056626	0.051856	0.051856	0.053864	0.053864	0.056626	0.056626	0.056626	0.051856	0.051856
10	0.045773	0.045773	0.046060	0.046060	0.042856	0.042856	0.045773	0.045773	0.046060	0.046060	0.046060	0.042856	0.042856
11	0.049657	0.049657	0.042817	0.042817	0.041493	0.041493	0.049657	0.049657	0.042817	0.042817	0.042817	0.041493	0.041493
12	0.054705	0.054705	0.054264	0.054264	0.044709	0.044709	0.054705	0.054705	0.054264	0.054264	0.054264	0.044709	0.044709
13	0.055931	0.055931	0.060487	0.060487	0.049497	0.049497	0.055931	0.055931	0.060487	0.060487	0.060487	0.049497	0.049497
14	0.057659	0.057659	0.061056	0.061056	0.058641	0.058641	0.057659	0.057659	0.061056	0.061056	0.061056	0.058641	0.058641
15	0.061588	0.061588	0.062705	0.062705	0.056961	0.056961	0.061588	0.061588	0.062705	0.062705	0.062705	0.056961	0.056961
16	0.069080	0.069080	0.066580	0.066580	0.072408	0.072408	0.069080	0.069080	0.066580	0.066580	0.066580	0.072408	0.072408
17	0.081243	0.081243	0.075315	0.075315	0.082194	0.082194	0.081243	0.081243	0.075315	0.075315	0.075315	0.082194	0.082194
18	0.088592	0.088592	0.080516	0.080516	0.093205	0.093205	0.088592	0.088592	0.080516	0.080516	0.080516	0.093205	0.093205
19	0.060774	0.060774	0.068529	0.068529	0.082525	0.082525	0.060774	0.060774	0.068529	0.068529	0.068529	0.082525	0.082525
20	0.045996	0.045996	0.053810	0.053810	0.060560	0.060560	0.045996	0.045996	0.053810	0.053810	0.053810	0.060560	0.060560
21	0.037494	0.037494	0.044524	0.044524	0.045315	0.045315	0.037494	0.037494	0.044524	0.044524	0.044524	0.045315	0.045315
22	0.032374	0.032374	0.037856	0.037856	0.033546	0.033546	0.032374	0.032374	0.037856	0.037856	0.037856	0.033546	0.033546
23	0.027675	0.027675	0.028272	0.028272	0.022643	0.022643	0.027675	0.027675	0.028272	0.028272	0.028272	0.022643	0.022643
24	0.020013	0.020013	0.018844	0.018844	0.010427	0.010427	0.020013	0.020013	0.018844	0.018844	0.018844	0.010427	0.010427

Table 8
Time-of-Day Factors by Period for Area Type 4 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.012058	0.012058	0.007230	0.007230	0.005588	0.005588	0.012058	0.012058	0.007230	0.007230	0.007230	0.005588	0.005588
2	0.008543	0.008543	0.004469	0.004469	0.003886	0.003886	0.008543	0.008543	0.004469	0.004469	0.004469	0.003886	0.003886
3	0.007630	0.007630	0.003407	0.003407	0.003871	0.003871	0.007630	0.007630	0.003407	0.003407	0.003407	0.003871	0.003871
4	0.006802	0.006802	0.003897	0.003897	0.004225	0.004225	0.006802	0.006802	0.003897	0.003897	0.003897	0.004225	0.004225
5	0.009587	0.009587	0.011269	0.011269	0.008400	0.008400	0.009587	0.009587	0.011269	0.011269	0.011269	0.008400	0.008400
6	0.025017	0.025017	0.039913	0.039913	0.024647	0.024647	0.025017	0.025017	0.039913	0.039913	0.039913	0.024647	0.024647
7	0.053346	0.053346	0.069782	0.069782	0.040887	0.040887	0.053346	0.053346	0.069782	0.069782	0.069782	0.040887	0.040887
8	0.058888	0.058888	0.073848	0.073848	0.059637	0.059637	0.058888	0.058888	0.073848	0.073848	0.073848	0.059637	0.059637
9	0.052111	0.052111	0.050499	0.050499	0.051856	0.051856	0.052111	0.052111	0.050499	0.050499	0.050499	0.051856	0.051856
10	0.049725	0.049725	0.047721	0.047721	0.042856	0.042856	0.049725	0.049725	0.047721	0.047721	0.047721	0.042856	0.042856
11	0.051473	0.051473	0.046411	0.046411	0.041493	0.041493	0.051473	0.051473	0.046411	0.046411	0.046411	0.041493	0.041493
12	0.053914	0.053914	0.048967	0.048967	0.044709	0.044709	0.053914	0.053914	0.048967	0.048967	0.048967	0.044709	0.044709
13	0.055094	0.055094	0.049400	0.049400	0.049497	0.049497	0.055094	0.055094	0.049400	0.049400	0.049400	0.049497	0.049497
14	0.056912	0.056912	0.050419	0.050419	0.058641	0.058641	0.056912	0.056912	0.050419	0.050419	0.050419	0.058641	0.058641
15	0.059225	0.059225	0.055513	0.055513	0.056961	0.056961	0.059225	0.059225	0.055513	0.055513	0.055513	0.056961	0.056961
16	0.063828	0.063828	0.066804	0.066804	0.072408	0.072408	0.063828	0.063828	0.066804	0.066804	0.066804	0.072408	0.072408
17	0.067577	0.067577	0.079738	0.079738	0.082194	0.082194	0.067577	0.067577	0.079738	0.079738	0.079738	0.082194	0.082194
18	0.070278	0.070278	0.084603	0.084603	0.093205	0.093205	0.070278	0.070278	0.084603	0.084603	0.084603	0.093205	0.093205
19	0.063623	0.063623	0.065777	0.065777	0.082525	0.082525	0.063623	0.063623	0.065777	0.065777	0.065777	0.082525	0.082525
20	0.050700	0.050700	0.044074	0.044074	0.060560	0.060560	0.050700	0.050700	0.044074	0.044074	0.044074	0.060560	0.060560
21	0.040109	0.040109	0.033823	0.033823	0.045315	0.045315	0.040109	0.040109	0.033823	0.033823	0.033823	0.045315	0.045315
22	0.035201	0.035201	0.028184	0.028184	0.033546	0.033546	0.035201	0.035201	0.028184	0.028184	0.028184	0.033546	0.033546
23	0.028106	0.028106	0.020766	0.020766	0.022643	0.022643	0.028106	0.028106	0.020766	0.020766	0.020766	0.022643	0.022643
24	0.020252	0.020252	0.013484	0.013484	0.010427	0.010427	0.020252	0.020252	0.013484	0.013484	0.013484	0.010427	0.010427

Table 9
Time-of-Day Factors by Period for Area Type 5 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.008328	0.008328	0.008328	0.008328	0.007434	0.007434	0.008328	0.008328	0.008328	0.008328	0.008328	0.007434	0.007434
2	0.005597	0.005597	0.005597	0.005597	0.005317	0.005317	0.005597	0.005597	0.005597	0.005597	0.005597	0.005317	0.005317
3	0.005041	0.005041	0.005041	0.005041	0.005081	0.005081	0.005041	0.005041	0.005041	0.005041	0.005041	0.005081	0.005081
4	0.005220	0.005220	0.005220	0.005220	0.005344	0.005344	0.005220	0.005220	0.005220	0.005220	0.005220	0.005344	0.005344
5	0.009802	0.009802	0.009802	0.009802	0.010055	0.010055	0.009802	0.009802	0.009802	0.009802	0.009802	0.010055	0.010055
6	0.032431	0.032431	0.032431	0.032431	0.035001	0.035001	0.032431	0.032431	0.032431	0.032431	0.032431	0.035001	0.035001
7	0.058439	0.058439	0.058439	0.058439	0.063301	0.063301	0.058439	0.058439	0.058439	0.058439	0.058439	0.063301	0.063301
8	0.065127	0.065127	0.065127	0.065127	0.074662	0.074662	0.065127	0.065127	0.065127	0.065127	0.065127	0.074662	0.074662
9	0.057696	0.057696	0.057696	0.057696	0.052600	0.052600	0.057696	0.057696	0.057696	0.057696	0.057696	0.052600	0.052600
10	0.050153	0.050153	0.050153	0.050153	0.045775	0.045775	0.050153	0.050153	0.050153	0.050153	0.050153	0.045775	0.045775
11	0.049354	0.049354	0.049354	0.049354	0.044184	0.044184	0.049354	0.049354	0.049354	0.049354	0.049354	0.044184	0.044184
12	0.051134	0.051134	0.051134	0.051134	0.040609	0.040609	0.051134	0.051134	0.051134	0.051134	0.051134	0.040609	0.040609
13	0.052098	0.052098	0.052098	0.052098	0.040003	0.040003	0.052098	0.052098	0.052098	0.052098	0.052098	0.040003	0.040003
14	0.053784	0.053784	0.053784	0.053784	0.043906	0.043906	0.053784	0.053784	0.053784	0.053784	0.053784	0.043906	0.043906
15	0.057768	0.057768	0.057768	0.057768	0.055400	0.055400	0.057768	0.057768	0.057768	0.057768	0.057768	0.055400	0.055400
16	0.064758	0.064758	0.064758	0.064758	0.064945	0.064945	0.064758	0.064758	0.064758	0.064758	0.064758	0.064945	0.064945
17	0.072302	0.072302	0.072302	0.072302	0.086133	0.086133	0.072302	0.072302	0.072302	0.072302	0.072302	0.086133	0.086133
18	0.077949	0.077949	0.077949	0.077949	0.097079	0.097079	0.077949	0.077949	0.077949	0.077949	0.077949	0.097079	0.097079
19	0.068824	0.068824	0.068824	0.068824	0.076325	0.076325	0.068824	0.068824	0.068824	0.068824	0.068824	0.076325	0.076325
20	0.048419	0.048419	0.048419	0.048419	0.049510	0.049510	0.048419	0.048419	0.048419	0.048419	0.048419	0.049510	0.049510
21	0.036253	0.036253	0.036253	0.036253	0.035284	0.035284	0.036253	0.036253	0.036253	0.036253	0.036253	0.035284	0.035284
22	0.030704	0.030704	0.030704	0.030704	0.028951	0.028951	0.030704	0.030704	0.030704	0.030704	0.030704	0.028951	0.028951
23	0.023658	0.023658	0.023658	0.023658	0.021653	0.021653	0.023658	0.023658	0.023658	0.023658	0.023658	0.021653	0.021653
24	0.015139	0.015139	0.015139	0.015139	0.011425	0.011425	0.015139	0.015139	0.015139	0.015139	0.015139	0.011425	0.011425

Table 10
Time-of-Day Factors by Period for Area Type 1 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010471	0.010471	0.011076	0.011076	0.007578	0.007578	0.010471	0.010471	0.011076	0.011076	0.011076	0.007578	0.007578
2	0.006731	0.006731	0.007169	0.007169	0.005304	0.005304	0.006731	0.006731	0.007169	0.007169	0.007169	0.005304	0.005304
3	0.006217	0.006217	0.006541	0.006541	0.004508	0.004508	0.006217	0.006217	0.006541	0.006541	0.006541	0.004508	0.004508
4	0.004850	0.004850	0.003954	0.003954	0.004842	0.004842	0.004850	0.004850	0.003954	0.003954	0.003954	0.004842	0.004842
5	0.006563	0.006563	0.004602	0.004602	0.008554	0.008554	0.006563	0.006563	0.004602	0.004602	0.004602	0.008554	0.008554
6	0.020103	0.020103	0.012871	0.012871	0.021823	0.021823	0.020103	0.020103	0.012871	0.012871	0.012871	0.021823	0.021823
7	0.055063	0.055063	0.041158	0.041158	0.037391	0.037391	0.055063	0.055063	0.041158	0.041158	0.041158	0.037391	0.037391
8	0.073058	0.073058	0.069485	0.069485	0.058855	0.058855	0.073058	0.073058	0.069485	0.069485	0.069485	0.058855	0.058855
9	0.057194	0.057194	0.064100	0.064100	0.054372	0.054372	0.057194	0.057194	0.064100	0.064100	0.064100	0.054372	0.054372
10	0.050046	0.050046	0.051805	0.051805	0.045419	0.045419	0.050046	0.050046	0.051805	0.051805	0.051805	0.045419	0.045419
11	0.051079	0.051079	0.052728	0.052728	0.047012	0.047012	0.051079	0.051079	0.052728	0.052728	0.052728	0.047012	0.047012
12	0.054594	0.054594	0.061134	0.061134	0.050043	0.050043	0.054594	0.054594	0.061134	0.061134	0.061134	0.050043	0.050043
13	0.056045	0.056045	0.063637	0.063637	0.058855	0.058855	0.056045	0.056045	0.063637	0.063637	0.063637	0.058855	0.058855
14	0.056870	0.056870	0.061811	0.061811	0.055926	0.055926	0.056870	0.056870	0.061811	0.061811	0.061811	0.055926	0.055926
15	0.060864	0.060864	0.061260	0.061260	0.059061	0.059061	0.060864	0.060864	0.061260	0.061260	0.061260	0.059061	0.059061
16	0.067715	0.067715	0.064926	0.064926	0.067538	0.067538	0.067715	0.067715	0.064926	0.064926	0.064926	0.067538	0.067538
17	0.074252	0.074252	0.070001	0.070001	0.069221	0.069221	0.074252	0.074252	0.070001	0.070001	0.070001	0.069221	0.069221
18	0.073460	0.073460	0.067750	0.067750	0.076697	0.076697	0.073460	0.073460	0.067750	0.067750	0.067750	0.076697	0.076697
19	0.055095	0.055095	0.054904	0.054904	0.075798	0.075798	0.055095	0.055095	0.054904	0.054904	0.054904	0.075798	0.075798
20	0.043837	0.043837	0.045147	0.045147	0.066562	0.066562	0.043837	0.043837	0.045147	0.045147	0.045147	0.066562	0.066562
21	0.035038	0.035038	0.035422	0.035422	0.048091	0.048091	0.035038	0.035038	0.035422	0.035422	0.035422	0.048091	0.048091
22	0.031029	0.031029	0.032764	0.032764	0.034848	0.034848	0.031029	0.031029	0.032764	0.032764	0.032764	0.034848	0.034848
23	0.027844	0.027844	0.030791	0.030791	0.024867	0.024867	0.027844	0.027844	0.030791	0.030791	0.030791	0.024867	0.024867
24	0.021981	0.021981	0.024963	0.024963	0.016813	0.016813	0.021981	0.021981	0.024963	0.024963	0.024963	0.016813	0.016813

Table 11
Time-of-Day Factors by Period for Area Type 2 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.010471	0.010471	0.011076	0.011076	0.007578	0.007578	0.010471	0.010471	0.011076	0.011076	0.011076	0.007578	0.007578
2	0.006731	0.006731	0.007169	0.007169	0.005304	0.005304	0.006731	0.006731	0.007169	0.007169	0.007169	0.005304	0.005304
3	0.006217	0.006217	0.006541	0.006541	0.004508	0.004508	0.006217	0.006217	0.006541	0.006541	0.006541	0.004508	0.004508
4	0.004850	0.004850	0.003954	0.003954	0.004842	0.004842	0.004850	0.004850	0.003954	0.003954	0.003954	0.004842	0.004842
5	0.006563	0.006563	0.004602	0.004602	0.008554	0.008554	0.006563	0.006563	0.004602	0.004602	0.004602	0.008554	0.008554
6	0.020103	0.020103	0.012871	0.012871	0.021823	0.021823	0.020103	0.020103	0.012871	0.012871	0.012871	0.021823	0.021823
7	0.055063	0.055063	0.041158	0.041158	0.037391	0.037391	0.055063	0.055063	0.041158	0.041158	0.041158	0.037391	0.037391
8	0.073058	0.073058	0.069485	0.069485	0.058855	0.058855	0.073058	0.073058	0.069485	0.069485	0.069485	0.058855	0.058855
9	0.057194	0.057194	0.064100	0.064100	0.054372	0.054372	0.057194	0.057194	0.064100	0.064100	0.064100	0.054372	0.054372
10	0.050046	0.050046	0.051805	0.051805	0.045419	0.045419	0.050046	0.050046	0.051805	0.051805	0.051805	0.045419	0.045419
11	0.051079	0.051079	0.052728	0.052728	0.047012	0.047012	0.051079	0.051079	0.052728	0.052728	0.052728	0.047012	0.047012
12	0.054594	0.054594	0.061134	0.061134	0.050043	0.050043	0.054594	0.054594	0.061134	0.061134	0.061134	0.050043	0.050043
13	0.056045	0.056045	0.063637	0.063637	0.058855	0.058855	0.056045	0.056045	0.063637	0.063637	0.063637	0.058855	0.058855
14	0.056870	0.056870	0.061811	0.061811	0.055926	0.055926	0.056870	0.056870	0.061811	0.061811	0.061811	0.055926	0.055926
15	0.060864	0.060864	0.061260	0.061260	0.059061	0.059061	0.060864	0.060864	0.061260	0.061260	0.061260	0.059061	0.059061
16	0.067715	0.067715	0.064926	0.064926	0.067538	0.067538	0.067715	0.067715	0.064926	0.064926	0.064926	0.067538	0.067538
17	0.074252	0.074252	0.070001	0.070001	0.069221	0.069221	0.074252	0.074252	0.070001	0.070001	0.070001	0.069221	0.069221
18	0.073460	0.073460	0.067750	0.067750	0.076697	0.076697	0.073460	0.073460	0.067750	0.067750	0.067750	0.076697	0.076697
19	0.055095	0.055095	0.054904	0.054904	0.075798	0.075798	0.055095	0.055095	0.054904	0.054904	0.054904	0.075798	0.075798
20	0.043837	0.043837	0.045147	0.045147	0.066562	0.066562	0.043837	0.043837	0.045147	0.045147	0.045147	0.066562	0.066562
21	0.035038	0.035038	0.035422	0.035422	0.048091	0.048091	0.035038	0.035038	0.035422	0.035422	0.035422	0.048091	0.048091
22	0.031029	0.031029	0.032764	0.032764	0.034848	0.034848	0.031029	0.031029	0.032764	0.032764	0.032764	0.034848	0.034848
23	0.027844	0.027844	0.030791	0.030791	0.024867	0.024867	0.027844	0.027844	0.030791	0.030791	0.030791	0.024867	0.024867
24	0.021981	0.021981	0.024963	0.024963	0.016813	0.016813	0.021981	0.021981	0.024963	0.024963	0.024963	0.016813	0.016813

Table 12
Time-of-Day Factors by Period for Area Type 3 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.009913	0.009913	0.010122	0.010122	0.007578	0.007578	0.009913	0.009913	0.010122	0.010122	0.010122	0.007578	0.007578
2	0.006020	0.006020	0.006657	0.006657	0.005304	0.005304	0.006020	0.006020	0.006657	0.006657	0.006657	0.005304	0.005304
3	0.005405	0.005405	0.005565	0.005565	0.004508	0.004508	0.005405	0.005405	0.005565	0.005565	0.005565	0.004508	0.004508
4	0.003451	0.003451	0.003320	0.003320	0.004842	0.004842	0.003451	0.003451	0.003320	0.003320	0.003320	0.004842	0.004842
5	0.004539	0.004539	0.004192	0.004192	0.008554	0.008554	0.004539	0.004539	0.004192	0.004192	0.004192	0.008554	0.008554
6	0.011386	0.011386	0.012277	0.012277	0.021823	0.021823	0.011386	0.011386	0.012277	0.012277	0.012277	0.021823	0.021823
7	0.033268	0.033268	0.030475	0.030475	0.037391	0.037391	0.033268	0.033268	0.030475	0.030475	0.030475	0.037391	0.037391
8	0.067127	0.067127	0.045693	0.045693	0.058855	0.058855	0.067127	0.067127	0.045693	0.045693	0.045693	0.058855	0.058855
9	0.048200	0.048200	0.047729	0.047729	0.054372	0.054372	0.048200	0.048200	0.047729	0.047729	0.047729	0.054372	0.054372
10	0.042227	0.042227	0.047547	0.047547	0.045419	0.045419	0.042227	0.042227	0.047547	0.047547	0.047547	0.045419	0.045419
11	0.048185	0.048185	0.051905	0.051905	0.047012	0.047012	0.048185	0.048185	0.051905	0.051905	0.051905	0.047012	0.047012
12	0.053645	0.053645	0.059541	0.059541	0.050043	0.050043	0.053645	0.053645	0.059541	0.059541	0.059541	0.050043	0.050043
13	0.056112	0.056112	0.065261	0.065261	0.058855	0.058855	0.056112	0.056112	0.065261	0.065261	0.065261	0.058855	0.058855
14	0.057979	0.057979	0.065823	0.065823	0.055926	0.055926	0.057979	0.057979	0.065823	0.065823	0.065823	0.055926	0.055926
15	0.062809	0.062809	0.064658	0.064658	0.059061	0.059061	0.062809	0.062809	0.064658	0.064658	0.064658	0.059061	0.059061
16	0.070705	0.070705	0.066171	0.066171	0.067538	0.067538	0.070705	0.070705	0.066171	0.066171	0.066171	0.067538	0.067538
17	0.079790	0.079790	0.073435	0.073435	0.069221	0.069221	0.079790	0.079790	0.073435	0.073435	0.073435	0.069221	0.069221
18	0.083257	0.083257	0.075965	0.075965	0.076697	0.076697	0.083257	0.083257	0.075965	0.075965	0.075965	0.076697	0.076697
19	0.062888	0.062888	0.065335	0.065335	0.075798	0.075798	0.062888	0.062888	0.065335	0.065335	0.065335	0.075798	0.075798
20	0.052739	0.052739	0.053896	0.053896	0.066562	0.066562	0.052739	0.052739	0.053896	0.053896	0.053896	0.066562	0.066562
21	0.043425	0.043425	0.045220	0.045220	0.048091	0.048091	0.043425	0.043425	0.045220	0.045220	0.045220	0.048091	0.048091
22	0.038043	0.038043	0.039092	0.039092	0.034848	0.034848	0.038043	0.038043	0.039092	0.039092	0.039092	0.034848	0.034848
23	0.031393	0.031393	0.033213	0.033213	0.024867	0.024867	0.031393	0.031393	0.033213	0.033213	0.033213	0.024867	0.024867
24	0.027492	0.027492	0.026885	0.026885	0.016813	0.016813	0.027492	0.027492	0.026885	0.026885	0.026885	0.016813	0.016813

Table 13
Time-of-Day Factors by Period for Area Type 4 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.012026	0.012026	0.008304	0.008304	0.007578	0.007578	0.012026	0.012026	0.008304	0.008304	0.008304	0.007578	0.007578
2	0.008176	0.008176	0.004828	0.004828	0.005304	0.005304	0.008176	0.008176	0.004828	0.004828	0.004828	0.005304	0.005304
3	0.007102	0.007102	0.004211	0.004211	0.004508	0.004508	0.007102	0.007102	0.004211	0.004211	0.004211	0.004508	0.004508
4	0.006289	0.006289	0.003863	0.003863	0.004842	0.004842	0.006289	0.006289	0.003863	0.003863	0.003863	0.004842	0.004842
5	0.008705	0.008705	0.008847	0.008847	0.008554	0.008554	0.008705	0.008705	0.008847	0.008847	0.008847	0.008554	0.008554
6	0.021736	0.021736	0.033127	0.033127	0.021823	0.021823	0.021736	0.021736	0.033127	0.033127	0.033127	0.021823	0.021823
7	0.046291	0.046291	0.063346	0.063346	0.037391	0.037391	0.046291	0.046291	0.063346	0.063346	0.063346	0.037391	0.037391
8	0.052832	0.052832	0.068754	0.068754	0.058855	0.058855	0.052832	0.052832	0.068754	0.068754	0.068754	0.058855	0.058855
9	0.047673	0.047673	0.047209	0.047209	0.054372	0.054372	0.047673	0.047673	0.047209	0.047209	0.047209	0.054372	0.054372
10	0.047236	0.047236	0.043680	0.043680	0.045419	0.045419	0.047236	0.047236	0.043680	0.043680	0.043680	0.045419	0.045419
11	0.051430	0.051430	0.046537	0.046537	0.047012	0.047012	0.051430	0.051430	0.046537	0.046537	0.046537	0.047012	0.047012
12	0.054352	0.054352	0.049545	0.049545	0.050043	0.050043	0.054352	0.054352	0.049545	0.049545	0.049545	0.050043	0.050043
13	0.056341	0.056341	0.050577	0.050577	0.058855	0.058855	0.056341	0.056341	0.050577	0.050577	0.050577	0.058855	0.058855
14	0.059094	0.059094	0.051995	0.051995	0.055926	0.055926	0.059094	0.059094	0.051995	0.051995	0.051995	0.055926	0.055926
15	0.061636	0.061636	0.057301	0.057301	0.059061	0.059061	0.061636	0.061636	0.057301	0.057301	0.057301	0.059061	0.059061
16	0.064633	0.064633	0.069406	0.069406	0.067538	0.067538	0.064633	0.064633	0.069406	0.069406	0.069406	0.067538	0.067538
17	0.065896	0.065896	0.080335	0.080335	0.069221	0.069221	0.065896	0.065896	0.080335	0.080335	0.080335	0.069221	0.069221
18	0.067191	0.067191	0.080906	0.080906	0.076697	0.076697	0.067191	0.067191	0.080906	0.080906	0.080906	0.076697	0.076697
19	0.063774	0.063774	0.066913	0.066913	0.075798	0.075798	0.063774	0.063774	0.066913	0.066913	0.066913	0.075798	0.075798
20	0.056371	0.056371	0.048225	0.048225	0.066562	0.066562	0.056371	0.056371	0.048225	0.048225	0.048225	0.066562	0.066562
21	0.044712	0.044712	0.036639	0.036639	0.048091	0.048091	0.044712	0.044712	0.036639	0.036639	0.036639	0.048091	0.048091
22	0.038399	0.038399	0.031367	0.031367	0.034848	0.034848	0.038399	0.038399	0.031367	0.031367	0.031367	0.034848	0.034848
23	0.031023	0.031023	0.025113	0.025113	0.024867	0.024867	0.031023	0.031023	0.025113	0.025113	0.025113	0.024867	0.024867
24	0.027080	0.027080	0.018950	0.018950	0.016813	0.016813	0.027080	0.027080	0.018950	0.018950	0.018950	0.016813	0.016813

Table 14
Time-of-Day Factors by Period for Area Type 5 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.008973	0.008973	0.008973	0.008973	0.008967	0.008967	0.008973	0.008973	0.008973	0.008973	0.008973	0.008967	0.008967
2	0.005736	0.005736	0.005736	0.005736	0.007051	0.007051	0.005736	0.005736	0.005736	0.005736	0.005736	0.007051	0.007051
3	0.004721	0.004721	0.004721	0.004721	0.005875	0.005875	0.004721	0.004721	0.004721	0.004721	0.004721	0.005875	0.005875
4	0.004711	0.004711	0.004711	0.004711	0.005854	0.005854	0.004711	0.004711	0.004711	0.004711	0.004711	0.005854	0.005854
5	0.008498	0.008498	0.008498	0.008498	0.010250	0.010250	0.008498	0.008498	0.008498	0.008498	0.008498	0.010250	0.010250
6	0.027827	0.027827	0.027827	0.027827	0.028670	0.028670	0.027827	0.027827	0.027827	0.027827	0.027827	0.028670	0.028670
7	0.051344	0.051344	0.051344	0.051344	0.053093	0.053093	0.051344	0.051344	0.051344	0.051344	0.051344	0.053093	0.053093
8	0.057468	0.057468	0.057468	0.057468	0.067710	0.067710	0.057468	0.057468	0.057468	0.057468	0.057468	0.067710	0.067710
9	0.051074	0.051074	0.051074	0.051074	0.050529	0.050529	0.051074	0.051074	0.051074	0.051074	0.051074	0.050529	0.050529
10	0.046968	0.046968	0.046968	0.046968	0.046922	0.046922	0.046968	0.046968	0.046968	0.046968	0.046968	0.046922	0.046922
11	0.049097	0.049097	0.049097	0.049097	0.048247	0.048247	0.049097	0.049097	0.049097	0.049097	0.049097	0.048247	0.048247
12	0.052333	0.052333	0.052333	0.052333	0.049296	0.049296	0.052333	0.052333	0.052333	0.052333	0.052333	0.049296	0.049296
13	0.054623	0.054623	0.054623	0.054623	0.050719	0.050719	0.054623	0.054623	0.054623	0.054623	0.054623	0.050719	0.050719
14	0.056576	0.056576	0.056576	0.056576	0.052184	0.052184	0.056576	0.056576	0.056576	0.056576	0.056576	0.052184	0.052184
15	0.059668	0.059668	0.059668	0.059668	0.058391	0.058391	0.059668	0.059668	0.059668	0.059668	0.059668	0.058391	0.058391
16	0.064626	0.064626	0.064626	0.064626	0.065526	0.065526	0.064626	0.064626	0.064626	0.064626	0.064626	0.065526	0.065526
17	0.070246	0.070246	0.070246	0.070246	0.076424	0.076424	0.070246	0.070246	0.070246	0.070246	0.070246	0.076424	0.076424
18	0.074505	0.074505	0.074505	0.074505	0.077805	0.077805	0.074505	0.074505	0.074505	0.074505	0.074505	0.077805	0.077805
19	0.069596	0.069596	0.069596	0.069596	0.070436	0.070436	0.069596	0.069596	0.069596	0.069596	0.069596	0.070436	0.070436
20	0.056791	0.056791	0.056791	0.056791	0.056080	0.056080	0.056791	0.056791	0.056791	0.056791	0.056791	0.056080	0.056080
21	0.042715	0.042715	0.042715	0.042715	0.039730	0.039730	0.042715	0.042715	0.042715	0.042715	0.042715	0.039730	0.039730
22	0.034921	0.034921	0.034921	0.034921	0.029614	0.029614	0.034921	0.034921	0.034921	0.034921	0.034921	0.029614	0.029614
23	0.027107	0.027107	0.027107	0.027107	0.023599	0.023599	0.027107	0.027107	0.027107	0.027107	0.027107	0.023599	0.023599
24	0.019875	0.019875	0.019875	0.019875	0.017026	0.017026	0.019875	0.019875	0.019875	0.019875	0.019875	0.017026	0.017026

Table 15
Time-of-Day Factors by Period for Area Type 1 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.022911	0.022911	0.023840	0.023840	0.014012	0.014012	0.022911	0.022911	0.023840	0.023840	0.023840	0.014012	0.014012
2	0.015420	0.015420	0.016897	0.016897	0.009597	0.009597	0.015420	0.015420	0.016897	0.016897	0.016897	0.009597	0.009597
3	0.014053	0.014053	0.015981	0.015981	0.005815	0.005815	0.014053	0.014053	0.015981	0.015981	0.015981	0.005815	0.005815
4	0.008927	0.008927	0.008574	0.008574	0.005529	0.005529	0.008927	0.008927	0.008574	0.008574	0.008574	0.005529	0.005529
5	0.008630	0.008630	0.007037	0.007037	0.005755	0.005755	0.008630	0.008630	0.007037	0.007037	0.007037	0.005755	0.005755
6	0.015599	0.015599	0.010068	0.010068	0.011058	0.011058	0.015599	0.015599	0.010068	0.010068	0.010068	0.011058	0.011058
7	0.029610	0.029610	0.019469	0.019469	0.018577	0.018577	0.029610	0.029610	0.019469	0.019469	0.019469	0.018577	0.018577
8	0.037068	0.037068	0.030413	0.030413	0.027843	0.027843	0.037068	0.037068	0.030413	0.030413	0.030413	0.027843	0.027843
9	0.043762	0.043762	0.041701	0.041701	0.042007	0.042007	0.043762	0.043762	0.041701	0.041701	0.041701	0.042007	0.042007
10	0.050848	0.050848	0.049928	0.049928	0.059093	0.059093	0.050848	0.050848	0.049928	0.049928	0.049928	0.059093	0.059093
11	0.056300	0.056300	0.057028	0.057028	0.068465	0.068465	0.056300	0.056300	0.057028	0.057028	0.057028	0.068465	0.068465
12	0.060863	0.060863	0.062926	0.062926	0.070981	0.070981	0.060863	0.060863	0.062926	0.062926	0.062926	0.070981	0.070981
13	0.064256	0.064256	0.065193	0.065193	0.071192	0.071192	0.064256	0.064256	0.065193	0.065193	0.065193	0.071192	0.071192
14	0.063009	0.063009	0.064643	0.064643	0.069489	0.069489	0.063009	0.063009	0.064643	0.064643	0.064643	0.069489	0.069489
15	0.063108	0.063108	0.064356	0.064356	0.066913	0.066913	0.063108	0.063108	0.064356	0.064356	0.064356	0.066913	0.066913
16	0.063158	0.063158	0.064895	0.064895	0.067696	0.067696	0.063158	0.063158	0.064895	0.064895	0.064895	0.067696	0.067696
17	0.060532	0.060532	0.060966	0.060966	0.065150	0.065150	0.060532	0.060532	0.060966	0.060966	0.060966	0.065150	0.065150
18	0.059662	0.059662	0.059252	0.059252	0.068254	0.068254	0.059662	0.059662	0.059252	0.059252	0.059252	0.068254	0.068254
19	0.056923	0.056923	0.059192	0.059192	0.063025	0.063025	0.056923	0.056923	0.059192	0.059192	0.059192	0.063025	0.063025
20	0.049759	0.049759	0.053003	0.053003	0.056275	0.056275	0.049759	0.049759	0.053003	0.053003	0.053003	0.056275	0.056275
21	0.044237	0.044237	0.044479	0.044479	0.046587	0.046587	0.044237	0.044237	0.044479	0.044479	0.044479	0.046587	0.046587
22	0.042319	0.042319	0.042461	0.042461	0.037908	0.037908	0.042319	0.042319	0.042461	0.042461	0.042461	0.037908	0.037908
23	0.038450	0.038450	0.041807	0.041807	0.027889	0.027889	0.038450	0.038450	0.041807	0.041807	0.041807	0.027889	0.027889
24	0.030595	0.030595	0.035890	0.035890	0.020867	0.020867	0.030595	0.030595	0.035890	0.035890	0.035890	0.020867	0.020867

Table 16
Time-of-Day Factors by Period for Area Type 2 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.022911	0.022911	0.023840	0.023840	0.014012	0.014012	0.022911	0.022911	0.023840	0.023840	0.023840	0.014012	0.014012
2	0.015420	0.015420	0.016897	0.016897	0.009597	0.009597	0.015420	0.015420	0.016897	0.016897	0.016897	0.009597	0.009597
3	0.014053	0.014053	0.015981	0.015981	0.005815	0.005815	0.014053	0.014053	0.015981	0.015981	0.015981	0.005815	0.005815
4	0.008927	0.008927	0.008574	0.008574	0.005529	0.005529	0.008927	0.008927	0.008574	0.008574	0.008574	0.005529	0.005529
5	0.008630	0.008630	0.007037	0.007037	0.005755	0.005755	0.008630	0.008630	0.007037	0.007037	0.007037	0.005755	0.005755
6	0.015599	0.015599	0.010068	0.010068	0.011058	0.011058	0.015599	0.015599	0.010068	0.010068	0.010068	0.011058	0.011058
7	0.029610	0.029610	0.019469	0.019469	0.018577	0.018577	0.029610	0.029610	0.019469	0.019469	0.019469	0.018577	0.018577
8	0.037068	0.037068	0.030413	0.030413	0.027843	0.027843	0.037068	0.037068	0.030413	0.030413	0.030413	0.027843	0.027843
9	0.043762	0.043762	0.041701	0.041701	0.042007	0.042007	0.043762	0.043762	0.041701	0.041701	0.041701	0.042007	0.042007
10	0.050848	0.050848	0.049928	0.049928	0.059093	0.059093	0.050848	0.050848	0.049928	0.049928	0.049928	0.059093	0.059093
11	0.056300	0.056300	0.057028	0.057028	0.068465	0.068465	0.056300	0.056300	0.057028	0.057028	0.057028	0.068465	0.068465
12	0.060863	0.060863	0.062926	0.062926	0.070981	0.070981	0.060863	0.060863	0.062926	0.062926	0.062926	0.070981	0.070981
13	0.064256	0.064256	0.065193	0.065193	0.071192	0.071192	0.064256	0.064256	0.065193	0.065193	0.065193	0.071192	0.071192
14	0.063009	0.063009	0.064643	0.064643	0.069489	0.069489	0.063009	0.063009	0.064643	0.064643	0.064643	0.069489	0.069489
15	0.063108	0.063108	0.064356	0.064356	0.066913	0.066913	0.063108	0.063108	0.064356	0.064356	0.064356	0.066913	0.066913
16	0.063158	0.063158	0.064895	0.064895	0.067696	0.067696	0.063158	0.063158	0.064895	0.064895	0.064895	0.067696	0.067696
17	0.060532	0.060532	0.060966	0.060966	0.065150	0.065150	0.060532	0.060532	0.060966	0.060966	0.060966	0.065150	0.065150
18	0.059662	0.059662	0.059252	0.059252	0.068254	0.068254	0.059662	0.059662	0.059252	0.059252	0.059252	0.068254	0.068254
19	0.056923	0.056923	0.059192	0.059192	0.063025	0.063025	0.056923	0.056923	0.059192	0.059192	0.059192	0.063025	0.063025
20	0.049759	0.049759	0.053003	0.053003	0.056275	0.056275	0.049759	0.049759	0.053003	0.053003	0.053003	0.056275	0.056275
21	0.044237	0.044237	0.044479	0.044479	0.046587	0.046587	0.044237	0.044237	0.044479	0.044479	0.044479	0.046587	0.046587
22	0.042319	0.042319	0.042461	0.042461	0.037908	0.037908	0.042319	0.042319	0.042461	0.042461	0.042461	0.037908	0.037908
23	0.038450	0.038450	0.041807	0.041807	0.027889	0.027889	0.038450	0.038450	0.041807	0.041807	0.041807	0.027889	0.027889
24	0.030595	0.030595	0.035890	0.035890	0.020867	0.020867	0.030595	0.030595	0.035890	0.035890	0.035890	0.020867	0.020867

Table 16
Time-of-Day Factors by Period for Area Type 2 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.022911	0.022911	0.023840	0.023840	0.014012	0.014012	0.022911	0.022911	0.023840	0.023840	0.023840	0.014012	0.014012
2	0.015420	0.015420	0.016897	0.016897	0.009597	0.009597	0.015420	0.015420	0.016897	0.016897	0.016897	0.009597	0.009597
3	0.014053	0.014053	0.015981	0.015981	0.005815	0.005815	0.014053	0.014053	0.015981	0.015981	0.015981	0.005815	0.005815
4	0.008927	0.008927	0.008574	0.008574	0.005529	0.005529	0.008927	0.008927	0.008574	0.008574	0.008574	0.005529	0.005529
5	0.008630	0.008630	0.007037	0.007037	0.005755	0.005755	0.008630	0.008630	0.007037	0.007037	0.007037	0.005755	0.005755
6	0.015599	0.015599	0.010068	0.010068	0.011058	0.011058	0.015599	0.015599	0.010068	0.010068	0.010068	0.011058	0.011058
7	0.029610	0.029610	0.019469	0.019469	0.018577	0.018577	0.029610	0.029610	0.019469	0.019469	0.019469	0.018577	0.018577
8	0.037068	0.037068	0.030413	0.030413	0.027843	0.027843	0.037068	0.037068	0.030413	0.030413	0.030413	0.027843	0.027843
9	0.043762	0.043762	0.041701	0.041701	0.042007	0.042007	0.043762	0.043762	0.041701	0.041701	0.041701	0.042007	0.042007
10	0.050848	0.050848	0.049928	0.049928	0.059093	0.059093	0.050848	0.050848	0.049928	0.049928	0.049928	0.059093	0.059093
11	0.056300	0.056300	0.057028	0.057028	0.068465	0.068465	0.056300	0.056300	0.057028	0.057028	0.057028	0.068465	0.068465
12	0.060863	0.060863	0.062926	0.062926	0.070981	0.070981	0.060863	0.060863	0.062926	0.062926	0.062926	0.070981	0.070981
13	0.064256	0.064256	0.065193	0.065193	0.071192	0.071192	0.064256	0.064256	0.065193	0.065193	0.065193	0.071192	0.071192
14	0.063009	0.063009	0.064643	0.064643	0.069489	0.069489	0.063009	0.063009	0.064643	0.064643	0.064643	0.069489	0.069489
15	0.063108	0.063108	0.064356	0.064356	0.066913	0.066913	0.063108	0.063108	0.064356	0.064356	0.064356	0.066913	0.066913
16	0.063158	0.063158	0.064895	0.064895	0.067696	0.067696	0.063158	0.063158	0.064895	0.064895	0.064895	0.067696	0.067696
17	0.060532	0.060532	0.060966	0.060966	0.065150	0.065150	0.060532	0.060532	0.060966	0.060966	0.060966	0.065150	0.065150
18	0.059662	0.059662	0.059252	0.059252	0.068254	0.068254	0.059662	0.059662	0.059252	0.059252	0.059252	0.068254	0.068254
19	0.056923	0.056923	0.059192	0.059192	0.063025	0.063025	0.056923	0.056923	0.059192	0.059192	0.059192	0.063025	0.063025
20	0.049759	0.049759	0.053003	0.053003	0.056275	0.056275	0.049759	0.049759	0.053003	0.053003	0.053003	0.056275	0.056275
21	0.044237	0.044237	0.044479	0.044479	0.046587	0.046587	0.044237	0.044237	0.044479	0.044479	0.044479	0.046587	0.046587
22	0.042319	0.042319	0.042461	0.042461	0.037908	0.037908	0.042319	0.042319	0.042461	0.042461	0.042461	0.037908	0.037908
23	0.038450	0.038450	0.041807	0.041807	0.027889	0.027889	0.038450	0.038450	0.041807	0.041807	0.041807	0.027889	0.027889
24	0.030595	0.030595	0.035890	0.035890	0.020867	0.020867	0.030595	0.030595	0.035890	0.035890	0.035890	0.020867	0.020867

Table 17
Time-of-Day Factors by Period for Area Type 3 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.017711	0.017711	0.021883	0.021883	0.014012	0.014012	0.017711	0.017711	0.021883	0.021883	0.021883	0.014012	0.014012
2	0.011974	0.011974	0.015763	0.015763	0.009597	0.009597	0.011974	0.011974	0.015763	0.015763	0.015763	0.009597	0.009597
3	0.010424	0.010424	0.013405	0.013405	0.005815	0.005815	0.010424	0.010424	0.013405	0.013405	0.013405	0.005815	0.005815
4	0.006665	0.006665	0.006880	0.006880	0.005529	0.005529	0.006665	0.006665	0.006880	0.006880	0.006880	0.005529	0.005529
5	0.006350	0.006350	0.005281	0.005281	0.005755	0.005755	0.006350	0.006350	0.005281	0.005281	0.005281	0.005755	0.005755
6	0.011742	0.011742	0.007338	0.007338	0.011058	0.011058	0.011742	0.011742	0.007338	0.007338	0.007338	0.011058	0.011058
7	0.019583	0.019583	0.013776	0.013776	0.018577	0.018577	0.019583	0.019583	0.013776	0.013776	0.013776	0.018577	0.018577
8	0.023455	0.023455	0.023723	0.023723	0.027843	0.027843	0.023455	0.023455	0.023723	0.023723	0.023723	0.027843	0.027843
9	0.028801	0.028801	0.035304	0.035304	0.042007	0.042007	0.028801	0.028801	0.035304	0.035304	0.035304	0.042007	0.042007
10	0.039316	0.039316	0.046147	0.046147	0.059093	0.059093	0.039316	0.039316	0.046147	0.046147	0.046147	0.059093	0.059093
11	0.052084	0.052084	0.054643	0.054643	0.068465	0.068465	0.052084	0.052084	0.054643	0.054643	0.054643	0.068465	0.068465
12	0.063115	0.063115	0.062928	0.062928	0.070981	0.070981	0.063115	0.063115	0.062928	0.062928	0.062928	0.070981	0.070981
13	0.067263	0.067263	0.068751	0.068751	0.071192	0.071192	0.067263	0.067263	0.068751	0.068751	0.068751	0.071192	0.071192
14	0.068798	0.068798	0.070535	0.070535	0.069489	0.069489	0.068798	0.068798	0.070535	0.070535	0.070535	0.069489	0.069489
15	0.069772	0.069772	0.069471	0.069471	0.066913	0.066913	0.069772	0.069772	0.069471	0.069471	0.069471	0.066913	0.066913
16	0.071232	0.071232	0.069078	0.069078	0.067696	0.067696	0.071232	0.071232	0.069078	0.069078	0.069078	0.067696	0.067696
17	0.073157	0.073157	0.067457	0.067457	0.065150	0.065150	0.073157	0.073157	0.067457	0.067457	0.067457	0.065150	0.065150
18	0.072034	0.072034	0.064370	0.064370	0.068254	0.068254	0.072034	0.072034	0.064370	0.064370	0.064370	0.068254	0.068254
19	0.067039	0.067039	0.061511	0.061511	0.063025	0.063025	0.067039	0.067039	0.061511	0.061511	0.061511	0.063025	0.063025
20	0.056772	0.056772	0.055920	0.055920	0.056275	0.056275	0.056772	0.056772	0.055920	0.055920	0.055920	0.056275	0.056275
21	0.049275	0.049275	0.050137	0.050137	0.046587	0.046587	0.049275	0.049275	0.050137	0.050137	0.050137	0.046587	0.046587
22	0.044340	0.044340	0.044647	0.044647	0.037908	0.037908	0.044340	0.044340	0.044647	0.044647	0.044647	0.037908	0.037908
23	0.038020	0.038020	0.038677	0.038677	0.027889	0.027889	0.038020	0.038020	0.038677	0.038677	0.038677	0.027889	0.027889
24	0.031078	0.031078	0.032375	0.032375	0.020867	0.020867	0.031078	0.031078	0.032375	0.032375	0.032375	0.020867	0.020867

Table 18
Time-of-Day Factors by Period for Area Type 4 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.020470	0.020470	0.016126	0.016126	0.014012	0.014012	0.020470	0.020470	0.016126	0.016126	0.016126	0.014012	0.014012
2	0.013402	0.013402	0.010988	0.010988	0.009597	0.009597	0.013402	0.013402	0.010988	0.010988	0.010988	0.009597	0.009597
3	0.011102	0.011102	0.008801	0.008801	0.005815	0.005815	0.011102	0.011102	0.008801	0.008801	0.008801	0.005815	0.005815
4	0.008035	0.008035	0.005807	0.005807	0.005529	0.005529	0.008035	0.008035	0.005807	0.005807	0.005807	0.005529	0.005529
5	0.008686	0.008686	0.008418	0.008418	0.005755	0.005755	0.008686	0.008686	0.008418	0.008418	0.008418	0.005755	0.005755
6	0.014688	0.014688	0.021428	0.021428	0.011058	0.011058	0.014688	0.014688	0.021428	0.021428	0.021428	0.011058	0.011058
7	0.024789	0.024789	0.033802	0.033802	0.018577	0.018577	0.024789	0.024789	0.033802	0.033802	0.033802	0.018577	0.018577
8	0.033162	0.033162	0.035171	0.035171	0.027843	0.027843	0.033162	0.033162	0.035171	0.035171	0.035171	0.027843	0.027843
9	0.041780	0.041780	0.042349	0.042349	0.042007	0.042007	0.041780	0.041780	0.042349	0.042349	0.042349	0.042007	0.042007
10	0.052388	0.052388	0.052765	0.052765	0.059093	0.059093	0.052388	0.052388	0.052765	0.052765	0.052765	0.059093	0.059093
11	0.060481	0.060481	0.059308	0.059308	0.068465	0.068465	0.060481	0.060481	0.059308	0.059308	0.059308	0.068465	0.068465
12	0.064604	0.064604	0.063454	0.063454	0.070981	0.070981	0.064604	0.064604	0.063454	0.063454	0.063454	0.070981	0.070981
13	0.066854	0.066854	0.063698	0.063698	0.071192	0.071192	0.066854	0.066854	0.063698	0.063698	0.063698	0.071192	0.071192
14	0.067145	0.067145	0.063723	0.063723	0.069489	0.069489	0.067145	0.067145	0.063723	0.063723	0.063723	0.069489	0.069489
15	0.065799	0.065799	0.064879	0.064879	0.066913	0.066913	0.065799	0.065799	0.064879	0.064879	0.064879	0.066913	0.066913
16	0.065031	0.065031	0.065200	0.065200	0.067696	0.067696	0.065031	0.065031	0.065200	0.065200	0.065200	0.067696	0.067696
17	0.065020	0.065020	0.064707	0.064707	0.065150	0.065150	0.065020	0.065020	0.064707	0.064707	0.064707	0.065150	0.065150
18	0.064142	0.064142	0.069100	0.069100	0.068254	0.068254	0.064142	0.064142	0.069100	0.069100	0.069100	0.068254	0.068254
19	0.059778	0.059778	0.063072	0.063072	0.063025	0.063025	0.059778	0.059778	0.063072	0.063072	0.063072	0.063025	0.063025
20	0.051821	0.051821	0.050935	0.050935	0.056275	0.056275	0.051821	0.051821	0.050935	0.050935	0.050935	0.056275	0.056275
21	0.042465	0.042465	0.042458	0.042458	0.046587	0.046587	0.042465	0.042465	0.042458	0.042458	0.042458	0.046587	0.046587
22	0.038558	0.038558	0.037732	0.037732	0.037908	0.037908	0.038558	0.038558	0.037732	0.037732	0.037732	0.037908	0.037908
23	0.032844	0.032844	0.031846	0.031846	0.027889	0.027889	0.032844	0.032844	0.031846	0.031846	0.031846	0.027889	0.027889
24	0.026933	0.026933	0.024232	0.024232	0.020867	0.020867	0.026933	0.026933	0.024232	0.024232	0.024232	0.020867	0.020867

Table 19
Time-of-Day Factors by Period for Area Type 5 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	0.016089	0.016089	0.016089	0.016089	0.016501	0.016501	0.016089	0.016089	0.016089	0.016089	0.016089	0.016501	0.016501
2	0.010317	0.010317	0.010317	0.010317	0.010640	0.010640	0.010317	0.010317	0.010317	0.010317	0.010317	0.010640	0.010640
3	0.008286	0.008286	0.008286	0.008286	0.008150	0.008150	0.008286	0.008286	0.008286	0.008286	0.008286	0.008150	0.008150
4	0.006548	0.006548	0.006548	0.006548	0.006761	0.006761	0.006548	0.006548	0.006548	0.006548	0.006548	0.006761	0.006761
5	0.008287	0.008287	0.008287	0.008287	0.008832	0.008832	0.008287	0.008287	0.008287	0.008287	0.008287	0.008832	0.008832
6	0.016420	0.016420	0.016420	0.016420	0.016650	0.016650	0.016420	0.016420	0.016420	0.016420	0.016420	0.016650	0.016650
7	0.026133	0.026133	0.026133	0.026133	0.026792	0.026792	0.026133	0.026133	0.026133	0.026133	0.026133	0.026792	0.026792
8	0.033230	0.033230	0.033230	0.033230	0.036584	0.036584	0.033230	0.033230	0.033230	0.033230	0.033230	0.036584	0.036584
9	0.042451	0.042451	0.042451	0.042451	0.047364	0.047364	0.042451	0.042451	0.042451	0.042451	0.042451	0.047364	0.047364
10	0.053776	0.053776	0.053776	0.053776	0.058012	0.058012	0.053776	0.053776	0.053776	0.053776	0.053776	0.058012	0.058012
11	0.062739	0.062739	0.062739	0.062739	0.063769	0.063769	0.062739	0.062739	0.062739	0.062739	0.062739	0.063769	0.063769
12	0.066990	0.066990	0.066990	0.066990	0.067228	0.067228	0.066990	0.066990	0.066990	0.066990	0.066990	0.067228	0.067228
13	0.067259	0.067259	0.067259	0.067259	0.065612	0.065612	0.067259	0.067259	0.067259	0.067259	0.067259	0.065612	0.065612
14	0.067183	0.067183	0.067183	0.067183	0.063070	0.063070	0.067183	0.067183	0.067183	0.067183	0.067183	0.063070	0.063070
15	0.065852	0.065852	0.065852	0.065852	0.062170	0.062170	0.065852	0.065852	0.065852	0.065852	0.065852	0.062170	0.062170
16	0.065723	0.065723	0.065723	0.065723	0.062511	0.062511	0.065723	0.065723	0.065723	0.065723	0.065723	0.062511	0.062511
17	0.066606	0.066606	0.066606	0.066606	0.065970	0.065970	0.066606	0.066606	0.066606	0.066606	0.066606	0.065970	0.065970
18	0.065932	0.065932	0.065932	0.065932	0.065935	0.065935	0.065932	0.065932	0.065932	0.065932	0.065932	0.065935	0.065935
19	0.060865	0.060865	0.060865	0.060865	0.063498	0.063498	0.060865	0.060865	0.060865	0.060865	0.060865	0.063498	0.063498
20	0.052959	0.052959	0.052959	0.052959	0.053382	0.053382	0.052959	0.052959	0.052959	0.052959	0.052959	0.053382	0.053382
21	0.042659	0.042659	0.042659	0.042659	0.042009	0.042009	0.042659	0.042659	0.042659	0.042659	0.042659	0.042009	0.042009
22	0.038889	0.038889	0.038889	0.038889	0.038436	0.038436	0.038889	0.038889	0.038889	0.038889	0.038889	0.038436	0.038436
23	0.031137	0.031137	0.031137	0.031137	0.028312	0.028312	0.031137	0.031137	0.031137	0.031137	0.031137	0.028312	0.028312
24	0.023648	0.023648	0.023648	0.023648	0.021812	0.021812	0.023648	0.023648	0.023648	0.023648	0.023648	0.021812	0.021812

TIME-OF-DAY DIRECTIONAL SPLIT ESTIMATES

The 24-hour link assignment volumes are nondirectional volumes (i.e., the sum of the volumes in the two directions on a link). The seasonal adjustment factor and time-of-day travel factor are applied to estimate the seasonally adjusted time-of-day volume on a link. The PREPIN program provides for the application of directional splits to estimate the portion of the travel expected to occur in each direction. These directional volume estimates are used to estimate the directional speeds. The PREPIN program outputs two link records for a link: a link record containing the estimated VMT and speed in the peak (or dominant direction and a link record containing the estimated VMT and speed in the off-peak (or opposite) direction. This allows the IMPSUMA program to apply the MOBILE5a emission rates directionally by speed.

Field data traffic volume counts were used to obtain time-of-day directional split estimates by area type and functional classification. GET_SPLT, the FORTRAN program developed by TTI for this application, was run to obtain 24 sets of these factors prepared (i.e., a set for each of the 24 one-hour periods). These results were entered into SPLIT records for input to PREPIN. The directional split factors used are shown in Tables 20 through 34.

Table 20
Directional Split Factors by Period for Area Type 1 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.19880	52.19880	64.01890	64.01890	75.87070	75.87070	52.19880	52.19880	64.01890	64.01890	64.01890	75.87070	75.87070
2	52.86750	52.86750	66.00890	66.00890	74.40840	74.40840	52.86750	52.86750	66.00890	66.00890	66.00890	74.40840	74.40840
3	53.91080	53.91080	65.38020	65.38020	79.30230	79.30230	53.91080	53.91080	65.38020	65.38020	65.38020	79.30230	79.30230
4	52.49740	52.49740	63.09400	63.09400	73.98310	73.98310	52.49740	52.49740	63.09400	63.09400	63.09400	73.98310	73.98310
5	53.77120	53.77120	64.15790	64.15790	69.63330	69.63330	53.77120	53.77120	64.15790	64.15790	64.15790	69.63330	69.63330
6	55.13440	55.13440	67.76630	67.76630	75.38650	75.38650	55.13440	55.13440	67.76630	67.76630	67.76630	75.38650	75.38650
7	54.02580	54.02580	69.45290	69.45290	77.25600	77.25600	54.02580	54.02580	69.45290	69.45290	69.45290	77.25600	77.25600
8	53.37670	53.37670	68.72790	68.72790	65.87060	65.87060	53.37670	53.37670	68.72790	68.72790	68.72790	65.87060	65.87060
9	53.21530	53.21530	65.42840	65.42840	65.97560	65.97560	53.21530	53.21530	65.42840	65.42840	65.42840	65.97560	65.97560
10	52.49430	52.49430	59.58130	59.58130	64.27310	64.27310	52.49430	52.49430	59.58130	59.58130	59.58130	64.27310	64.27310
11	51.71550	51.71550	56.86130	56.86130	60.55200	60.55200	51.71550	51.71550	56.86130	56.86130	56.86130	60.55200	60.55200
12	51.44190	51.44190	57.97210	57.97210	60.90190	60.90190	51.44190	51.44190	57.97210	57.97210	57.97210	60.90190	60.90190
13	51.02330	51.02330	56.40580	56.40580	58.11410	58.11410	51.02330	51.02330	56.40580	56.40580	56.40580	58.11410	58.11410
14	50.98520	50.98520	56.87580	56.87580	59.17030	59.17030	50.98520	50.98520	56.87580	56.87580	56.87580	59.17030	59.17030
15	51.22640	51.22640	57.69340	57.69340	59.71810	59.71810	51.22640	51.22640	57.69340	57.69340	57.69340	59.71810	59.71810
16	52.05240	52.05240	60.95350	60.95350	55.10250	55.10250	52.05240	52.05240	60.95350	60.95350	60.95350	55.10250	55.10250
17	52.25850	52.25850	63.99890	63.99890	56.66530	56.66530	52.25850	52.25850	63.99890	63.99890	63.99890	56.66530	56.66530
18	52.62830	52.62830	63.81940	63.81940	60.07770	60.07770	52.62830	52.62830	63.81940	63.81940	63.81940	60.07770	60.07770
19	52.09090	52.09090	62.12740	62.12740	57.91410	57.91410	52.09090	52.09090	62.12740	62.12740	62.12740	57.91410	57.91410
20	52.38810	52.38810	60.46770	60.46770	56.64520	56.64520	52.38810	52.38810	60.46770	60.46770	60.46770	56.64520	56.64520
21	52.14170	52.14170	63.17760	63.17760	58.06080	58.06080	52.14170	52.14170	63.17760	63.17760	63.17760	58.06080	58.06080
22	52.24880	52.24880	64.58590	64.58590	61.56790	61.56790	52.24880	52.24880	64.58590	64.58590	64.58590	61.56790	61.56790
23	52.55520	52.55520	63.63590	63.63590	59.75560	59.75560	52.55520	52.55520	63.63590	63.63590	63.63590	59.75560	59.75560
24	52.90530	52.90530	63.55340	63.55340	63.49810	63.49810	52.90530	52.90530	63.55340	63.55340	63.55340	63.49810	63.49810

Table 21
Directional Split Factors by Period for Area Type 2 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.19880	52.19880	64.01890	64.01890	75.87070	75.87070	52.19880	52.19880	64.01890	64.01890	64.01890	75.87070	75.87070
2	52.86750	52.86750	66.00890	66.00890	74.40840	74.40840	52.86750	52.86750	66.00890	66.00890	66.00890	74.40840	74.40840
3	53.91080	53.91080	65.38020	65.38020	79.30230	79.30230	53.91080	53.91080	65.38020	65.38020	65.38020	79.30230	79.30230
4	52.49740	52.49740	63.09400	63.09400	73.98310	73.98310	52.49740	52.49740	63.09400	63.09400	63.09400	73.98310	73.98310
5	53.77120	53.77120	64.15790	64.15790	69.63330	69.63330	53.77120	53.77120	64.15790	64.15790	64.15790	69.63330	69.63330
6	55.13440	55.13440	67.76630	67.76630	75.38650	75.38650	55.13440	55.13440	67.76630	67.76630	67.76630	75.38650	75.38650
7	54.02580	54.02580	69.45290	69.45290	77.25600	77.25600	54.02580	54.02580	69.45290	69.45290	69.45290	77.25600	77.25600
8	53.37670	53.37670	68.72790	68.72790	65.87060	65.87060	53.37670	53.37670	68.72790	68.72790	68.72790	65.87060	65.87060
9	53.21530	53.21530	65.42840	65.42840	65.97560	65.97560	53.21530	53.21530	65.42840	65.42840	65.42840	65.97560	65.97560
10	52.49430	52.49430	59.58130	59.58130	64.27310	64.27310	52.49430	52.49430	59.58130	59.58130	59.58130	64.27310	64.27310
11	51.71550	51.71550	56.86130	56.86130	60.55200	60.55200	51.71550	51.71550	56.86130	56.86130	56.86130	60.55200	60.55200
12	51.44190	51.44190	57.97210	57.97210	60.90190	60.90190	51.44190	51.44190	57.97210	57.97210	57.97210	60.90190	60.90190
13	51.02330	51.02330	56.40580	56.40580	58.11410	58.11410	51.02330	51.02330	56.40580	56.40580	56.40580	58.11410	58.11410
14	50.98520	50.98520	56.87580	56.87580	59.17030	59.17030	50.98520	50.98520	56.87580	56.87580	56.87580	59.17030	59.17030
15	51.22640	51.22640	57.69340	57.69340	59.71810	59.71810	51.22640	51.22640	57.69340	57.69340	57.69340	59.71810	59.71810
16	52.05240	52.05240	60.95350	60.95350	55.10250	55.10250	52.05240	52.05240	60.95350	60.95350	60.95350	55.10250	55.10250
17	52.25850	52.25850	63.99890	63.99890	56.66530	56.66530	52.25850	52.25850	63.99890	63.99890	63.99890	56.66530	56.66530
18	52.62830	52.62830	63.81940	63.81940	60.07770	60.07770	52.62830	52.62830	63.81940	63.81940	63.81940	60.07770	60.07770
19	52.09090	52.09090	62.12740	62.12740	57.91410	57.91410	52.09090	52.09090	62.12740	62.12740	62.12740	57.91410	57.91410
20	52.38810	52.38810	60.46770	60.46770	56.64520	56.64520	52.38810	52.38810	60.46770	60.46770	60.46770	56.64520	56.64520
21	52.14170	52.14170	63.17760	63.17760	58.06080	58.06080	52.14170	52.14170	63.17760	63.17760	63.17760	58.06080	58.06080
22	52.24880	52.24880	64.58590	64.58590	61.56790	61.56790	52.24880	52.24880	64.58590	64.58590	64.58590	61.56790	61.56790
23	52.55520	52.55520	63.63590	63.63590	59.75560	59.75560	52.55520	52.55520	63.63590	63.63590	63.63590	59.75560	59.75560
24	52.90530	52.90530	63.55340	63.55340	63.49810	63.49810	52.90530	52.90530	63.55340	63.55340	63.55340	63.49810	63.49810

Table 22
Directional Split Factors by Period for Area Type 3 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	53.61130	53.61130	60.69210	60.69210	75.87070	75.87070	53.61130	53.61130	60.69210	60.69210	60.69210	75.87070	75.87070
2	54.65830	54.65830	61.60590	61.60590	74.40840	74.40840	54.65830	54.65830	61.60590	61.60590	61.60590	74.40840	74.40840
3	55.65620	55.65620	62.43900	62.43900	79.30230	79.30230	55.65620	55.65620	62.43900	62.43900	62.43900	79.30230	79.30230
4	56.48530	56.48530	60.38790	60.38790	73.98310	73.98310	56.48530	56.48530	60.38790	60.38790	60.38790	73.98310	73.98310
5	56.17220	56.17220	61.74460	61.74460	69.63330	69.63330	56.17220	56.17220	61.74460	61.74460	61.74460	69.63330	69.63330
6	59.76620	59.76620	66.59560	66.59560	75.38650	75.38650	59.76620	59.76620	66.59560	66.59560	66.59560	75.38650	75.38650
7	66.70040	66.70040	69.36470	69.36470	77.25600	77.25600	66.70040	66.70040	69.36470	69.36470	69.36470	77.25600	77.25600
8	74.13610	74.13610	68.03360	68.03360	65.87060	65.87060	74.13610	74.13610	68.03360	68.03360	68.03360	65.87060	65.87060
9	68.26680	68.26680	64.48270	64.48270	65.97560	65.97560	68.26680	68.26680	64.48270	64.48270	64.48270	65.97560	65.97560
10	59.12840	59.12840	59.62300	59.62300	64.27310	64.27310	59.12840	59.12840	59.62300	59.62300	59.62300	64.27310	64.27310
11	56.23540	56.23540	57.09830	57.09830	60.55200	60.55200	56.23540	56.23540	57.09830	57.09830	57.09830	60.55200	60.55200
12	55.69260	55.69260	55.51360	55.51360	60.90190	60.90190	55.69260	55.69260	55.51360	55.51360	55.51360	60.90190	60.90190
13	52.61690	52.61690	55.81770	55.81770	58.11410	58.11410	52.61690	52.61690	55.81770	55.81770	55.81770	58.11410	58.11410
14	51.73740	51.73740	56.03740	56.03740	59.17030	59.17030	51.73740	51.73740	56.03740	56.03740	56.03740	59.17030	59.17030
15	54.86510	54.86510	56.06570	56.06570	59.71810	59.71810	54.86510	54.86510	56.06570	56.06570	56.06570	59.71810	59.71810
16	61.62560	61.62560	57.10790	57.10790	55.10250	55.10250	61.62560	61.62560	57.10790	57.10790	57.10790	55.10250	55.10250
17	66.59620	66.59620	59.33190	59.33190	56.66530	56.66530	66.59620	66.59620	59.33190	59.33190	59.33190	56.66530	56.66530
18	69.38360	69.38360	60.33020	60.33020	60.07770	60.07770	69.38360	69.38360	60.33020	60.33020	60.33020	60.07770	60.07770
19	58.88450	58.88450	58.55780	58.55780	57.91410	57.91410	58.88450	58.88450	58.55780	58.55780	58.55780	57.91410	57.91410
20	55.31890	55.31890	56.91840	56.91840	56.64520	56.64520	55.31890	55.31890	56.91840	56.91840	56.91840	56.64520	56.64520
21	57.00790	57.00790	57.51680	57.51680	58.06080	58.06080	57.00790	57.00790	57.51680	57.51680	57.51680	58.06080	58.06080
22	55.10670	55.10670	58.74060	58.74060	61.56790	61.56790	55.10670	55.10670	58.74060	58.74060	58.74060	61.56790	61.56790
23	53.98280	53.98280	58.89930	58.89930	59.75560	59.75560	53.98280	53.98280	58.89930	58.89930	58.89930	59.75560	59.75560
24	57.35990	57.35990	60.79010	60.79010	63.49810	63.49810	57.35990	57.35990	60.79010	60.79010	60.79010	63.49810	63.49810

Table 23
Directional Split Factors by Period for Area Type 4 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	56.59160	56.59160	59.97490	59.97490	75.87070	75.87070	56.59160	56.59160	59.97490	59.97490	59.97490	75.87070	75.87070
2	56.36910	56.36910	59.75870	59.75870	74.40840	74.40840	56.36910	56.36910	59.75870	59.75870	59.75870	74.40840	74.40840
3	55.30040	55.30040	61.53710	61.53710	79.30230	79.30230	55.30040	55.30040	61.53710	61.53710	61.53710	79.30230	79.30230
4	54.17430	54.17430	63.48720	63.48720	73.98310	73.98310	54.17430	54.17430	63.48720	63.48720	63.48720	73.98310	73.98310
5	60.47800	60.47800	67.38310	67.38310	69.63330	69.63330	60.47800	60.47800	67.38310	67.38310	67.38310	69.63330	69.63330
6	64.72670	64.72670	71.15790	71.15790	75.38650	75.38650	64.72670	64.72670	71.15790	71.15790	71.15790	75.38650	75.38650
7	64.81190	64.81190	58.17040	58.17040	77.25600	77.25600	64.81190	64.81190	58.17040	58.17040	58.17040	77.25600	77.25600
8	61.25710	61.25710	56.38190	56.38190	65.87060	65.87060	61.25710	61.25710	56.38190	56.38190	56.38190	65.87060	65.87060
9	58.72470	58.72470	55.15700	55.15700	65.97560	65.97560	58.72470	58.72470	55.15700	55.15700	55.15700	65.97560	65.97560
10	56.44670	56.44670	54.40530	54.40530	64.27310	64.27310	56.44670	56.44670	54.40530	54.40530	54.40530	64.27310	64.27310
11	54.17740	54.17740	53.57970	53.57970	60.55200	60.55200	54.17740	54.17740	53.57970	53.57970	53.57970	60.55200	60.55200
12	52.00020	52.00020	52.52930	52.52930	60.90190	60.90190	52.00020	52.00020	52.52930	52.52930	52.52930	60.90190	60.90190
13	51.60200	51.60200	52.55630	52.55630	58.11410	58.11410	51.60200	51.60200	52.55630	52.55630	52.55630	58.11410	58.11410
14	51.36340	51.36340	53.36160	53.36160	59.17030	59.17030	51.36340	51.36340	53.36160	53.36160	53.36160	59.17030	59.17030
15	52.50920	52.50920	53.18980	53.18980	59.71810	59.71810	52.50920	52.50920	53.18980	53.18980	53.18980	59.71810	59.71810
16	54.77510	54.77510	55.40890	55.40890	55.10250	55.10250	54.77510	54.77510	55.40890	55.40890	55.40890	55.10250	55.10250
17	56.19180	56.19180	55.14910	55.14910	56.66530	56.66530	56.19180	56.19180	55.14910	55.14910	55.14910	56.66530	56.66530
18	56.48830	56.48830	56.78330	56.78330	60.07770	60.07770	56.48830	56.48830	56.78330	56.78330	56.78330	60.07770	60.07770
19	56.09840	56.09840	56.24190	56.24190	57.91410	57.91410	56.09840	56.09840	56.24190	56.24190	56.24190	57.91410	57.91410
20	55.84830	55.84830	54.38120	54.38120	56.64520	56.64520	55.84830	55.84830	54.38120	54.38120	54.38120	56.64520	56.64520
21	57.43050	57.43050	56.25390	56.25390	58.06080	58.06080	57.43050	57.43050	56.25390	56.25390	56.25390	58.06080	58.06080
22	57.71440	57.71440	56.17140	56.17140	61.56790	61.56790	57.71440	57.71440	56.17140	56.17140	56.17140	61.56790	61.56790
23	55.89740	55.89740	57.46400	57.46400	59.75560	59.75560	55.89740	55.89740	57.46400	57.46400	57.46400	59.75560	59.75560
24	56.54920	56.54920	58.01130	58.01130	63.49810	63.49810	56.54920	56.54920	58.01130	58.01130	58.01130	63.49810	63.49810

Table 24
Directional Split Factors by Period for Area Type 5 (weekdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	66.26050	66.26050	66.26050	66.26050	66.66240	66.66240	66.26050	66.26050	66.26050	66.26050	66.26050	66.66240	66.66240
2	62.94880	62.94880	62.94880	62.94880	63.96040	63.96040	62.94880	62.94880	62.94880	62.94880	62.94880	63.96040	63.96040
3	61.55550	61.55550	61.55550	61.55550	68.38000	68.38000	61.55550	61.55550	61.55550	61.55550	61.55550	68.38000	68.38000
4	60.40700	60.40700	60.40700	60.40700	67.23130	67.23130	60.40700	60.40700	60.40700	60.40700	60.40700	67.23130	67.23130
5	66.56860	66.56860	66.56860	66.56860	70.38720	70.38720	66.56860	66.56860	66.56860	66.56860	66.56860	70.38720	70.38720
6	67.50410	67.50410	67.50410	67.50410	70.53380	70.53380	67.50410	67.50410	67.50410	67.50410	67.50410	70.53380	70.53380
7	64.96990	64.96990	64.96990	64.96990	67.54770	67.54770	64.96990	64.96990	64.96990	64.96990	64.96990	67.54770	67.54770
8	61.73610	61.73610	61.73610	61.73610	65.57410	65.57410	61.73610	61.73610	61.73610	61.73610	61.73610	65.57410	65.57410
9	59.70730	59.70730	59.70730	59.70730	61.92110	61.92110	59.70730	59.70730	59.70730	59.70730	59.70730	61.92110	61.92110
10	57.46820	57.46820	57.46820	57.46820	61.65020	61.65020	57.46820	57.46820	57.46820	57.46820	57.46820	61.65020	61.65020
11	56.43390	56.43390	56.43390	56.43390	59.58490	59.58490	56.43390	56.43390	56.43390	56.43390	56.43390	59.58490	59.58490
12	55.67710	55.67710	55.67710	55.67710	59.34490	59.34490	55.67710	55.67710	55.67710	55.67710	55.67710	59.34490	59.34490
13	55.31080	55.31080	55.31080	55.31080	60.17820	60.17820	55.31080	55.31080	55.31080	55.31080	55.31080	60.17820	60.17820
14	54.78790	54.78790	54.78790	54.78790	59.23490	59.23490	54.78790	54.78790	54.78790	54.78790	54.78790	59.23490	59.23490
15	54.31620	54.31620	54.31620	54.31620	57.07360	57.07360	54.31620	54.31620	54.31620	54.31620	54.31620	57.07360	57.07360
16	55.54800	55.54800	55.54800	55.54800	54.45970	54.45970	55.54800	55.54800	55.54800	55.54800	55.54800	54.45970	54.45970
17	56.42730	56.42730	56.42730	56.42730	55.36670	55.36670	56.42730	56.42730	56.42730	56.42730	56.42730	55.36670	55.36670
18	58.00540	58.00540	58.00540	58.00540	57.38310	57.38310	58.00540	58.00540	58.00540	58.00540	58.00540	57.38310	57.38310
19	58.30010	58.30010	58.30010	58.30010	56.28080	56.28080	58.30010	58.30010	58.30010	58.30010	58.30010	56.28080	56.28080
20	55.69660	55.69660	55.69660	55.69660	54.55360	54.55360	55.69660	55.69660	55.69660	55.69660	55.69660	54.55360	54.55360
21	57.62300	57.62300	57.62300	57.62300	55.91980	55.91980	57.62300	57.62300	57.62300	57.62300	57.62300	55.91980	55.91980
22	58.99440	58.99440	58.99440	58.99440	55.64030	55.64030	58.99440	58.99440	58.99440	58.99440	58.99440	55.64030	55.64030
23	60.76490	60.76490	60.76490	60.76490	55.72510	55.72510	60.76490	60.76490	60.76490	60.76490	60.76490	55.72510	55.72510
24	64.60540	64.60540	64.60540	64.60540	58.80610	58.80610	64.60540	64.60540	64.60540	64.60540	64.60540	58.80610	58.80610

Table 25
Directional Split Factors by Period for Area Type 1 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.26750	52.26750	59.41900	59.41900	63.25810	63.25810	52.26750	52.26750	59.41900	59.41900	59.41900	63.25810	63.25810
2	52.94170	52.94170	61.13930	61.13930	69.42240	69.42240	52.94170	52.94170	61.13930	61.13930	61.13930	69.42240	69.42240
3	53.26560	53.26560	60.36390	60.36390	70.36360	70.36360	53.26560	53.26560	60.36390	60.36390	60.36390	70.36360	70.36360
4	53.00920	53.00920	58.51850	58.51850	64.24240	64.24240	53.00920	53.00920	58.51850	58.51850	58.51850	64.24240	64.24240
5	53.71400	53.71400	59.55450	59.55450	65.19290	65.19290	53.71400	53.71400	59.55450	59.55450	59.55450	65.19290	65.19290
6	54.80270	54.80270	63.07480	63.07480	80.89190	80.89190	54.80270	54.80270	63.07480	63.07480	63.07480	80.89190	80.89190
7	54.45500	54.45500	63.50210	63.50210	73.62390	73.62390	54.45500	54.45500	63.50210	63.50210	63.50210	73.62390	73.62390
8	53.71920	53.71920	63.02900	63.02900	69.20830	69.20830	53.71920	53.71920	63.02900	63.02900	63.02900	69.20830	69.20830
9	52.89950	52.89950	59.52510	59.52510	62.30060	62.30060	52.89950	52.89950	59.52510	59.52510	59.52510	62.30060	62.30060
10	51.93470	51.93470	55.69640	55.69640	61.45090	61.45090	51.93470	51.93470	55.69640	55.69640	55.69640	61.45090	61.45090
11	51.54590	51.54590	53.77960	53.77960	55.43420	55.43420	51.54590	51.54590	53.77960	53.77960	53.77960	55.43420	55.43420
12	51.47940	51.47940	55.32420	55.32420	56.61970	56.61970	51.47940	51.47940	55.32420	55.32420	55.32420	56.61970	56.61970
13	51.14720	51.14720	53.56230	53.56230	55.33410	55.33410	51.14720	51.14720	53.56230	53.56230	53.56230	55.33410	55.33410
14	51.09640	51.09640	54.12650	54.12650	55.00180	55.00180	51.09640	51.09640	54.12650	54.12650	54.12650	55.00180	55.00180
15	51.48300	51.48300	55.53970	55.53970	56.34850	56.34850	51.48300	51.48300	55.53970	55.53970	55.53970	56.34850	56.34850
16	52.40340	52.40340	57.48720	57.48720	55.81820	55.81820	52.40340	52.40340	57.48720	57.48720	57.48720	55.81820	55.81820
17	52.41700	52.41700	59.40510	59.40510	56.06040	56.06040	52.41700	52.41700	59.40510	59.40510	59.40510	56.06040	56.06040
18	52.67610	52.67610	60.36240	60.36240	58.66950	58.66950	52.67610	52.67610	60.36240	60.36240	60.36240	58.66950	58.66950
19	51.94770	51.94770	58.55980	58.55980	56.93910	56.93910	51.94770	51.94770	58.55980	58.55980	58.55980	56.93910	56.93910
20	51.58160	51.58160	57.70690	57.70690	58.59060	58.59060	51.58160	51.58160	57.70690	57.70690	57.70690	58.59060	58.59060
21	51.96610	51.96610	58.56550	58.56550	58.22890	58.22890	51.96610	51.96610	58.56550	58.56550	58.56550	58.22890	58.22890
22	51.93420	51.93420	60.54440	60.54440	59.49130	59.49130	51.93420	51.93420	60.54440	60.54440	60.54440	59.49130	59.49130
23	52.49020	52.49020	63.28300	63.28300	56.32020	56.32020	52.49020	52.49020	63.28300	63.28300	63.28300	56.32020	56.32020
24	52.51030	52.51030	62.95040	62.95040	56.53060	56.53060	52.51030	52.51030	62.95040	62.95040	62.95040	56.53060	56.53060

Table 26
Directional Split Factors by Period for Area Type 2 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.26750	52.26750	59.41900	59.41900	63.25810	63.25810	52.26750	52.26750	59.41900	59.41900	59.41900	63.25810	63.25810
2	52.94170	52.94170	61.13930	61.13930	69.42240	69.42240	52.94170	52.94170	61.13930	61.13930	61.13930	69.42240	69.42240
3	53.26560	53.26560	60.36390	60.36390	70.36360	70.36360	53.26560	53.26560	60.36390	60.36390	60.36390	70.36360	70.36360
4	53.00920	53.00920	58.51850	58.51850	64.24240	64.24240	53.00920	53.00920	58.51850	58.51850	58.51850	64.24240	64.24240
5	53.71400	53.71400	59.55450	59.55450	65.19290	65.19290	53.71400	53.71400	59.55450	59.55450	59.55450	65.19290	65.19290
6	54.80270	54.80270	63.07480	63.07480	80.89190	80.89190	54.80270	54.80270	63.07480	63.07480	63.07480	80.89190	80.89190
7	54.45500	54.45500	63.50210	63.50210	73.62390	73.62390	54.45500	54.45500	63.50210	63.50210	63.50210	73.62390	73.62390
8	53.71920	53.71920	63.02900	63.02900	69.20830	69.20830	53.71920	53.71920	63.02900	63.02900	63.02900	69.20830	69.20830
9	52.89950	52.89950	59.52510	59.52510	62.30060	62.30060	52.89950	52.89950	59.52510	59.52510	59.52510	62.30060	62.30060
10	51.93470	51.93470	55.69640	55.69640	61.45090	61.45090	51.93470	51.93470	55.69640	55.69640	55.69640	61.45090	61.45090
11	51.54590	51.54590	53.77960	53.77960	55.43420	55.43420	51.54590	51.54590	53.77960	53.77960	53.77960	55.43420	55.43420
12	51.47940	51.47940	55.32420	55.32420	56.61970	56.61970	51.47940	51.47940	55.32420	55.32420	55.32420	56.61970	56.61970
13	51.14720	51.14720	53.56230	53.56230	55.33410	55.33410	51.14720	51.14720	53.56230	53.56230	53.56230	55.33410	55.33410
14	51.09640	51.09640	54.12650	54.12650	55.00180	55.00180	51.09640	51.09640	54.12650	54.12650	54.12650	55.00180	55.00180
15	51.48300	51.48300	55.53970	55.53970	56.34850	56.34850	51.48300	51.48300	55.53970	55.53970	55.53970	56.34850	56.34850
16	52.40340	52.40340	57.48720	57.48720	55.81820	55.81820	52.40340	52.40340	57.48720	57.48720	57.48720	55.81820	55.81820
17	52.41700	52.41700	59.40510	59.40510	56.06040	56.06040	52.41700	52.41700	59.40510	59.40510	59.40510	56.06040	56.06040
18	52.67610	52.67610	60.36240	60.36240	58.66950	58.66950	52.67610	52.67610	60.36240	60.36240	60.36240	58.66950	58.66950
19	51.94770	51.94770	58.55980	58.55980	56.93910	56.93910	51.94770	51.94770	58.55980	58.55980	58.55980	56.93910	56.93910
20	51.58160	51.58160	57.70690	57.70690	58.59060	58.59060	51.58160	51.58160	57.70690	57.70690	57.70690	58.59060	58.59060
21	51.96610	51.96610	58.56550	58.56550	58.22890	58.22890	51.96610	51.96610	58.56550	58.56550	58.56550	58.22890	58.22890
22	51.93420	51.93420	60.54440	60.54440	59.49130	59.49130	51.93420	51.93420	60.54440	60.54440	60.54440	59.49130	59.49130
23	52.49020	52.49020	63.28300	63.28300	56.32020	56.32020	52.49020	52.49020	63.28300	63.28300	63.28300	56.32020	56.32020
24	52.51030	52.51030	62.95040	62.95040	56.53060	56.53060	52.51030	52.51030	62.95040	62.95040	62.95040	56.53060	56.53060

Table 27
Directional Split Factors by Period for Area Type 3 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	54.92580	54.92580	62.01330	62.01330	63.25810	63.25810	54.92580	54.92580	62.01330	62.01330	62.01330	63.25810	63.25810
2	55.65150	55.65150	61.48380	61.48380	69.42240	69.42240	55.65150	55.65150	61.48380	61.48380	61.48380	69.42240	69.42240
3	54.19900	54.19900	62.66770	62.66770	70.36360	70.36360	54.19900	54.19900	62.66770	62.66770	62.66770	70.36360	70.36360
4	54.98290	54.98290	60.54600	60.54600	64.24240	64.24240	54.98290	54.98290	60.54600	60.54600	60.54600	64.24240	64.24240
5	54.89250	54.89250	61.31720	61.31720	65.19290	65.19290	54.89250	54.89250	61.31720	61.31720	61.31720	65.19290	65.19290
6	61.92050	61.92050	66.19330	66.19330	80.89190	80.89190	61.92050	61.92050	66.19330	66.19330	66.19330	80.89190	80.89190
7	68.31940	68.31940	68.24650	68.24650	73.62390	73.62390	68.31940	68.31940	68.24650	68.24650	68.24650	73.62390	73.62390
8	74.55710	74.55710	66.60420	66.60420	69.20830	69.20830	74.55710	74.55710	66.60420	66.60420	66.60420	69.20830	69.20830
9	67.83540	67.83540	62.16290	62.16290	62.30060	62.30060	67.83540	67.83540	62.16290	62.16290	62.16290	62.30060	62.30060
10	58.24310	58.24310	58.29890	58.29890	61.45090	61.45090	58.24310	58.24310	58.29890	58.29890	58.29890	61.45090	61.45090
11	55.84470	55.84470	55.71460	55.71460	55.43420	55.43420	55.84470	55.84470	55.71460	55.71460	55.71460	55.43420	55.43420
12	55.06030	55.06030	55.93060	55.93060	56.61970	56.61970	55.06030	55.06030	55.93060	55.93060	55.93060	56.61970	56.61970
13	52.65850	52.65850	56.09230	56.09230	55.33410	55.33410	52.65850	52.65850	56.09230	56.09230	56.09230	55.33410	55.33410
14	51.27540	51.27540	56.31480	56.31480	55.00180	55.00180	51.27540	51.27540	56.31480	56.31480	56.31480	55.00180	55.00180
15	52.80310	52.80310	56.14690	56.14690	56.34850	56.34850	52.80310	52.80310	56.14690	56.14690	56.14690	56.34850	56.34850
16	59.13320	59.13320	57.53880	57.53880	55.81820	55.81820	59.13320	59.13320	57.53880	57.53880	57.53880	55.81820	55.81820
17	62.07100	62.07100	59.36190	59.36190	56.06040	56.06040	62.07100	62.07100	59.36190	59.36190	59.36190	56.06040	56.06040
18	64.80150	64.80150	60.65560	60.65560	58.66950	58.66950	64.80150	64.80150	60.65560	60.65560	60.65560	58.66950	58.66950
19	53.55630	53.55630	58.10750	58.10750	56.93910	56.93910	53.55630	53.55630	58.10750	58.10750	58.10750	56.93910	56.93910
20	54.62040	54.62040	56.54450	56.54450	58.59060	58.59060	54.62040	54.62040	56.54450	56.54450	56.54450	58.59060	58.59060
21	54.46140	54.46140	56.79260	56.79260	58.22890	58.22890	54.46140	54.46140	56.79260	56.79260	56.79260	58.22890	58.22890
22	54.56360	54.56360	57.70640	57.70640	59.49130	59.49130	54.56360	54.56360	57.70640	57.70640	57.70640	59.49130	59.49130
23	55.00400	55.00400	58.14160	58.14160	56.32020	56.32020	55.00400	55.00400	58.14160	58.14160	58.14160	56.32020	56.32020
24	53.23030	53.23030	60.33100	60.33100	56.53060	56.53060	53.23030	53.23030	60.33100	60.33100	60.33100	56.53060	56.53060

Table 28
Directional Split Factors by Period for Area Type 4 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	55.19630	55.19630	61.68400	61.68400	63.25810	63.25810	55.19630	55.19630	61.68400	61.68400	61.68400	63.25810	63.25810
2	55.10640	55.10640	59.21330	59.21330	69.42240	69.42240	55.10640	55.10640	59.21330	59.21330	59.21330	69.42240	69.42240
3	54.18350	54.18350	61.89160	61.89160	70.36360	70.36360	54.18350	54.18350	61.89160	61.89160	61.89160	70.36360	70.36360
4	53.93910	53.93910	60.42680	60.42680	64.24240	64.24240	53.93910	53.93910	60.42680	60.42680	60.42680	64.24240	64.24240
5	58.78680	58.78680	65.51410	65.51410	65.19290	65.19290	58.78680	58.78680	65.51410	65.51410	65.51410	65.19290	65.19290
6	63.92400	63.92400	71.92310	71.92310	80.89190	80.89190	63.92400	63.92400	71.92310	71.92310	71.92310	80.89190	80.89190
7	64.23420	64.23420	58.83940	58.83940	73.62390	73.62390	64.23420	64.23420	58.83940	58.83940	58.83940	73.62390	73.62390
8	60.88680	60.88680	56.01580	56.01580	69.20830	69.20830	60.88680	60.88680	56.01580	56.01580	56.01580	69.20830	69.20830
9	57.41000	57.41000	53.32040	53.32040	62.30060	62.30060	57.41000	57.41000	53.32040	53.32040	53.32040	62.30060	62.30060
10	54.60590	54.60590	52.65750	52.65750	61.45090	61.45090	54.60590	54.60590	52.65750	52.65750	52.65750	61.45090	61.45090
11	52.49290	52.49290	52.69600	52.69600	55.43420	55.43420	52.49290	52.49290	52.69600	52.69600	52.69600	55.43420	55.43420
12	51.38560	51.38560	51.88530	51.88530	56.61970	56.61970	51.38560	51.38560	51.88530	51.88530	51.88530	56.61970	56.61970
13	51.98270	51.98270	52.38670	52.38670	55.33410	55.33410	51.98270	51.98270	52.38670	52.38670	52.38670	55.33410	55.33410
14	52.33400	52.33400	52.02960	52.02960	55.00180	55.00180	52.33400	52.33400	52.02960	52.02960	52.02960	55.00180	55.00180
15	52.86810	52.86810	53.30720	53.30720	56.34850	56.34850	52.86810	52.86810	53.30720	53.30720	53.30720	56.34850	56.34850
16	53.89500	53.89500	54.84460	54.84460	55.81820	55.81820	53.89500	53.89500	54.84460	54.84460	54.84460	55.81820	55.81820
17	55.06670	55.06670	53.69140	53.69140	56.06040	56.06040	55.06670	55.06670	53.69140	53.69140	53.69140	56.06040	56.06040
18	54.98800	54.98800	54.79080	54.79080	58.66950	58.66950	54.98800	54.98800	54.79080	54.79080	54.79080	58.66950	58.66950
19	54.03310	54.03310	55.55490	55.55490	56.93910	56.93910	54.03310	54.03310	55.55490	55.55490	55.55490	56.93910	56.93910
20	54.00310	54.00310	53.90940	53.90940	58.59060	58.59060	54.00310	54.00310	53.90940	53.90940	53.90940	58.59060	58.59060
21	53.75880	53.75880	52.98070	52.98070	58.22890	58.22890	53.75880	53.75880	52.98070	52.98070	52.98070	58.22890	58.22890
22	55.28630	55.28630	52.44080	52.44080	59.49130	59.49130	55.28630	55.28630	52.44080	52.44080	52.44080	59.49130	59.49130
23	52.60190	52.60190	53.99000	53.99000	56.32020	56.32020	52.60190	52.60190	53.99000	53.99000	53.99000	56.32020	56.32020
24	56.17730	56.17730	55.98070	55.98070	56.53060	56.53060	56.17730	56.17730	55.98070	55.98070	55.98070	56.53060	56.53060

Table 29
Directional Split Factors by Period for Area Type 5 (Fridays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	63.28330	63.28330	63.28330	63.28330	60.10020	60.10020	63.28330	63.28330	63.28330	63.28330	63.28330	60.10020	60.10020
2	60.60610	60.60610	60.60610	60.60610	62.08470	62.08470	60.60610	60.60610	60.60610	60.60610	60.60610	62.08470	62.08470
3	58.93470	58.93470	58.93470	58.93470	60.46280	60.46280	58.93470	58.93470	58.93470	58.93470	58.93470	60.46280	60.46280
4	57.75140	57.75140	57.75140	57.75140	70.85650	70.85650	57.75140	57.75140	57.75140	57.75140	57.75140	70.85650	70.85650
5	62.78530	62.78530	62.78530	62.78530	63.02430	63.02430	62.78530	62.78530	62.78530	62.78530	62.78530	63.02430	63.02430
6	68.66640	68.66640	68.66640	68.66640	72.08810	72.08810	68.66640	68.66640	68.66640	68.66640	68.66640	72.08810	72.08810
7	63.92530	63.92530	63.92530	63.92530	65.10450	65.10450	63.92530	63.92530	63.92530	63.92530	63.92530	65.10450	65.10450
8	61.51330	61.51330	61.51330	61.51330	64.86290	64.86290	61.51330	61.51330	61.51330	61.51330	61.51330	64.86290	64.86290
9	58.95930	58.95930	58.95930	58.95930	60.31740	60.31740	58.95930	58.95930	58.95930	58.95930	58.95930	60.31740	60.31740
10	56.47990	56.47990	56.47990	56.47990	60.01930	60.01930	56.47990	56.47990	56.47990	56.47990	56.47990	60.01930	60.01930
11	55.13540	55.13540	55.13540	55.13540	56.18230	56.18230	55.13540	55.13540	55.13540	55.13540	55.13540	56.18230	56.18230
12	53.95170	53.95170	53.95170	53.95170	55.15460	55.15460	53.95170	53.95170	53.95170	53.95170	53.95170	55.15460	55.15460
13	53.18160	53.18160	53.18160	53.18160	54.98250	54.98250	53.18160	53.18160	53.18160	53.18160	53.18160	54.98250	54.98250
14	53.61440	53.61440	53.61440	53.61440	55.53350	55.53350	53.61440	53.61440	53.61440	53.61440	53.61440	55.53350	55.53350
15	53.96000	53.96000	53.96000	53.96000	57.63510	57.63510	53.96000	53.96000	53.96000	53.96000	53.96000	57.63510	57.63510
16	55.78800	55.78800	55.78800	55.78800	56.03840	56.03840	55.78800	55.78800	55.78800	55.78800	55.78800	56.03840	56.03840
17	55.80110	55.80110	55.80110	55.80110	55.82650	55.82650	55.80110	55.80110	55.80110	55.80110	55.80110	55.82650	55.82650
18	56.41470	56.41470	56.41470	56.41470	56.04470	56.04470	56.41470	56.41470	56.41470	56.41470	56.41470	56.04470	56.04470
19	55.94040	55.94040	55.94040	55.94040	55.35100	55.35100	55.94040	55.94040	55.94040	55.94040	55.94040	55.35100	55.35100
20	56.50710	56.50710	56.50710	56.50710	54.92270	54.92270	56.50710	56.50710	56.50710	56.50710	56.50710	54.92270	54.92270
21	58.69300	58.69300	58.69300	58.69300	55.20420	55.20420	58.69300	58.69300	58.69300	58.69300	58.69300	55.20420	55.20420
22	59.85910	59.85910	59.85910	59.85910	55.02410	55.02410	59.85910	59.85910	59.85910	59.85910	59.85910	55.02410	55.02410
23	62.38470	62.38470	62.38470	62.38470	53.70920	53.70920	62.38470	62.38470	62.38470	62.38470	62.38470	53.70920	53.70920
24	66.84900	66.84900	66.84900	66.84900	56.45560	56.45560	66.84900	66.84900	66.84900	66.84900	66.84900	56.45560	56.45560

Table 30
Directional Split Factors by Period for Area Type 1 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.35040	52.35040	61.34210	61.34210	58.67120	58.67120	52.35040	52.35040	61.34210	61.34210	61.34210	58.67120	58.67120
2	52.81720	52.81720	61.17400	61.17400	61.40920	61.40920	52.81720	52.81720	61.17400	61.17400	61.17400	61.40920	61.40920
3	53.27660	53.27660	63.09160	63.09160	67.10720	67.10720	53.27660	53.27660	63.09160	63.09160	63.09160	67.10720	67.10720
4	52.76970	52.76970	61.05100	61.05100	67.83870	67.83870	52.76970	52.76970	61.05100	61.05100	61.05100	67.83870	67.83870
5	52.82180	52.82180	60.81700	60.81700	71.77360	71.77360	52.82180	52.82180	60.81700	60.81700	60.81700	71.77360	71.77360
6	52.30510	52.30510	59.85850	59.85850	71.24400	71.24400	52.30510	52.30510	59.85850	59.85850	59.85850	71.24400	71.24400
7	53.58780	53.58780	60.07120	60.07120	68.81000	68.81000	53.58780	53.58780	60.07120	60.07120	60.07120	68.81000	68.81000
8	52.94020	52.94020	59.65130	59.65130	64.58080	64.58080	52.94020	52.94020	59.65130	59.65130	59.65130	64.58080	64.58080
9	52.66080	52.66080	57.70630	57.70630	58.74640	58.74640	52.66080	52.66080	57.70630	57.70630	57.70630	58.74640	58.74640
10	51.83930	51.83930	57.07020	57.07020	59.96260	59.96260	51.83930	51.83930	57.07020	57.07020	57.07020	59.96260	59.96260
11	52.52100	52.52100	56.02650	56.02650	54.14780	54.14780	52.52100	52.52100	56.02650	56.02650	56.02650	54.14780	54.14780
12	52.17530	52.17530	55.59100	55.59100	53.82570	53.82570	52.17530	52.17530	55.59100	55.59100	55.59100	53.82570	53.82570
13	51.69720	51.69720	55.29100	55.29100	53.74740	53.74740	51.69720	51.69720	55.29100	55.29100	55.29100	53.74740	53.74740
14	51.50170	51.50170	55.61110	55.61110	54.44600	54.44600	51.50170	51.50170	55.61110	55.61110	55.61110	54.44600	54.44600
15	51.17280	51.17280	56.95500	56.95500	53.29420	53.29420	51.17280	51.17280	56.95500	56.95500	56.95500	53.29420	53.29420
16	51.10640	51.10640	57.13780	57.13780	54.30000	54.30000	51.10640	51.10640	57.13780	57.13780	57.13780	54.30000	54.30000
17	51.23110	51.23110	56.84080	56.84080	56.45550	56.45550	51.23110	51.23110	56.84080	56.84080	56.84080	56.45550	56.45550
18	51.40190	51.40190	58.08030	58.08030	56.54870	56.54870	51.40190	51.40190	58.08030	58.08030	58.08030	56.54870	56.54870
19	51.41050	51.41050	58.49240	58.49240	57.44580	57.44580	51.41050	51.41050	58.49240	58.49240	58.49240	57.44580	57.44580
20	51.95440	51.95440	58.21200	58.21200	57.51260	57.51260	51.95440	51.95440	58.21200	58.21200	58.21200	57.51260	57.51260
21	52.09240	52.09240	58.30260	58.30260	55.96880	55.96880	52.09240	52.09240	58.30260	58.30260	58.30260	55.96880	55.96880
22	52.56170	52.56170	59.27590	59.27590	58.04590	58.04590	52.56170	52.56170	59.27590	59.27590	59.27590	58.04590	58.04590
23	53.09500	53.09500	60.42410	60.42410	56.49250	56.49250	53.09500	53.09500	60.42410	60.42410	60.42410	56.49250	56.49250
24	52.63650	52.63650	61.74370	61.74370	59.21460	59.21460	52.63650	52.63650	61.74370	61.74370	61.74370	59.21460	59.21460

Table 31
Directional Split Factors by Period for Area Type 2 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.35040	52.35040	61.34210	61.34210	58.67120	58.67120	52.35040	52.35040	61.34210	61.34210	61.34210	58.67120	58.67120
2	52.81720	52.81720	61.17400	61.17400	61.40920	61.40920	52.81720	52.81720	61.17400	61.17400	61.17400	61.40920	61.40920
3	53.27660	53.27660	63.09160	63.09160	67.10720	67.10720	53.27660	53.27660	63.09160	63.09160	63.09160	67.10720	67.10720
4	52.76970	52.76970	61.05100	61.05100	67.83870	67.83870	52.76970	52.76970	61.05100	61.05100	61.05100	67.83870	67.83870
5	52.82180	52.82180	60.81700	60.81700	71.77360	71.77360	52.82180	52.82180	60.81700	60.81700	60.81700	71.77360	71.77360
6	52.30510	52.30510	59.85850	59.85850	71.24400	71.24400	52.30510	52.30510	59.85850	59.85850	59.85850	71.24400	71.24400
7	53.58780	53.58780	60.07120	60.07120	68.81000	68.81000	53.58780	53.58780	60.07120	60.07120	60.07120	68.81000	68.81000
8	52.94020	52.94020	59.65130	59.65130	64.58080	64.58080	52.94020	52.94020	59.65130	59.65130	59.65130	64.58080	64.58080
9	52.66080	52.66080	57.70630	57.70630	58.74640	58.74640	52.66080	52.66080	57.70630	57.70630	57.70630	58.74640	58.74640
10	51.83930	51.83930	57.07020	57.07020	59.96260	59.96260	51.83930	51.83930	57.07020	57.07020	57.07020	59.96260	59.96260
11	52.52100	52.52100	56.02650	56.02650	54.14780	54.14780	52.52100	52.52100	56.02650	56.02650	56.02650	54.14780	54.14780
12	52.17530	52.17530	55.59100	55.59100	53.82570	53.82570	52.17530	52.17530	55.59100	55.59100	55.59100	53.82570	53.82570
13	51.69720	51.69720	55.29100	55.29100	53.74740	53.74740	51.69720	51.69720	55.29100	55.29100	55.29100	53.74740	53.74740
14	51.50170	51.50170	55.61110	55.61110	54.44600	54.44600	51.50170	51.50170	55.61110	55.61110	55.61110	54.44600	54.44600
15	51.17280	51.17280	56.95500	56.95500	53.29420	53.29420	51.17280	51.17280	56.95500	56.95500	56.95500	53.29420	53.29420
16	51.10640	51.10640	57.13780	57.13780	54.30000	54.30000	51.10640	51.10640	57.13780	57.13780	57.13780	54.30000	54.30000
17	51.23110	51.23110	56.84080	56.84080	56.45550	56.45550	51.23110	51.23110	56.84080	56.84080	56.84080	56.45550	56.45550
18	51.40190	51.40190	58.08030	58.08030	56.54870	56.54870	51.40190	51.40190	58.08030	58.08030	58.08030	56.54870	56.54870
19	51.41050	51.41050	58.49240	58.49240	57.44580	57.44580	51.41050	51.41050	58.49240	58.49240	58.49240	57.44580	57.44580
20	51.95440	51.95440	58.21200	58.21200	57.51260	57.51260	51.95440	51.95440	58.21200	58.21200	58.21200	57.51260	57.51260
21	52.09240	52.09240	58.30260	58.30260	55.96880	55.96880	52.09240	52.09240	58.30260	58.30260	58.30260	55.96880	55.96880
22	52.56170	52.56170	59.27590	59.27590	58.04590	58.04590	52.56170	52.56170	59.27590	59.27590	59.27590	58.04590	58.04590
23	53.09500	53.09500	60.42410	60.42410	56.49250	56.49250	53.09500	53.09500	60.42410	60.42410	60.42410	56.49250	56.49250
24	52.63650	52.63650	61.74370	61.74370	59.21460	59.21460	52.63650	52.63650	61.74370	61.74370	61.74370	59.21460	59.21460

Table 32
Directional Split Factors by Period for Area Type 3 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	52.69720	52.69720	60.43960	60.43960	58.67120	58.67120	52.69720	52.69720	60.43960	60.43960	60.43960	58.67120	58.67120
2	55.15290	55.15290	61.75460	61.75460	61.40920	61.40920	55.15290	55.15290	61.75460	61.75460	61.75460	61.40920	61.40920
3	57.73590	57.73590	63.48940	63.48940	67.10720	67.10720	57.73590	57.73590	63.48940	63.48940	63.48940	67.10720	67.10720
4	56.26770	56.26770	61.99110	61.99110	67.83870	67.83870	56.26770	56.26770	61.99110	61.99110	61.99110	67.83870	67.83870
5	53.75910	53.75910	60.43700	60.43700	71.77360	71.77360	53.75910	53.75910	60.43700	60.43700	60.43700	71.77360	71.77360
6	70.99830	70.99830	62.42860	62.42860	71.24400	71.24400	70.99830	70.99830	62.42860	62.42860	62.42860	71.24400	71.24400
7	69.20060	69.20060	62.35080	62.35080	68.81000	68.81000	69.20060	69.20060	62.35080	62.35080	62.35080	68.81000	68.81000
8	58.87750	58.87750	60.17740	60.17740	64.58080	64.58080	58.87750	58.87750	60.17740	60.17740	60.17740	64.58080	64.58080
9	61.20740	61.20740	59.55060	59.55060	58.74640	58.74640	61.20740	61.20740	59.55060	59.55060	59.55060	58.74640	58.74640
10	60.20170	60.20170	58.75600	58.75600	59.96260	59.96260	60.20170	60.20170	58.75600	58.75600	58.75600	59.96260	59.96260
11	62.15050	62.15050	57.95290	57.95290	54.14780	54.14780	62.15050	62.15050	57.95290	57.95290	57.95290	54.14780	54.14780
12	63.45040	63.45040	57.43950	57.43950	53.82570	53.82570	63.45040	63.45040	57.43950	57.43950	57.43950	53.82570	53.82570
13	61.41780	61.41780	56.11230	56.11230	53.74740	53.74740	61.41780	61.41780	56.11230	56.11230	56.11230	53.74740	53.74740
14	58.98730	58.98730	55.31680	55.31680	54.44600	54.44600	58.98730	58.98730	55.31680	55.31680	55.31680	54.44600	54.44600
15	55.00170	55.00170	55.64000	55.64000	53.29420	53.29420	55.00170	55.00170	55.64000	55.64000	55.64000	53.29420	53.29420
16	52.84180	52.84180	55.60120	55.60120	54.30000	54.30000	52.84180	52.84180	55.60120	55.60120	55.60120	54.30000	54.30000
17	56.44330	56.44330	55.51160	55.51160	56.45550	56.45550	56.44330	56.44330	55.51160	55.51160	55.51160	56.45550	56.45550
18	58.18780	58.18780	55.59750	55.59750	56.54870	56.54870	58.18780	58.18780	55.59750	55.59750	55.59750	56.54870	56.54870
19	56.96630	56.96630	55.29400	55.29400	57.44580	57.44580	56.96630	56.96630	55.29400	55.29400	55.29400	57.44580	57.44580
20	55.67910	55.67910	55.34910	55.34910	57.51260	57.51260	55.67910	55.67910	55.34910	55.34910	55.34910	57.51260	57.51260
21	59.16850	59.16850	55.84450	55.84450	55.96880	55.96880	59.16850	59.16850	55.84450	55.84450	55.84450	55.96880	55.96880
22	59.00420	59.00420	56.08550	56.08550	58.04590	58.04590	59.00420	59.00420	56.08550	56.08550	56.08550	58.04590	58.04590
23	57.72080	57.72080	57.37640	57.37640	56.49250	56.49250	57.72080	57.72080	57.37640	57.37640	57.37640	56.49250	56.49250
24	61.75820	61.75820	57.85900	57.85900	59.21460	59.21460	61.75820	61.75820	57.85900	57.85900	57.85900	59.21460	59.21460

Table 33
Directional Split Factors by Period for Area Type 4 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	54.13640	54.13640	57.87290	57.87290	58.67120	58.67120	54.13640	54.13640	57.87290	57.87290	57.87290	58.67120	58.67120
2	55.25500	55.25500	59.39690	59.39690	61.40920	61.40920	55.25500	55.25500	59.39690	59.39690	59.39690	61.40920	61.40920
3	55.93980	55.93980	62.52500	62.52500	67.10720	67.10720	55.93980	55.93980	62.52500	62.52500	62.52500	67.10720	67.10720
4	53.34500	53.34500	58.66810	58.66810	67.83870	67.83870	53.34500	53.34500	58.66810	58.66810	58.66810	67.83870	67.83870
5	54.00700	54.00700	56.00970	56.00970	71.77360	71.77360	54.00700	54.00700	56.00970	56.00970	56.00970	71.77360	71.77360
6	57.49820	57.49820	59.29080	59.29080	71.24400	71.24400	57.49820	57.49820	59.29080	59.29080	59.29080	71.24400	71.24400
7	54.47910	54.47910	55.24080	55.24080	68.81000	68.81000	54.47910	54.47910	55.24080	55.24080	55.24080	68.81000	68.81000
8	56.40760	56.40760	57.68520	57.68520	64.58080	64.58080	56.40760	56.40760	57.68520	57.68520	57.68520	64.58080	64.58080
9	54.05090	54.05090	57.10370	57.10370	58.74640	58.74640	54.05090	54.05090	57.10370	57.10370	57.10370	58.74640	58.74640
10	52.07630	52.07630	55.18570	55.18570	59.96260	59.96260	52.07630	52.07630	55.18570	55.18570	55.18570	59.96260	59.96260
11	52.26400	52.26400	54.58870	54.58870	54.14780	54.14780	52.26400	52.26400	54.58870	54.58870	54.58870	54.14780	54.14780
12	51.96140	51.96140	53.40170	53.40170	53.82570	53.82570	51.96140	51.96140	53.40170	53.40170	53.40170	53.82570	53.82570
13	51.60580	51.60580	53.01530	53.01530	53.74740	53.74740	51.60580	51.60580	53.01530	53.01530	53.01530	53.74740	53.74740
14	51.63900	51.63900	53.06480	53.06480	54.44600	54.44600	51.63900	51.63900	53.06480	53.06480	53.06480	54.44600	54.44600
15	51.11420	51.11420	52.62640	52.62640	53.29420	53.29420	51.11420	51.11420	52.62640	52.62640	52.62640	53.29420	53.29420
16	51.60670	51.60670	53.18960	53.18960	54.30000	54.30000	51.60670	51.60670	53.18960	53.18960	53.18960	54.30000	54.30000
17	51.59440	51.59440	52.85120	52.85120	56.45550	56.45550	51.59440	51.59440	52.85120	52.85120	52.85120	56.45550	56.45550
18	51.64730	51.64730	52.73580	52.73580	56.54870	56.54870	51.64730	51.64730	52.73580	52.73580	52.73580	56.54870	56.54870
19	52.62380	52.62380	54.12800	54.12800	57.44580	57.44580	52.62380	52.62380	54.12800	54.12800	54.12800	57.44580	57.44580
20	53.07790	53.07790	53.81830	53.81830	57.51260	57.51260	53.07790	53.07790	53.81830	53.81830	53.81830	57.51260	57.51260
21	54.03220	54.03220	54.66610	54.66610	55.96880	55.96880	54.03220	54.03220	54.66610	54.66610	54.66610	55.96880	55.96880
22	55.25580	55.25580	54.32350	54.32350	58.04590	58.04590	55.25580	55.25580	54.32350	54.32350	54.32350	58.04590	58.04590
23	53.73670	53.73670	54.53010	54.53010	56.49250	56.49250	53.73670	53.73670	54.53010	54.53010	54.53010	56.49250	56.49250
24	55.53430	55.53430	55.41510	55.41510	59.21460	59.21460	55.53430	55.53430	55.41510	55.41510	55.41510	59.21460	59.21460

Table 34
Directional Split Factors by Period for Area Type 5 (Saturdays)

Time Period	Locals	Urban Interstate	Urban Other Interstate	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Locals	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector
1	67.46580	67.46580	67.46580	67.46580	56.28820	56.28820	67.46580	67.46580	67.46580	67.46580	67.46580	56.28820	56.28820
2	64.36080	64.36080	64.36080	64.36080	55.64520	55.64520	64.36080	64.36080	64.36080	64.36080	64.36080	55.64520	55.64520
3	63.66980	63.66980	63.66980	63.66980	56.60280	56.60280	63.66980	63.66980	63.66980	63.66980	63.66980	56.60280	56.60280
4	60.53280	60.53280	60.53280	60.53280	55.85380	55.85380	60.53280	60.53280	60.53280	60.53280	60.53280	55.85380	55.85380
5	59.66470	59.66470	59.66470	59.66470	58.10250	58.10250	59.66470	59.66470	59.66470	59.66470	59.66470	58.10250	58.10250
6	66.31440	66.31440	66.31440	66.31440	69.04810	69.04810	66.31440	66.31440	66.31440	66.31440	66.31440	69.04810	69.04810
7	57.33700	57.33700	57.33700	57.33700	61.06190	61.06190	57.33700	57.33700	57.33700	57.33700	57.33700	61.06190	61.06190
8	54.09250	54.09250	54.09250	54.09250	57.19000	57.19000	54.09250	54.09250	54.09250	54.09250	54.09250	57.19000	57.19000
9	54.22470	54.22470	54.22470	54.22470	59.48790	59.48790	54.22470	54.22470	54.22470	54.22470	54.22470	59.48790	59.48790
10	54.33490	54.33490	54.33490	54.33490	58.48120	58.48120	54.33490	54.33490	54.33490	54.33490	54.33490	58.48120	58.48120
11	54.69120	54.69120	54.69120	54.69120	54.29510	54.29510	54.69120	54.69120	54.69120	54.69120	54.69120	54.29510	54.29510
12	54.07130	54.07130	54.07130	54.07130	55.23250	55.23250	54.07130	54.07130	54.07130	54.07130	54.07130	55.23250	55.23250
13	54.06080	54.06080	54.06080	54.06080	55.31870	55.31870	54.06080	54.06080	54.06080	54.06080	54.06080	55.31870	55.31870
14	53.30920	53.30920	53.30920	53.30920	55.02820	55.02820	53.30920	53.30920	53.30920	53.30920	53.30920	55.02820	55.02820
15	52.82700	52.82700	52.82700	52.82700	55.89810	55.89810	52.82700	52.82700	52.82700	52.82700	52.82700	55.89810	55.89810
16	53.19890	53.19890	53.19890	53.19890	57.16920	57.16920	53.19890	53.19890	53.19890	53.19890	53.19890	57.16920	57.16920
17	53.54280	53.54280	53.54280	53.54280	56.28700	56.28700	53.54280	53.54280	53.54280	53.54280	53.54280	56.28700	56.28700
18	53.40530	53.40530	53.40530	53.40530	56.85040	56.85040	53.40530	53.40530	53.40530	53.40530	53.40530	56.85040	56.85040
19	53.62230	53.62230	53.62230	53.62230	57.04290	57.04290	53.62230	53.62230	53.62230	53.62230	53.62230	57.04290	57.04290
20	53.76590	53.76590	53.76590	53.76590	56.29980	56.29980	53.76590	53.76590	53.76590	53.76590	53.76590	56.29980	56.29980
21	54.36960	54.36960	54.36960	54.36960	55.05180	55.05180	54.36960	54.36960	54.36960	54.36960	54.36960	55.05180	55.05180
22	55.00930	55.00930	55.00930	55.00930	56.11320	56.11320	55.00930	55.00930	55.00930	55.00930	55.00930	56.11320	56.11320
23	55.80540	55.80540	55.80540	55.80540	55.71290	55.71290	55.80540	55.80540	55.80540	55.80540	55.80540	55.71290	55.71290
24	60.18350	60.18350	60.18350	60.18350	56.28690	56.28690	60.18350	60.18350	60.18350	60.18350	60.18350	56.28690	56.28690

TIME-OF-DAY CAPACITY FACTORS

The 24-hour capacity restraint assignments were performed using nondirectional 24-hour capacities. The nondirectional capacities, which are included in the assignment data set, are input to PREPIN. User-supplied time-of-day capacity factors were applied to the nondirectional capacity (or service volume) for the subject time period. In computing the directional V/C ratio for estimating the directional speeds, PREPIN assumes the directional split for capacity to be 50-50.

The HGAC networks use 13 classifications. In order to facilitate the Extended SRF HGAC speed models, the functional classifications were aggregated to five functional groups. The five functional groups and their corresponding functions are shown in Table 35, a table of equals.

Table 35
Table of Equals

Aggregated Functional Groups	Corresponding Network Functional Classifications
1. Freeways	1. Urban Interstate Freeways 2. Urban Other Freeways 10. Rural Interstate Freeways 11. Rural Other Freeways
2. Principal Arterials	5. Urban Principal Arterials 12. Rural Principal Arterials
3. Other Arterials	6. Urban Other Arterials 13. Rural Other Arterials 14. Rural Major Collectors
4. Collectors	7. Urban Collectors 15. Rural Collectors
5. Locals (Centroid Connectors)	8. Locals (Centroid Connectors) 16. Locals (Intrazonals)
6. Unused	0. Unused 3. Unused 4. Unused 9. Unused

The Houston-Galveston networks were processed to compute the average capacity per lane Functional Group and Area Type. Table 36 summarizes the typical 24-hour capacities per lane used in the HGAC highway networks. Table 37 summarizes the estimated hourly capacities per lane used in developing the capacity factors.

The capacity factors for a given time period are computed as follows:

$$Capacity\ Factor = \frac{(Hourly\ Capacity\ per\ Lane)(Length\ of\ the\ Time\ Period)}{24\text{-}hour\ Capacity\ per\ Lane}$$

The length of the time period is specified in hours. Capacity factors (stratified by area type and functional group) were computed for each of the 24 one-hour time periods.

Table 36
24-Hour Capacities/Lane

AREA TYPE	FUNCTIONAL GROUP				
	0,5	1	2	3	4
	Locals (Centriod Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors
CBD	0.0	24,130.5	7,083.8	7,258.6	6,519.7
Urban	0.0	26,214.4	8,195.6	7,752.5	5,843.3
Urban Fringe	0.0	22,873.5	8,348.4	6,936.0	5,024.6
Suburban	0.0	18,617.9	8,280.7	6,032.3	3,413.6
Rural	0.0	13,802.4	6,588.1	4,847.1	1,825.8

Table 37
Estimated Hourly Capacity/Lane

AREA TYPE	FUNCTIONAL GROUP				
	0,5	1	2	3	4
	Locals (Centriod Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors
CBD	0.0	2185.6	806.9	801.2	739.5
Urban	0.0	2210.9	836.8	809.6	652.2
Urban Fringe	0.0	2199.1	865.5	795.9	586.0
Suburban	0.0	2242.1	890.6	783.0	500.6
Rural	0.0	2231.9	879.8	767.7	407.8

FREEFLOW SPEED FACTORS

A simplified version of the HGAC speed model was used to estimate the speeds in the eight-county region. The application of the HGAC speed models requires an estimate of the freeflow speed on the link. These freeflow speed estimates are computed using the 24-hour speeds input on the link data. The freeflow speed factors (stratified by area type and functional group) are applied to the 24-hour nondirectional link speeds to estimate the freeflow speed. The freeflow speed is assumed to be the same in each direction.

Table 38 summarizes the 24-hour speeds used in the 1993, 1996, 1999 and 2007 HGAC highway networks. Table 39 summarizes the typical freeflow speed estimates used with the HGAC network. The freeflow speed factor for a given functional classification and area type is computed by simply dividing the freeflow speed by the 24-hour speed.

Table 38
24-Hour Speeds

AREA TYPE	FUNCTIONAL GROUP					
	0	1	2	3	4	5
	Locals (Centriod Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors	Locals
CBD	0.0	39.78	17.00	19.57	17.95	10.17
Urban	0.0	44.89	30.48	29.80	25.34	18.28
Urban Fringe	0.0	50.60	34.13	33.98	25.11	20.29
Suburban	0.0	55.13	38.77	36.84	26.53	24.50
Rural	0.0	60.00	50.77	48.19	36.10	35.77

Table 39
Free Flow (V/C = 0) Speeds

AREA TYPE	FUNCTIONAL GROUP					
	0	1	2	3	4	5
	Locals (Centroid Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors	Locals
CBD	0.0	57.72	25.94	25.52	23.64	10.17
Urban	0.0	57.84	27.82	26.43	24.67	18.28
Urban Fringe	0.0	56.85	33.29	29.65	23.35	20.29
Suburban	0.0	58.63	40.44	37.31	33.24	24.50
Rural	0.0	62.65	55.09	54.90	50.44	35.77

In addition, the simplified Houston-Galveston speed model requires speed factors to estimate the LOS E speed corresponding to a V/C ratio of 1.0. To develop these factors, the detailed version of the HGAC speed model was applied to estimate the average LOS E speeds in the HGAC region by area type and functional group. These results are summarized in Table 40. As with the freeflow speeds, the LOS E speed factors are computed by dividing the LOS E speeds (Table 40) by the average input speeds (Table 38). These user-estimated speed factors are input to the PREPIN program using SPD2FAC records.

Table 40
Average LOS E (V/C = 1) Speeds

AREA TYPE	FUNCTIONAL GROUP					
	0	1	2	3	4	5
	Locals (Centriod Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors	Locals
CBD	0.0	34.86	16.92	16.89	15.36	10.17
Urban	0.0	35.02	21.25	20.18	17.99	18.28
Urban Fringe	0.0	39.95	26.44	23.18	18.74	20.29
Suburban	0.0	49.79	31.55	29.17	26.02	24.50
Rural	0.0	50.00	43.12	45.65	42.94	35.77

SPEED MODEL FORMULATION

The version of the Houston-Galveston speed models implemented in PREPIN uses a speed reduction factor approach. The speed factors (discussed in the preceding section) are applied to each link to estimate the link's freeflow speed (i.e., the speed for a V/C ratio of 0.0) and the LOS E speed (i.e., the speed for a V/C ratio of 1.0). Speed reduction factors are used to estimate the link speeds for V/C ratios between 0.0 and 1.0. The model used for V/C ratios from 0.00 to 1.00 may be described a follows:

$$S_{V/C} = S_{0.0} - SRF_{V/C} * (S_{0.0} - S_{1.0})$$

Where:

$S_{V/C}$ = estimated directional speed for the forecast V/C ratio on the link in the subject direction.

$S_{0.0}$ = estimated freeflow speed for the V/C ratio equal to 0.0.

$S_{1.0}$ = estimated LOS E speed for the V/C ratio equal to 1.0.

$SRF_{V/C}$ = speed reduction factor for the forecast V/C ratio.

$_{V/C}$ = forecast V/C ratio on the link. The V/C ratio can be 0.0 to 1.0. For V/C ratios greater than 1.0, the model extension discussed below is used.

The speed reduction factors, which essentially describe the shape of the speed curve, are input to the PREPIN program by area type and functional group. The factors are input for V/C ratios from 0.0 to 1.0 in increments of 0.05. The speed reduction factors for V/C ratios between these points are estimated by linear interpolation.

The speed reduction factors were estimated using the detailed Houston-Galveston speed model. This model, presented at the 1994 Annual Meeting of the TRB as "Implementation and Validation of Speed Models for the Houston-Galveston Region," has subsequently been cited as one of the recommended speed models for air quality analyses in a paper entitled "Transportation Analysis Needs for Small and Medium Sized Urban Areas" (by Patrick DeCorla-Souza of the FHWA).

To estimate the speed reduction factors, the detailed Houston-Galveston speed model was applied to estimate the directional speeds on each link for V/C ratios ranging from 0.0 to 1.0 in increments of 0.05 (i.e., V/C ratios of 0.00, 0.05, 0.10, 0.15, ..., 0.90, 0.95, and 1.00). These speeds were accumulated by the average speeds by V/C ratio for each area type and functional group to estimate the speed reduction factors used as input to PREPIN. The speed reduction factors computed are displayed graphically in Figures 1 through 4.

Capacity data are not used for centroid connectors and intrazonals (i.e., the Functional Group 5 representing local streets). Hence, for locals (i.e., Functional Group 5), the freeflow speed factors and LOS E speed factors are set to 1.0; and the speed reduction factors are all set to zero.

Because traffic assignments can produce V/C ratios greater than 1.0, a model extension similar to that used in the Houston-Galveston speed models is used. The extension is based on the well-known BPR model. For links with a V/C ratio greater than 1.0, the following model extension is used to estimate the link's speed:

$$S_{V/C} = S_{1.0} * (1.15/(1.0 + (0.15 * (V/C)^4)))$$

Where:

$S_{V/C}$ = estimated directional speed for the forecast V/C ratio on the link in the subject direction.

$S_{1.0}$ = estimated LOS E speed for the V/C ratio equal to 1.0.

$_{V/C}$ = forecast V/C ratio on the link. The V/C ratio can be 1.0 to 1.5. For V/C ratios greater than 1.5, the speed is computed using the V/C ratio of 1.5.

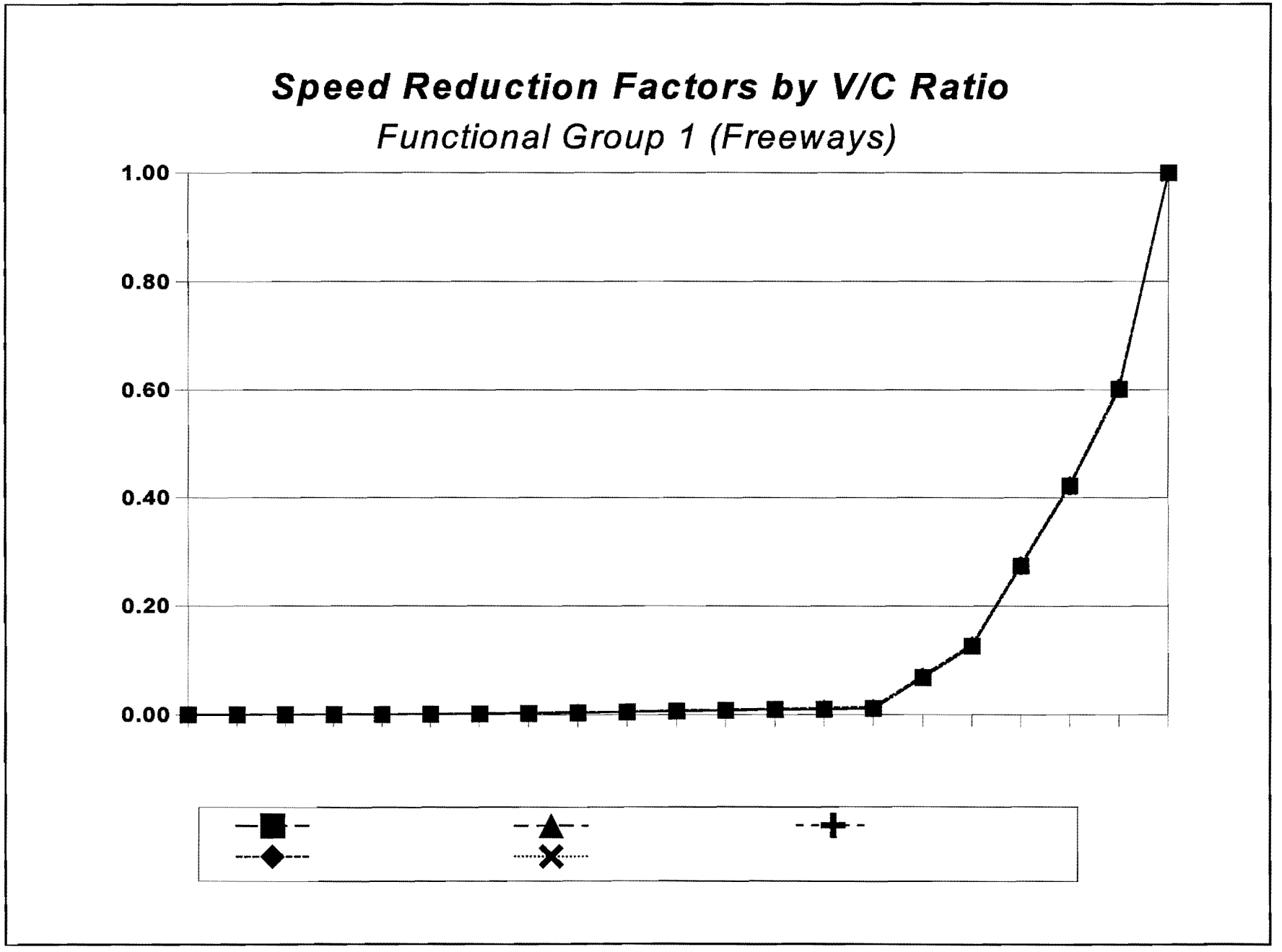

Figure 1. Freeway Speed Reduction Factors by V/C Ratio

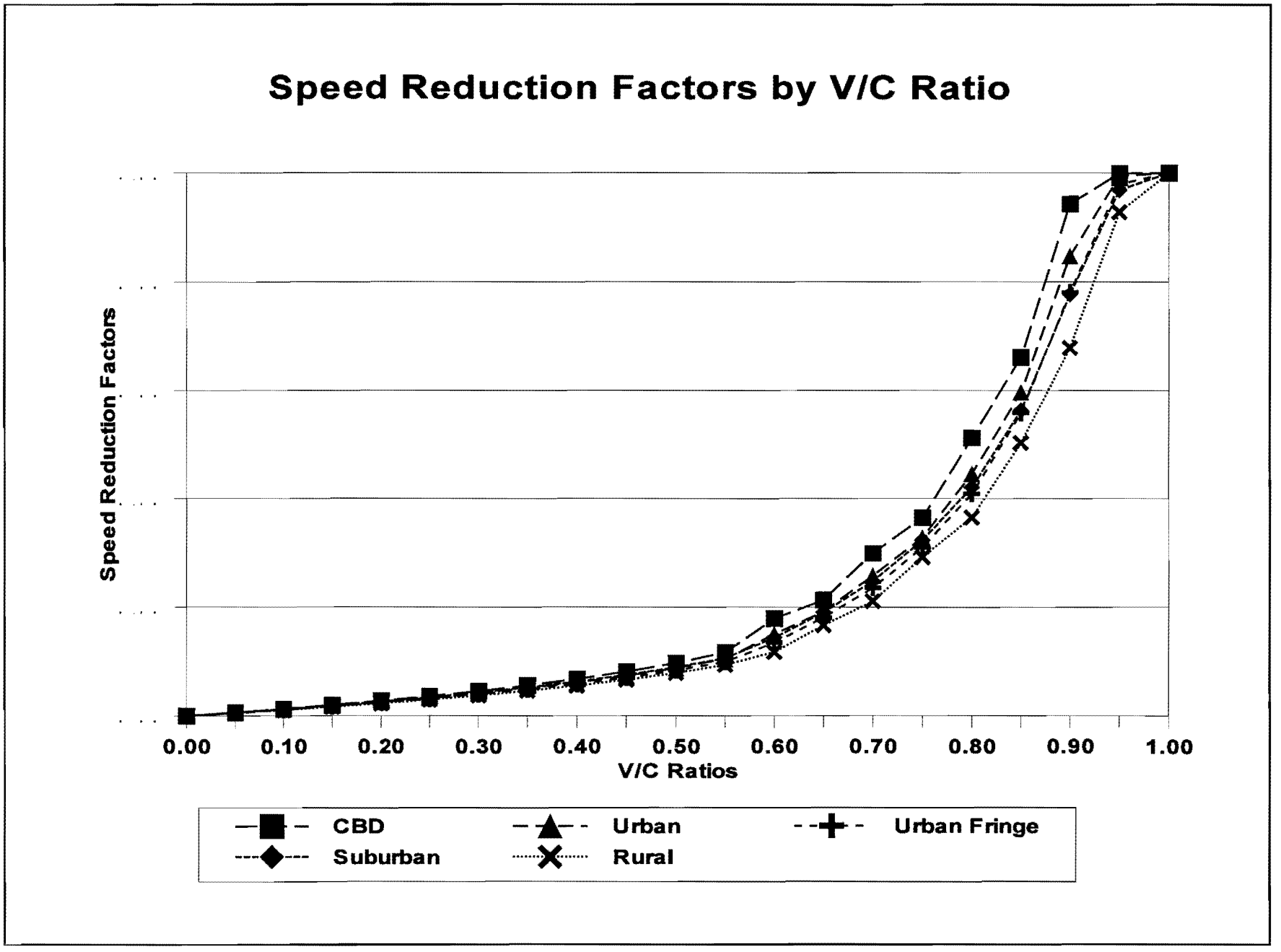

Figure 2. Principal Arterial Speed Reduction Factors by V/C Ratio

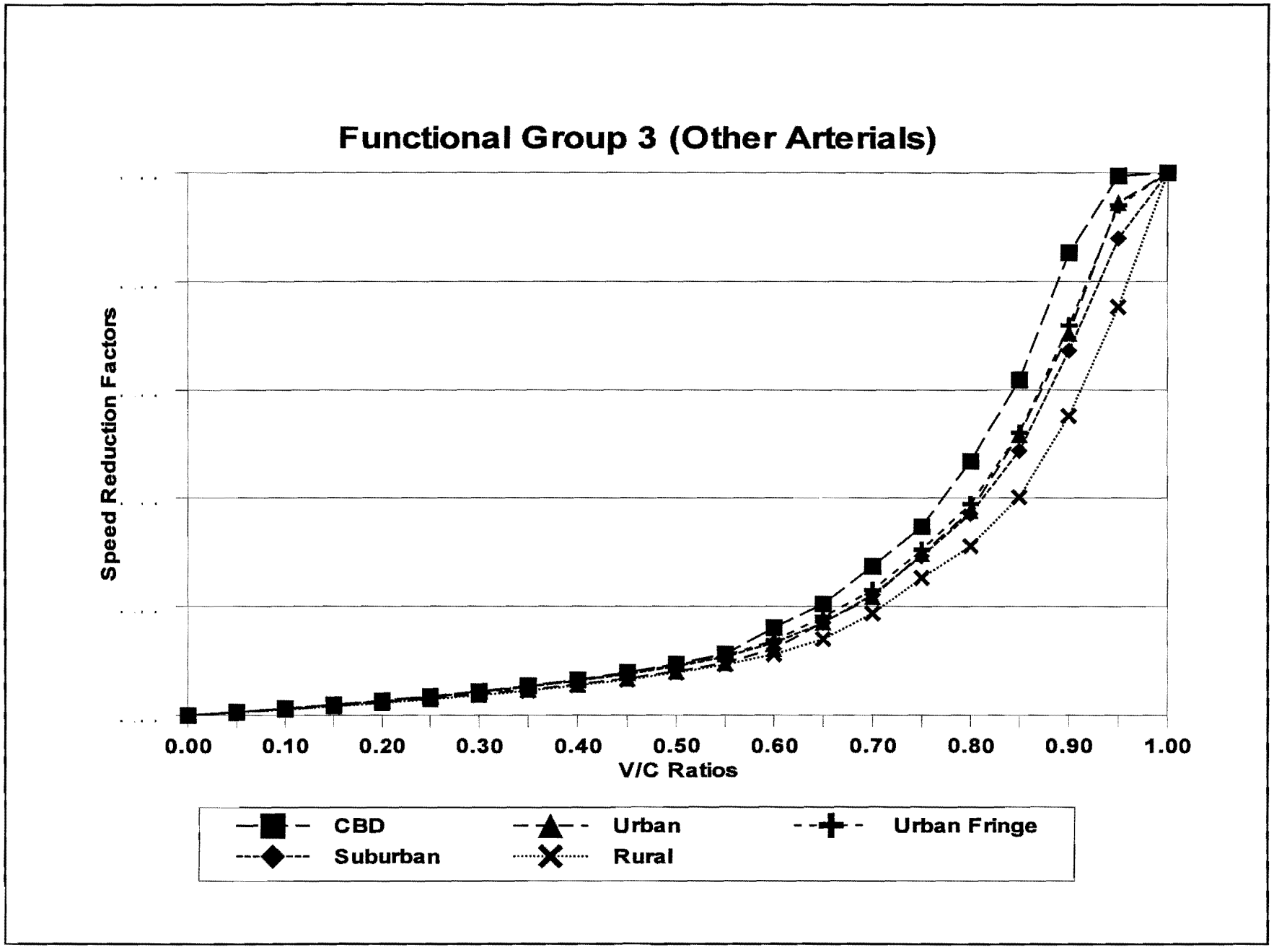

Figure 3. Other Arterial Speed Reduction Factors by V/C Ratio

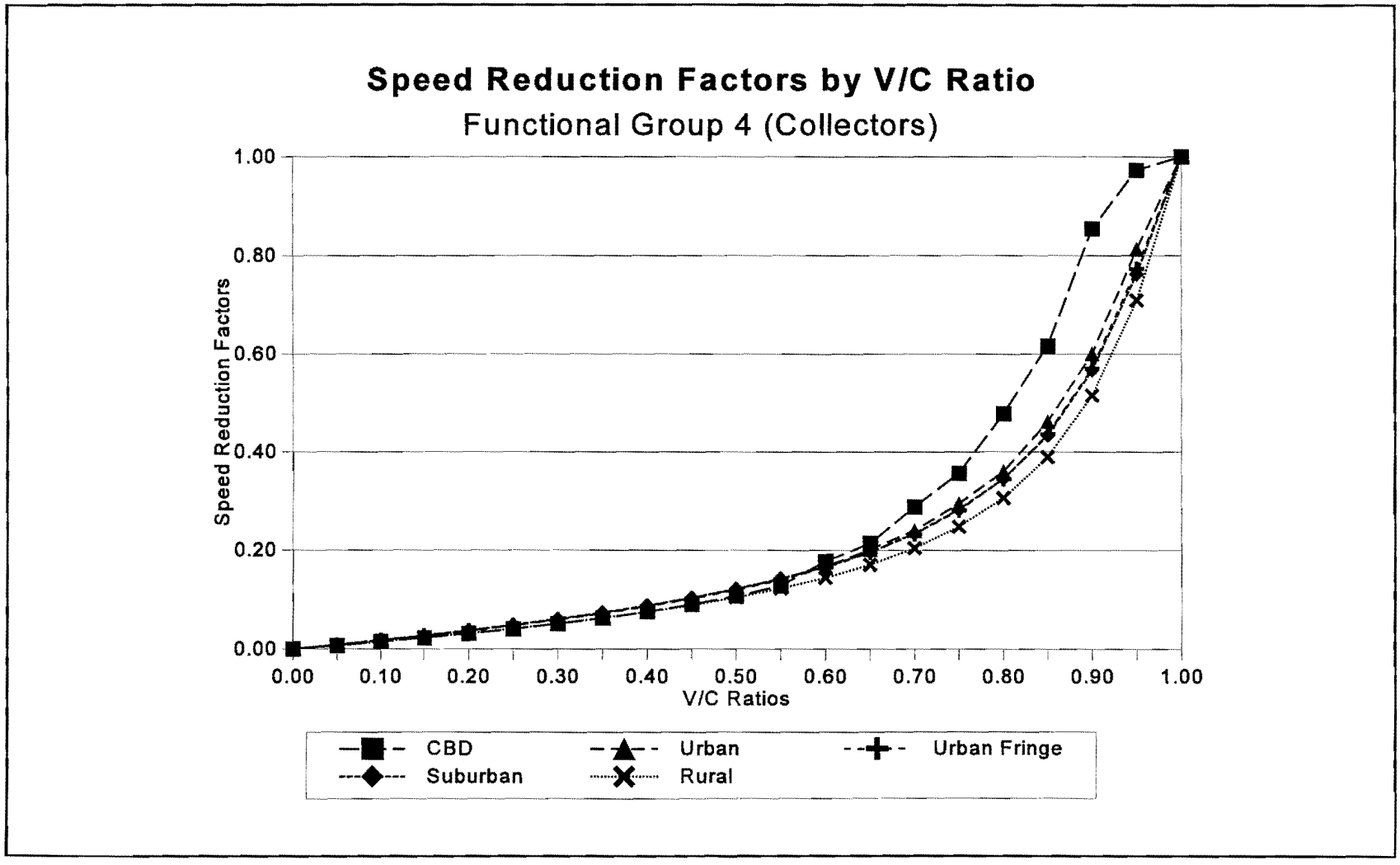

Figure 4. Collector Speed Reduction Factors by V/C Ratio

OTHER DATA INPUTS

The remaining data inputs to the PREPIN program are:

- The 24-hour Assignment Data Set: This network data set produced by the Texas Assignment Package contains the capacity restraint assignment results. PREPIN uses this data set to obtain the following information for each link: the link's A-node and B-node numbers, the link's functional classification, link distance, the input link data speed, and the final nondirectional capacity-restrained assignment volume.

- The Assignment Trip Table: This packed 24-hour assignment trip table data set produces the subject assignment. PREPIN uses this data set to obtain the 24-hour intrazonal trips for each zone.

- The Zonal Radii Data: These data are the zonal radii estimates used as input to the trip distribution model applications for the HGRTS area. These zonal radii estimates are used by PREPIN to estimate the average trip length of intrazonal trips.

III. ESTIMATION OF EMISSION RATES USING MOBILE5a

The MOBILE5a program was used to compute the mobile source emission rates (or factors) for the HGRTS gridded emission estimates. The POLFAC5B program was used to compute 24-hour diurnal emission rates. MOBILE5a was applied using POLFAC5B to estimate the emission rates by speed for each of the 24 one-hour time-of-day periods.

POLFAC5B is one of a series of programs developed by the Texas Transportation Institute to facilitate the computation of mobile source emissions. POLFAC5B is used to apply MOBILE5a to obtain emission rates. The emission rates are obtained for eight vehicle types and 63 speeds (i.e., 3 mph through 65 mph) for each vehicle type. Hence, for each time period, there are 504 factors (i.e., 8 x 63 = 504) for each pollution type and county. Three pollution types are computed: VOC, CO, and NOX. The VOC emissions are broken down further into six components: exhaust hydrocarbons, running loss hydrocarbons, resting loss hydrocarbons, crank case hydrocarbons, hot soak, and diurnal emissions. Hence, for each county and each time period there are 4,536 emission rates. These emission rates are output to an ASCII file for subsequent input to the IMPSUMA program. For HGRTS, the POLFAC5B program was applied for each of the 24 one-hour time periods for a given subject day. The emission rates from POLFAC5B are applied using the IMPSUMA program to estimate emissions.

For Harris County, three applications of POLFAC5B were run for each of the subject days. The three applications were used to calculate three emission rates for Harris County. Three applications of POLFAC5B were necessary to reflect Harris County's I/M anti-tampering program (ATP).

Three applications of POLFAC5B for Harris County produce emission rates for three anti-tampering scenarios. The three anti-tampering scenarios include a No ATP, an ATP covering 1968 to 1979 model year vehicles, and an ATP covering 1980 to 2020 model year vehicles. The modeled ATP has a beginning year of 1984 and covers 1968 to 2020 model years of vehicles. However, 1968 to 1979 model year vehicles are not subject to three of the eight inspection tests (i.e., catalyst, fuel inlet restrictor, and tailpipe lead deposit tests). The 1980 to 2020 model year vehicles are subject to all eight inspection tests. In essence, Harris County has two ATPs, an ATP for 1968 to 1979 model year vehicles and an ATP for 1980 to 2020 model year vehicles.

The emission rates developed for the respective ATP are equivalent to emissions without an anti-tampering programs minus the reduction of emissions effected by each of the respective ATPs. Thus, by adding the emission rates which account for both of the ATPs and subtracting the emission rates developed for Harris County without an ATP, the appropriate emission rate is produced by vehicle classifications, speed, and time of day. The rates are combined using RATEADJ, a program developed by TTI, to add and subtract emission rates produced by POLFAC5B. The resulting rates are applied using the IMPSUMA program to estimate emissions.

ESTIMATION OF TEMPERATURES BY TIME PERIOD

TNRCC provided the 24-hour temperature data for the HGRTS area. The temperatures for each of the 24 one-hour periods were computed using these data. Using these temperatures, minimum and maximum temperatures were identified to calculate diurnal emissions.

Diurnal rates were computed using a separate application of POLFAC5B. Each application of MOBILE5a requires three temperature inputs: low temperature, high temperature, and ambient temperature. To avoid computing diurnals for the 24 one-hour time periods, the same temperature was input for the low, the high and the ambient temperatures. Table 43 lists the temperature inputs for each of the 24 one-hour time periods and the 24-hour diurnal applications for each of the subject days for Harris, Fort Bend, Waller, Montgomery, and Liberty Counties. Table 44 lists the temperature inputs for each of the 24 one-hour time periods and the 24-hour diurnal applications for each of the subject days for Galveston, Brazoria, and Chambers Counties. Note that the temperature inputs were the same for all subject years (1993, 1996, 1999 and 2007).

As mentioned previously, the PREPIN applications were used to develop VMT and speed estimates for the weekday, Friday, and Saturday subject days. The weekday PREPIN applications are used in conjunction with the Tuesday, Wednesday, and Thursday POLFAC5B application to develop gridded emission estimates for the respective subject day. The Friday and Saturday PREPIN applications are used in conjunction with the respective Friday and Saturday POLFAC5B applications

Table 41
MOBILE5a Temperature Inputs Used for HGRTS Gridded Emission Applications for Harris, Fort Bend, Waller, Montgomery, and Liberty Counties

	MOBILE5a Temperature Inputs for Harris, Fort Bend, Waller, Montgomery, and Liberty Counties														
	Tuesday, 8/17/93			Wednesday, 8/18/93			Thursday, 8/19/93			Friday, 8/20/93			Saturday, 8/21/93		
	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient
Time Period 1	80.1	80.1	80.1	80.1	80.1	80.1	80.2	80.2	80.2	80.9	80.9	80.9	81.1	81.1	81.1
Time Period 2	78.7	78.7	78.7	79.3	79.3	79.3	79.5	79.5	79.5	79.9	79.9	79.9	80.7	80.7	80.7
Time Period 3	78.1	78.1	78.1	78.5	78.5	78.5	78.8	78.8	78.8	79.3	79.3	79.3	79.8	79.8	79.8
Time Period 4	77.8	77.8	77.8	77.8	77.8	77.8	77.9	77.9	77.9	78.3	78.3	78.3	78.6	78.6	78.6
Time Period 5	76.9	76.9	76.9	77.8	77.8	77.8	77.4	77.4	77.4	77.6	77.6	77.6	78.2	78.2	78.2
Time Period 6	76.7	76.7	76.7	77.2	77.2	77.2	76.6	76.6	76.6	77.0	77.0	77.0	78.3	78.3	78.3
Time Period 7	77.4	77.4	77.4	77.5	77.5	77.5	77.1	77.1	77.1	77.3	77.3	77.3	78.6	78.6	78.6
Time Period 8	81.5	81.5	81.5	80.3	80.3	80.3	80.6	80.6	80.6	80.9	80.9	80.9	80.9	80.9	80.9
Time Period 9	85.6	85.6	85.6	93.6	93.6	93.6	84.2	84.2	84.2	84.7	84.7	84.7	83.5	83.5	83.5
Time Period 10	88.2	88.2	88.2	96.8	96.8	96.8	86.9	86.9	86.9	87.5	87.5	87.5	86.4	86.4	86.4
Time Period 11	90.6	90.6	90.6	89.8	89.8	89.8	89.8	89.8	89.8	90.2	90.2	90.2	89.3	89.3	89.3
Time Period 12	92.7	92.7	92.7	92.8	92.8	92.8	92.2	92.2	92.2	92.5	92.5	92.5	91.6	91.6	91.6
Time Period 13	94.5	94.5	94.5	94.8	94.8	94.8	94.2	94.2	94.2	94.6	94.6	94.6	93.9	93.9	93.9
Time Period 14	95.9	95.9	95.9	96.1	96.1	96.1	96.2	96.2	96.2	96.0	96.0	96.0	95.5	95.5	95.5
Time Period 15	97.7	97.7	97.7	97.3	97.3	97.3	97.5	97.5	97.5	96.7	96.7	96.7	95.5	95.5	95.5
Time Period 16	97.3	97.3	97.3	97.2	97.2	97.2	97.6	97.6	97.6	95.3	95.3	95.3	94.4	94.4	94.4
Time Period 17	96.7	96.7	96.7	95.3	95.3	95.3	96.5	96.5	96.5	94.1	94.1	94.1	89.9	89.9	89.9
Time Period 18	94.1	94.1	94.1	93.1	93.1	93.1	93.8	93.8	93.8	92.3	92.3	92.3	87.9	87.9	87.9
Time Period 19	90.8	90.8	90.8	90.5	90.5	90.5	90.5	90.5	90.5	89.3	89.3	89.3	85.9	85.9	85.9
Time Period 20	87.6	87.6	87.6	87.5	87.5	87.5	87.1	87.1	87.1	86.5	86.5	86.5	84.4	84.4	84.4
Time Period 21	85.5	85.5	85.5	85.4	85.4	85.4	85.1	85.1	85.1	84.7	84.7	84.7	83.6	83.6	83.6
Time Period 22	83.7	83.7	83.7	83.6	83.6	83.6	83.7	83.7	83.7	82.8	82.8	82.8	82.1	82.1	82.1
Time Period 23	82.5	82.5	82.5	82.0	82.0	82.0	82.7	82.7	82.7	81.8	81.8	81.8	81.0	81.0	81.0
Time Period 24	81.1	81.1	81.1	80.9	80.9	80.9	81.6	81.6	81.6	81.2	81.2	81.2	80.2	80.2	80.2
24-hour Diurnal	76.7	97.7	93.1	77.2	97.3	93.0	76.6	97.6	93.0	77.0	96.7	94.2	78.2	95.5	91.9

Table 42
MOBILE5a Temperature Inputs Used for HGRTS Gridded Emission Applications for Galveston, Brazoria, and Chambers Counties

	MOBILE5a Temperature Inputs														
	Tuesday, 8/17/93			Wednesday, 8/18/93			Thursday, 8/19/93			Friday, 8/20/93			Saturday, 8/21/93		
	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient
Time Period 1	81.0	81.0	81.0	80.1	80.1	80.1	84.0	84.0	84.0	82.9	82.9	82.9	82.0	82.0	82.0
Time Period 2	80.1	80.1	80.1	79.0	79.0	79.0	82.9	82.9	82.9	80..1	80..1	80..1	81.0	81.0	81.0
Time Period 3	80.1	80.1	80.1	77.0	77.0	77.0	81.0	81.0	81.0	78.1	78.1	78.1	81.0	81.0	81.0
Time Period 4	79.0	79.0	79.0	75.9	75.9	75.9	80.1	80.1	80.1	77.0	77.0	77.0	80.1	80.1	80.1
Time Period 5	78.1	78.1	78.1	75.9	75.9	75.9	80.1	80.1	80.1	77.0	77.0	77.0	81.0	81.0	81.0
Time Period 6	77.0	77.0	77.0	75.9	75.9	75.9	77.0	77.0	77.0	77.0	77.0	77.0	79.0	79.0	79.0
Time Period 7	77.0	77.0	77.0	75.9	75.9	75.9	77.0	77.0	77.0	78.1	78.1	78.1	79.0	79.0	79.0
Time Period 8	81.0	81.0	81.0	79.0	79.0	79.0	80.1	80.1	80.1	81.0	81.0	81.0	81.0	81.0	81.0
Time Period 9	84.9	84.9	84.9	82.9	82.9	82.9	84.0	84.0	84.0	84.0	84.0	84.0	84.9	84.9	84.9
Time Period 10	87.1	87.1	87.1	84.9	84.9	84.9	86.0	86.0	86.0	87.1	87.1	87.1	87.1	87.1	87.1
Time Period 11	90.0	90.0	90.0	89.1	89.1	89.1	88.0	88.0	88.0	88.0	88.0	88.0	89.1	89.1	89.1
Time Period 12	91.0	91.0	91.0	90.0	90.0	90.0	89.1	89.1	89.1	90.0	90.0	90.0	90.0	90.0	90.0
Time Period 13	90.0	90.0	90.0	91.0	91.0	91.0	90.0	90.0	90.0	91.0	91.0	91.0	90.0	90.0	90.0
Time Period 14	91.9	91.9	91.9	91.9	91.9	91.9	91.0	91.0	91.0	91.0	91.0	91.0	90.0	90.0	90.0
Time Period 15	91.9	91.9	91.9	91.0	91.0	91.0	91.9	91.9	91.9	91.9	91.9	91.9	91.0	91.0	91.0
Time Period 16	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	91.9	91.9	91.9	89.1	89.1	89.1
Time Period 17	91.0	91.0	91.0	91.0	91.0	91.0	91.9	91.9	91.9	91.0	91.0	91.0	87.1	87.1	87.1
Time Period 18	89.1	89.1	89.1	89.1	89.1	89.1	90.0	90.0	90.0	88.0	88.0	88.0	84.9	84.9	84.9
Time Period 19	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	86.0	86.0	86.0	84.9	84.9	84.9
Time Period 20	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	84.9	84.9	84.9	84.0	84.0	84.0
Time Period 21	84.9	84.9	84.9	84.0	84.0	84.0	86.0	86.0	86.0	84.9	84.9	84.9	82.0	82.0	82.0
Time Period 22	84.0	84.0	84.0	82.9	82.9	82.9	86.0	86.0	86.0	84.9	84.9	84.9	82.0	82.0	82.0
Time Period 23	82.0	82.0	82.0	84.0	84.0	84.0	84.9	84.9	84.9	84.0	84.0	84.0	82.0	82.0	82.0
Time Period 24	81.0	81.0	81.0	84.0	84.0	84.0	84.9	84.9	84.9	82.0	82.0	82.0	82.9	82.9	82.9
24-hour Diurnal	77.0	93.0	89.6	75.9	93.0	89.3	77.0	93.0	89.6	77.0	91.9	88.8	79.0	91.0	88.6

MOBILE5a SET-UPS

Tables 43 through 52 are the basic 1993 subject day MOBILE5a set-ups for Harris, Brazoria, Fort Bend, Waller, Montgomery, Liberty, Chambers, and Galveston Counties. Each county set-up up was modified for each subject day and time period. Furthermore, each set-up was modified by subject year (either 1993, 1996, 1999 or 2007) to reflect the target inventory year. Only the 1993 set-ups are shown in this report. Subject day temperature and header data were applied for each time and diurnal application. These set-ups were used to develop the 1993 subject day emission rates for each of the three counties. Twenty-five applications of POLFAC5B were run for each subject day and county. The three temperature inputs and the headers were the only changes made to the set-ups for each of the 25 applications. The three temperature inputs in each set-up are highlighted in the last two lines of the input data. The three different temperatures are denoted by Lo, Hi_, and Am.b to delineate between the respective low, high, and ambient temperatures input into the MOBILE5a set-ups. The date difference in the MOBILE5a set-ups are delineated by DD. The temperatures, header dates, and trip length distribution records were the only changes made in the set-ups to develop the emission rates for the different time periods and the 24-hour diurnal. Temperature, header date changes, and trip length distribution records are shaded in the MOBILE5a set-ups shown in Tables 43 through 52. The temperature inputs used for the other time periods are listed Table 41 and Table 42. The trip length distribution records used in the POLFAC5B applications are shown in Table 53 by time period.

As mentioned previously, three applications of POLFAC5B were run to develop the emission rates for Harris County. The MOBILE5a set-ups shown in Tables 43 through 45 present the differences in the three different MOBILE5a set-ups. Notice that the ATPFLG (anti-tampering flag) in MOBILE5 presented in Table 43 is set to 1, which indicates no ATP. The Harris County MOBILE5 set-up presented in Table 44 shows the ATPFLG set to 2 which indicates that an ATP is in place. MOBILE5 set-ups with an ATPFLG set to 2, also have an accompanying ATP record. Notice that the ATP record in Table 44 reflects the ATP for the 1968 through 1979 model year vehicles. The Harris County MOBILE5 set-up presented in Table 45 also shows the ATPFLG set to 2, which indicates that an ATP is in place. The ATP record in Table 45 reflects the 1980 through 2020 model year vehicles ATP.

HGRTS VEHICLE REGISTRATION MIX

The 1993 vehicle registration data for Harris, Brazoria, Fort Bend, Waller, Montgomery, Liberty, Chambers, and Galveston Counties subject days were obtained from TNRCC. The vehicle registration data used were the total automobiles, total motorcycles, LDGT1, LDGT2, HDGT, and HDDT vehicle types by year. The vehicle registration data for 1969 and older vehicles were summed and used as the 25th year. The percentage vehicle distributions by model year were then obtained by dividing the vehicle registration for a given year by the total vehicle registrations. The percentage vehicle distribution data were then rounded to four significant digits and summed. Residual rounding resulted in the sum of the percentage vehicle distribution being slightly smaller or greater than 1.0. The difference between the sum and 1.0 was then added to the largest value to adjust the total percentage vehicle distribution data of the rounded values to 1.0000. The

distributions for total automobiles were used for both LDGV and LDDV vehicle types. The distributions for LDGT1 were also used for the LDDV vehicle type. For motorcycles the vehicles registered which were older than 12 years were added to the 12-year-old vehicles. This was done because MOBILE5a has zero mileage for motorcycles older than 12 years.

Table 43
Harris County MOBILE5a No ATP Set-Up

```
1          PROMPT
 HARRIS COUNTY Ozone Season 1993; Run A = NO ATP
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.697.172.076.017.010.002.024.002                      VMT Mix
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDGV    HARRIS 93
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDGV
.0042.0036.0025.0023.0116                           LDGV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDGT1
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDGT1
.0063.0066.0043.0039.0167                           LDGT1
.0936.0984.0757.0702.0691.0592.0339.0523.0617.0624  LDGT2
.0427.0490.0293.0289.0462.0338.0304.0225.0140.0081  LDGT2
.0053.0029.0022.0019.0059                           LDGT2
.0610.0692.0661.0714.0658.0606.0523.0489.0557.0575  HDGV
.0311.0578.0482.0391.0515.0416.0269.0168.0168.0143  HDGV
.0123.0092.0074.0041.0148                           HDGV
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDDV
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDDV
.0042.0036.0025.0023.0116                           LDDV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDDT
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDDT
.0063.0066.0043.0039.0167                           LDDT
.0482.0422.0711.0740.0639.0592.0534.0620.0754.0712  HDDV
.0360.0561.0668.0504.0529.0342.0243.0112.0134.0111  HDDV
.0083.0047.0020.0024.0056                           HDDV
.0557.0608.0427.0468.0570.0481.0519.0786.0713.0487  MC
.0610.3774.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
Harris Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 44
Harris County MOBILE5a ATP (1968-1979) Set-Up

```
1          PROMPT
 HARRIS COUNTY Ozone Season 1993; Run B = ATP 68-79
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
2          ATPFLG  - Anti-tampering program (one-time data)
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.697.172.076.017.010.002.024.002                    VMT Mix
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDGV    HARRIS 93
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDGV
.0042.0036.0025.0023.0116                           LDGV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDGT1
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDGT1
.0063.0066.0043.0039.0167                           LDGT1
.0936.0984.0757.0702.0691.0592.0339.0523.0617.0624  LDGT2
.0427.0490.0293.0289.0462.0338.0304.0225.0140.0081  LDGT2
.0053.0029.0022.0019.0059                           LDGT2
.0610.0692.0661.0714.0658.0606.0523.0489.0557.0575  HDGV
.0311.0578.0482.0391.0515.0416.0269.0168.0168.0143  HDGV
.0123.0092.0074.0041.0148                           HDGV
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDDV
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDDV
.0042.0036.0025.0023.0116                           LDDV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDDT
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDDT
.0063.0066.0043.0039.0167                           LDDT
.0482.0422.0711.0740.0639.0592.0534.0620.0754.0712  HDDV
.0360.0561.0668.0504.0529.0342.0243.0112.0134.0111  HDDV
.0083.0047.0020.0024.0056                           HDDV
.0557.0608.0427.0468.0570.0481.0519.0786.0713.0487  MC
.0610.3774.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
84 68 79 2221 21 085. 21112222                      ATP rec
Harris Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 45
Harris County MOBILE5a ATP (1980-2020) Set-Up

```
1          PROMPT
 HARRIS COUNTY Ozone Season 1993; Run C = ATP 80-20
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
2          ATPFLG  - Anti-tampering program (one-time data)
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.697.172.076.017.010.002.024.002                        VMT Mix
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDGV    HARRIS 93
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDGV
.0042.0036.0025.0023.0116                           LDGV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDGT1
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDGT1
.0063.0066.0043.0039.0167                           LDGT1
.0936.0984.0757.0702.0691.0592.0339.0523.0617.0624  LDGT2
.0427.0490.0293.0289.0462.0338.0304.0225.0140.0081  LDGT2
.0053.0029.0022.0019.0059                           LDGT2
.0610.0692.0661.0714.0658.0606.0523.0489.0557.0575  HDGV
.0311.0578.0482.0391.0515.0416.0269.0168.0168.0143  HDGV
.0123.0092.0074.0041.0148                           HDGV
.0663.0881.0794.0770.0777.0755.0682.0674.0694.0638  LDDV
.0428.0425.0373.0286.0308.0245.0167.0099.0052.0047  LDDV
.0042.0036.0025.0023.0116                           LDDV
.0624.0830.0798.0747.0798.0739.0595.0657.0676.0643  LDDT
.0381.0456.0378.0237.0304.0273.0205.0138.0073.0074  LDDT
.0063.0066.0043.0039.0167                           LDDT
.0482.0422.0711.0740.0639.0592.0534.0620.0754.0712  HDDV
.0360.0561.0668.0504.0529.0342.0243.0112.0134.0111  HDDV
.0083.0047.0020.0024.0056                           HDDV
.0557.0608.0427.0468.0570.0481.0519.0786.0713.0487  MC
.0610.3774.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
84 80 20 2221 21 085. 22222222                      ATP rec 80-20
Harris Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 46
Brazoria County MOBILE5a Set-Up

```
1          PROMPT
1 BRAZORIA COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.611.179.080.006.009.017.096.002                        VMT Mix
.0512.0744.0839.0778.0841.0800.0696.0687.0701.0648  LDGV    BRAZORIA 93
.0445.0405.0375.0297.0317.0252.0169.0103.0050.0047  LDGV
.0046.0040.0028.0028.0150                           LDGV
.0575.0755.0832.0770.0850.0737.0598.0682.0663.0634  LDGT1
.0376.0466.0384.0259.0303.0272.0191.0122.0064.0072  LDGT1
.0059.0063.0045.0036.0192                           LDGT1
.0833.0921.0836.0634.0810.0635.0387.0671.0690.0707  LDGT2
.0431.0504.0305.0256.0373.0285.0227.0149.0117.0062  LDGT2
.0053.0024.0021.0026.0041                           LDGT2
.0229.0364.0467.0638.0512.0467.0274.0575.0584.0717  HDGV
.0409.0661.0535.0535.0665.0499.0306.0225.0283.0229  HDGV
.0175.0135.0081.0103.0328                           HDGV
.0512.0744.0839.0778.0841.0800.0696.0687.0701.0648  LDDV
.0445.0405.0375.0297.0317.0252.0169.0103.0050.0047  LDDV
.0046.0040.0028.0028.0150                           LDDV
.0575.0755.0832.0770.0850.0737.0598.0682.0663.0634  LDDT
.0376.0466.0384.0259.0303.0272.0191.0122.0064.0072  LDDT
.0059.0063.0045.0036.0192                           LDDT
.0023.0103.0549.0378.0400.0458.0286.0721.0755.0984  HDDV
.0240.0618.1064.0801.0915.0606.0263.0172.0240.0069  HDDV
.0126.0057.0046.0034.0092                           HDDV
.0421.0574.0356.0495.0579.0398.0481.0903.0847.0486  MC
.0630.3828.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
GALEVSTN Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN Identifier
```

Table 47
Fort Bend County MOBILE5a Set-Up

```
1          PROMPT
1 FORT BEND COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.611.179.080.006.009.017.096.002                        VMT Mix
.0704.0852.0943.0924.0887.0850.0736.0692.0674.0576  LDGV    FORT BEND 93
.0384.0363.0302.0221.0235.0187.0119.0069.0036.0037  LDGV
.0034.0027.0023.0021.0104                           LDGV
.0633.0827.0870.0825.0870.0765.0647.0691.0705.0621  LDGT1
.0369.0419.0334.0194.0251.0246.0164.0115.0061.0059  LDGT1
.0051.0055.0037.0033.0156                           LDGT1
.0836.1105.0727.0739.0803.0654.0314.0664.0654.0704  LDGT2
.0380.0501.0231.0239.0409.0272.0260.0175.0099.0068  LDGT2
.0050.0026.0028.0012.0050                           LDGT2
.0428.0662.0521.0554.0661.0454.0327.0548.0508.0641  HDGV
.0274.0521.0494.0434.0568.0448.0301.0200.0261.0187  HDGV
.0174.0094.0067.0087.0588                           HDGV
.0704.0852.0943.0924.0887.0850.0736.0692.0674.0576  LDDV
.0384.0363.0302.0221.0235.0187.0119.0069.0036.0037  LDDV
.0034.0027.0023.0021.0104                           LDDV
.0633.0827.0870.0825.0870.0765.0647.0691.0705.0621  LDDT
.0369.0419.0334.0194.0251.0246.0164.0115.0061.0059  LDDT
.0051.0055.0037.0033.0156                           LDDT
.0403.0213.0509.0533.0521.0521.0391.0545.0908.0746  HDDV
.0486.0569.0782.0604.0533.0474.0320.0213.0213.0201  HDDV
.0118.0059.0012.0047.0071                           HDDV
.0524.0518.0404.0546.0649.0573.0720.0867.0638.0464  MC
.0660.3437.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
HARRIS Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am,b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 48
Waller County MOBILE5a Set-Up

```
1          PROMPT
1 WALLER COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.611.179.080.006.009.017.096.002                        VMT Mix
.0483.0675.0782.0718.0695.0736.0554.0626.0712.0633  LDGV    WALLER 93
.0478.0514.0402.0348.0421.0336.0251.0153.0072.0075  LDGV
.0063.0054.0039.0040.0138                           LDGV
.1084.0792.0670.0650.0681.0642.0467.0517.0606.0557  LDGT1
.0366.0472.0392.0226.0316.0374.0239.0188.0082.0114  LDGT1
.0111.0101.0064.0048.0235                           LDGT1
.2029.1094.0700.0511.0649.0408.0248.0438.0591.0649  LDGT2
.0372.0423.0226.0277.0292.0212.0328.0241.0117.0051  LDGT2
.0036.0022.0015.0022.0051                           LDGT2
.0470.0444.0235.0392.0496.0339.0261.0261.0366.0261  HDGV
.0235.0392.0548.0470.0522.0444.0366.0339.0339.0418  HDGV
.0444.0157.0183.0183.1437                           HDGV
.0483.0675.0782.0718.0695.0736.0554.0626.0712.0633  LDDV
.0478.0514.0402.0348.0421.0336.0251.0153.0072.0075  LDDV
.0063.0054.0039.0040.0138                           LDDV
.1084.0792.0670.0650.0681.0642.0467.0517.0606.0557  LDDT
.0366.0472.0392.0226.0316.0374.0239.0188.0082.0114  LDDT
.0111.0101.0064.0048.0235                           LDDT
.0179.0446.0536.0268.0089.0268.0357.0536.0357.0982  HDDV
.0268.0982.1072.0357.0804.0804.0446.0179.0000.0625  HDDV
.0179.0179.0000.0000.0089                           HDDV
.0303.0242.0242.0121.0545.0727.0485.0970.0970.0667  MC
.0485.4241.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
HARRIS Time C Lo.  Hi.   7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 49
Montgomery County MOBILE5a Set-Up

```
1          PROMPT
1 MONTGOMERY COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.697.172.076.017.010.002.024.002                        VMT Mix
.0496.0817.0859.0827.0831.0782.0685.0684.0706.0630  LDGV    MONTGOMERY 93
.0416.0409.0347.0270.0305.0256.0175.0110.0052.0053  LDGV
.0050.0040.0027.0027.0146                           LDGV
.0594.0801.0839.0753.0789.0702.0571.0652.0619.0599  LDGT1
.0363.0457.0361.0249.0346.0296.0230.0158.0073.0074  LDGT1
.0069.0085.0051.0046.0223                           LDGT1
.0835.1028.0830.0621.0699.0608.0309.0552.0641.0686  LDGT2
.0443.0479.0260.0229.0425.0334.0358.0249.0127.0087  LDGT2
.0074.0033.0015.0022.0060                           LDGT2
.0233.0618.0569.0456.0488.0553.0331.0559.0477.0721  HDGV
.0456.0586.0456.0363.0488.0531.0510.0244.0195.0239  HDGV
.0222.0146.0098.0103.0358                           HDGV
.0496.0817.0859.0827.0831.0782.0685.0684.0706.0630  LDDV
.0416.0409.0347.0270.0305.0256.0175.0110.0052.0053  LDDV
.0050.0040.0027.0027.0146                           LDDV
.0594.0801.0839.0753.0789.0702.0571.0652.0619.0599  LDDT
.0363.0457.0361.0249.0346.0296.0230.0158.0073.0074  LDDT
.0069.0085.0051.0046.0223                           LDDT
.0026.0146.0516.0516.0622.0556.0463.0569.0701.1086  HDDV
.0423.0450.0529.0595.0714.0622.0344.0238.0146.0185  HDDV
.0159.0132.0026.0066.0172                           HDDV
.0563.0524.0377.0441.0705.0509.0543.0675.0734.0568  MC
.0573.3790.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
HARRIS Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 50
Liberty County MOBILE5a Set-Up

```
1          PROMPT
1 LIBERTY COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.611.179.080.006.009.017.096.002                        VMT Mix
.0365.0649.0752.0707.0742.0756.0592.0622.0692.0661  LDGV    LIBERTY 93
.0465.0474.0475.0401.0431.0368.0244.0161.0078.0066  LDGV
.0048.0045.0034.0029.0147                           LDGV
.0437.0729.0773.0750.0730.0656.0483.0591.0594.0677  LDGT1
.0392.0506.0455.0280.0401.0373.0274.0193.0103.0098  LDGT1
.0081.0082.0069.0048.0225                           LDGT1
.1044.0866.0888.0650.0791.0574.0283.0526.0641.0632  LDGT2
.0393.0398.0318.0243.0451.0371.0283.0225.0155.0071  LDGT2
.0049.0044.0022.0000.0084                           LDGT2
.0570.0356.0428.0428.0487.0582.0238.0214.0463.0546  HDGV
.0166.0787.0594.0618.0582.0511.0380.0226.0261.0309  HDGV
.0249.0214.0143.0131.0523                           HDGV
.0365.0649.0752.0707.0742.0756.0592.0622.0692.0661  LDDV
.0465.0474.0475.0401.0431.0368.0244.0161.0078.0066  LDDV
.0048.0045.0034.0029.0147                           LDDV
.0437.0729.0773.0750.0730.0656.0483.0591.0594.0677  LDDT
.0392.0506.0455.0280.0401.0373.0274.0193.0103.0098  LDDT
.0081.0082.0069.0048.0225                           LDDT
.0302.0278.0603.0278.0557.0534.0209.0696.0742.0789  HDDV
.0232.0418.0928.0580.0650.0557.0418.0232.0232.0232  HDDV
.0209.0046.0046.0070.0162                           HDDV
.0349.0299.0224.0349.0424.0374.0549.0648.0648.0424  MC
.0449.5261.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
HARRIS Time C Lo.  Hi.   7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 51
Chambers County MOBILE5a Set-Up

```
1          PROMPT
1 CHAMBERS COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.611.179.080.006.009.017.096.002                    VMT Mix
.0334.0746.0958.0850.0873.0850.0652.0647.0730.0641  LDGV    CHAMBERS 93
.0414.0421.0409.0275.0315.0261.0162.0097.0047.0039  LDGV
.0050.0041.0031.0028.0129                           LDGV
.0470.0827.0937.0889.0889.0742.0542.0645.0634.0601  LDGT1
.0407.0435.0396.0244.0284.0256.0174.0129.0082.0065  LDGT1
.0047.0055.0030.0041.0181                           LDGT1
.0652.1067.1086.0672.1008.0711.0435.0642.0534.0810  LDGT2
.0296.0405.0287.0257.0306.0227.0158.0148.0128.0040  LDGT2
.0030.0030.0010.0010.0049                           LDGT2
.0406.0525.0501.0573.0406.0382.0286.0286.0334.0430  HDGV
.0334.0573.0525.0358.0597.0430.0239.0191.0621.0286  HDGV
.0119.0119.0191.0119.1169                           HDGV
.0334.0746.0958.0850.0873.0850.0652.0647.0730.0641  LDDV
.0414.0421.0409.0275.0315.0261.0162.0097.0047.0039  LDDV
.0050.0041.0031.0028.0129                           LDDV
.0470.0827.0937.0889.0889.0742.0542.0645.0634.0601  LDDT
.0407.0435.0396.0244.0284.0256.0174.0129.0082.0065  LDDT
.0047.0055.0030.0041.0181                           LDDT
.0168.0168.0336.0420.0336.0000.0336.0588.1008.0672  HDDV
.0420.0420.1088.0672.0504.1092.0084.0252.0084.0672  HDDV
.0084.0084.0084.0084.0336                           HDDV
.0160.0374.0374.0374.0588.0321.0481.0749.0535.0642  MC
.0428.4972.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
GALVESTN Time C Lo._ Hi._  7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 52
Galveston County MOBILE5a Set-Up

```
1          PROMPT
1 GALVESTON COUNTY Ozone Season 1993
1          TAMFLG  - Default: Tampering Rates
4          SPDFLG  - One speed per scenario plus Trip Length Distribution
3          VMFLAG  - User input: single VMT mix for all scenario
3          MYMRFG  - User input: Reg. Distributions
1          NEWFLG  - Basic exhaust emission rates
1          IMFLAG  -      no   I/M
1          ALHFLG  - No additional correction factors
1          ATPFLG  -      no   atp
5          RLFLAG  - Zero-out refueling emissions
2          LOCFLG  - User input: one LAP record for all scenarios
1          TEMFLG  - MOBILE5A  calculates exhaust temperatures
4          OUTFMT  - 80-column descriptive format
4          PRTFLG  - Print all three pollutant emission factors
1          IDLFLG  - No idle emissions calculated or printed
3          NMHFLG  - Print HC = volatile organic compounds (VOC)
1          HCFLAG  - Print total HC
.697.172.076.017.010.002.024.002                      VMT Mix
.0476.0737.0832.0770.0811.0766.0702.0698.0712.0682  LDGV    GALVESTON 93
.0452.0419.0359.0287.0324.0271.0177.0103.0067.0053  LDGV
.0049.0043.0030.0028.0154                           LDGV
.0512.0787.0800.0770.0782.0714.0562.0674.0633.0698  LDGT1
.0412.0490.0380.0252.0331.0277.0216.0159.0071.0075  LDGT1
.0063.0062.0044.0042.0190                           LDGT1
.0714.0889.0695.0685.0801.0587.0320.0611.0700.0796  LDGT2
.0392.0438.0274.0255.0440.0370.0310.0221.0137.0108  LDGT2
.0084.0038.0029.0022.0082                           LDGT2
.0231.0439.0656.0469.0387.0402.0514.0447.0506.0573  HDGV
.0477.0596.0462.0462.0588.0402.0499.0343.0268.0231  HDGV
.0305.0119.0149.0127.0350                           HDGV
.0476.0737.0832.0770.0811.0766.0702.0698.0712.0682  LDDV
.0452.0419.0359.0287.0324.0271.0177.0103.0067.0053  LDDV
.0049.0043.0030.0028.0154                           LDDV
.0512.0787.0800.0770.0782.0714.0562.0674.0633.0698  LDDT
.0412.0490.0380.0252.0331.0277.0216.0159.0071.0075  LDDT
.0063.0062.0044.0042.0190                           LDDT
.0119.0390.0424.0441.0374.0272.0577.0424.0798.0798  HDDV
.0306.0611.0611.0662.0611.0560.0289.0289.0374.0390  HDDV
.0204.0051.0085.0085.0255                           HDDV
.0423.0431.0442.0517.0495.0442.0578.0767.0759.0582  MC
.0600.3966.0000.0000.0000.0000.0000.0000.0000.0000  MC
.0000.0000.0000.0000.0000                           MC
GALVESTN Time C Lo.  Hi.   7.2  7.2 20 1 1 1  LAP RECORD  8/DD/93   LAP identifier
Trip Length Distribution by Time Group  (see Table 53 for record)
1 93 XXXX Am.b 15.1 14.3 23.3  7              SCN rec: 8/DD/93   SCN identifier
```

Table 53
Trip Length Distribution Records by Time Period for Input into POLFAC5B

Time Period	MOBILE5 Trip Length Record	
1	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
2	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
3	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
4	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
5	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
6	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
7	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
8	9.5 22.6 23.9 18.6 12.0 13.4	TRIP LENGTH AM-PK
9	9.5 22.6 23.9 18.6 12.0 13.4	TRIP LENGTH AM-PK
10	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
11	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
12	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
13	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
14	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
15	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
16	14.9 31.3 24.4 13.7 6.9 8.8	TRIP LENGTH MIDDAY
17	12.0 25.7 23.3 16.3 9.9 12.8	TRIP LENGTH PM-PEAK
18	12.0 25.7 23.3 16.3 9.9 12.8	TRIP LENGTH PM-PEAK
19	12.0 25.7 23.3 16.3 9.9 12.8	TRIP LENGTH PM-PEAK
20	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
21	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
22	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
23	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
24	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT
24 Hr. Diurnal	12.2 25.9 22.8 15.6 9.6 13.9	TRIP LENGTH DISTRIB OVERNIGHT

IV. CALCULATION OF GRIDDED EMISSIONS

As mentioned previously, the PREPIN applications were used to develop VMT and speed estimates for the weekday, Friday, and Saturday subject days. The weekday VMT and speed estimates were used in conjunction with the Tuesday, Wednesday, and Thursday emission rates, developed with the POLFAC5B application, to develop gridded emission estimates for the subject day. The Friday and Saturday VMT and speed estimates were used in conjunction with the respective Friday and Saturday emission rates, developed with the POLFAC5B application, to develop gridded emission estimates for the subject day. VMTSUM , a program written by TTI, output the VMT by time period for each of the counties. The VMT by time period for each of the counties is used by IMPSUMA to incorporate diurnal emissions into the gridded emission estimates. IMPSUMA applies the emission rates, developed using POLFAC5B, on a link-by-link basis to obtain the gridded emission estimates by time period. SUMALL was used to sum all of the 24 one-hour gridded emission estimates to calculate a 24-hour gridded emission estimate. The following provides a more detailed discussion of the method used to estimate the time-of-day emissions and the method used to develop the 24-hour emission estimates.

ESTIMATION OF GRIDDED TIME-OF-DAY EMISSIONS

For a given subject day, the gridded mobile source emissions for each of the 24 one-hour time periods were computed using the IMPSUMA program. IMPSUMA is one of a series of programs developed by the TTI to facilitate the computation of emissions. The IMPSUMA program uses emission factors obtained from POLFAC5B or COADJ, the user-estimated VMT mixes, and the VMT/speed estimates to compute the emissions by county. TTI Research Report 1279-9, **Texas Mobile Source Emissions Software Version 2.0: User's Manual**, provides a user's guide for this series of programs.

The basic inputs for the gridded emission applications of IMPSUMA for HGRTS were:

1. Data specifying the number of counties in the region and their names.
2. Names of the road types used in the study. These road types are used to summarize the emission results. The roadway types used in the gridded emission estimates are the functional classifications used in the networks.
3. VMT mix by county used in the MOBILE5a set-ups.
4. Emission factors from POLFAC5B by county.
5. Specification of the units for reporting emissions (grams, pounds or tons).
6. Link records providing the estimated VMT and speeds. For each link record, the following information must be provided: county number, road type number, VMT estimate, operational speed estimate, and center line miles. These data were prepared using the PREPIN program.
7. Coordinates for nodes and zones for calculation of gridded emission.

The emission rates produced using MOBILE5a are stratified by eight vehicle types. To apply the emission rates, VMT for a link record is disaggregated by the eight vehicle types applying the user-supplied VMT mixes. The software allows the user to input the VMT mix data by county and by roadway type.

The user-supplied VMT mixes were developed from field vehicle classification volume data collected. VMT mixes were developed by functional classifications by the respective subject emission day. Similarities in VMT mix between functional classifications (such as between principal arterials and other arterials or between locals and collectors) allowed the VMT mix data to be aggregated across functional classifications to make the best use of the available data. Using the same logic, similarities in VMT mix between counties allowed the VMT mix data to be aggregated across counties. The aggregated functional classifications consist of freeway, principal arterials and other arterials, and collectors/locals. Tables 54 through 56 present the VMT mixes by aggregated functional classification and subject emission day.

Table 54
VMT Mix for Freeways

	Vehicle Types							
Subject Emission Day	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.617	0.186	0.057	0.052	0.004	0.003	0.081	0.001
Friday	0.607	0.188	0.059	0.054	0.004	0.003	0.084	0.001
Saturday	0.648	0.199	0.056	0.034	0.005	0.003	0.054	0.001
Sunday	0.660	0.203	0.055	0.028	0.005	0.003	0.044	0.002

Table 55
VMT Mix for Arterials Principal and Other

	Vehicle Types							
Subject Emission Day	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.662	0.167	0.046	0.045	0.005	0.002	0.070	0.002
Friday	0.659	0.168	0.047	0.045	0.005	0.002	0.071	0.003
Saturday	0.682	0.173	0.047	0.035	0.005	0.002	0.055	0.001
Sunday	0.688	0.175	0.047	0.032	0.005	0.002	0.050	0.001

Table 56
VMT Mix for Collectors/Locals

Subject Emission Day	Vehicle Types							
	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.594	0.226	0.062	0.042	0.004	0.003	0.065	0.003
Friday	0.591	0.29	0.060	0.046	0.004	0.003	0.072	0.005
Saturday	0.615	0.226	0.060	0.035	0.004	0.003	0.054	0.003
Sunday	0.621	0.229	0.060	0.031	0.004	0.003	0.048	0.002

The aggregated VMT mixes were applied in the IMPSUMA model using the respective network functional classifications shown in Table 57.

Table 57
VMT Mix Functional Classification Equivalences

Aggregated Functional Classifications	Network Functional Classifications
1. Freeways	1. Urban Interstate Freeway 2. Urban Other Freeway 10. Rural Interstate Freeway 11. Rural Other Freeway
2. Arterials Principal and Other	5. Urban Principal Arterial 6. Urban Other Arterial 12. Rural Principal Arterial 13. Rural Other Arterial
3. Collectors/Locals	7. Urban Collector 8. Centroid Connector 14. Rural Major Collector 15. Rural Collector 16. Intrazonal

The emission estimates are computed for each link by multiplying the appropriate emission factors corresponding to the link's roadway type and the link's estimated speed. For non-integer speed estimates, the emission factors are computed by interpolating between the emission factors for the integer speeds on either side of the subject speed. The interpolation is performed using the reciprocals of the corresponding speeds rather than the speeds themselves. The emission results are accumulated for each county by vehicle type and roadway type.

The 24-hour diurnal emission rates were scaled to the one-hour time periods in which diurnal emissions occurred. Diurnal emissions occur due to temperature rises. However, there is a two-hour lag between when the temperature rise occurs and when the resulting diurnal occurs. The one-hour time periods in which diurnals occur were identified when the temperature data were processed for

input into POLFAC5B. To appropriately scale the 24-hour diurnal emission rates it was necessary to calculate the VMT occurring in each of the 24 one-hour time periods for each county. VMTSUM, a program written by TTI, calculated the VMT by time period for each of the counties. The VMT by time period for each of the counties and the relative temperature rise was used by IMPSUMA to scale the 24-hour diurnal emission rates and combine the diurnal emission rates into the VOC emission rates for the respective county and one-hour time period.

The gridded emission estimates by each of the 24 one-hour time periods and the five subject days were completed using IMPSUMA. The gridded emission estimates for each of the 24 one-hour time periods for August 17-21, 1993, 1996, 1999, and 2007 were included in electronic transmittals sent to TNRCC.

ESTIMATION OF 24-HOUR GRIDDED EMISSIONS

For HGRTS applications, the PREPIN, POLFAC5B, and IMPSUMA programs were applied to estimate the gridded mobile source emissions for each of the 24 one-hour time periods for each subject day. Twenty-four hour diurnal emission rates for each of the subject days and counties were computed using the individual applications of MOBILE5. IMPSUMA was executed to produce gridded emission estimates for each one-hour time period for each of the five subject days. SUMALL was executed to produce gridded emission estimates for each one-hour time period for August 17-21, 1993, 1996, 1999, and 2007.

The SUMALL program is a utility program used to compute the 24-hour gridded emission estimates for HGRTS. The SUMALL program is a utility program designed to sum the results from two or more IMPSUMA applications (i.e., the time-of-day applications). The 24-hour tabular summaries produced by the SUMALL program are essentially the same as those produced for the individual time-of-day time periods by the IMPSUMA program.

As previously noted, MOBILE5a is not structured to compute diurnal emissions for less than a 24-hour time period; therefore, a separate run of POLFAC5B was made to calculate the diurnal emissions for each application year and season. Diurnal emissions are produced by LDGV, LDGT1, LDGT, HDGV, and MC vehicle types. Diesel vehicle types do not produce diurnal emissions. Multiple diurnal emissions are produced by LDGV, LDGT1, LDGT2, and HDGV. POLFAC5B produces diurnal emission rates on a vehicles-per-mile basis by vehicle type.

The 24-hour gridded emission estimates for the five subject days were completed using SUMALL. The VOC, CO, and NOX emissions for each of the eight counties in HGRTS are summarized for each of the subject days in Tables 58 through 89 by county and year.

TRANSMITTAL OF RESULTS

The gridded emission estimates for each of the 24 one-hour time periods for August 17-21, 1993, 1996, 1999, and 2007, were transmitted to TNRCC electronically. Gridded emission estimates were provided for VOC, CO, NOX, exhaust hydrocarbons, running loss hydrocarbons, resting loss hydrocarbons, crankcase hydrocarbons, hot soak, and diurnal emissions.

Table 58
1993 Total Emissions by Subject Day for Harris County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	319,847.5	3,248,921.6	597,708.8
Aug. 18, 1993	317,401.0	3,230,210.7	597,956.4
Aug. 19, 1993	318,569.6	3,237,290.9	597,896.9
Aug. 20, 1993	335,667.2	3,405,813.7	642,713.1
Aug. 21, 1993	237,669.0	2,480,821.4	427,475.2

Table 59
1993 Total Emissions by Subject Day for Brazoria County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	18,863.9	203,199.2	40,954.4
Aug. 18, 1993	18,764.3	202,184.6	40,980.2
Aug. 19, 1993	18,866.2	203,227.4	40,952.9
Aug. 20, 1993	21,332.3	229,599.8	46,688.5
Aug. 21, 1993	18,736.9	202,224.1	37,537.0

Table 60
1993 Total Emissions by Subject Day for Fort Bend County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	19,001.8	198,480.1	40,109.9
Aug. 18, 1993	18,859.5	197,438.9	40,122.1
Aug. 19, 1993	18,928.0	197,829.4	40,119.3
Aug. 20, 1993	20,017.0	209,459.3	43,313.9
Aug. 21, 1993	14,317.7	151,198.4	28,446.5

Table 61
1993 Total Emissions by Subject Day for Waller County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	5,418	71,236.9	12,295.5
Aug. 18, 1993	5,376.7	70,753.9	12,303.7
Aug. 19, 1993	5,395.6	70,926.8	12,301.9
Aug. 20, 1993	5,718.4	75,144.9	13,290.8
Aug. 21, 1993	4,159.0	54,644.5	8,719.2

Table 62
1993 Total Emissions by Subject Day for Montgomery County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	20,420.4	236,036.8	46,478.5
Aug. 18, 1993	20,265.8	234,615.5	46,500.7
Aug. 19, 1993	20,338.7	235,135.3	46,495.7
Aug. 20, 1993	22,081.4	255,345.8	51,448.8
Aug. 21, 1993	17,779.7	206,458.8	37,294.2

Table 63
1993 Total Emissions by Subject Day for Liberty County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	7,126	76,471	15,009.5
Aug. 18, 1993	7,068.9	75,964.9	15,019.5
Aug. 19, 1993	7,095.3	76,150.2	15,017.2
Aug. 20, 1993	7,736.4	82,890.1	16,646.0
Aug. 21, 1993	6,119.3	65,802.3	12,210.6

Table 64
1993 Total Emissions by Subject Day for Chambers County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	5,568.2	81,155.8	15,494.7
Aug. 18, 1993	5,539.1	80,718.2	15,504.4
Aug. 19, 1993	5,568.2	81,152.5	15,494.4
Aug. 20, 1993	6,775.1	98,734.9	19,163.9
Aug. 21, 1993	7,729.1	112,760.2	19,046.0

Table 65
1993 Total Emissions by Subject Day for Galveston County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1993	22,579.8	230,176.1	42,483.2
Aug. 18, 1993	22,462.5	229,007.2	42,512.2
Aug. 19, 1993	22,585.3	230,247.4	42,480.8
Aug. 20, 1993	26,323.8	268,098.3	49,898.5
Aug. 21, 1993	26,700.1	272,519.1	46,054.0

Table 66
1996 Total Emissions by Subject Day for Harris County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	265,475.4	2,731,095.3	564,483.8
Aug. 18, 1996	264,086.0	2,722,399.1	564,432.7
Aug. 19, 1996	264,531.2	2,725,749.0	564,451.3
Aug. 20, 1996	279,650.4	2,875,703.5	605,741.4
Aug. 21, 1996	199,374.1	2,109,388.8	406,396.6

Table 67
1996 Total Emissions by Subject Day for Brazoria County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	17,436.6	171,733.3	39,214.0
Aug. 18, 1996	17,359.3	171,231.0	39,213.7
Aug. 19, 1996	17,437.6	171,747.5	39,214.2
Aug. 20, 1996	19,683.6	193,815.9	44,659.9
Aug. 21, 1996	17,315.4	171,767.2	36,225.8

Table 68
1996 Total Emissions by Subject Day for Fort Bend County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	20,274.3	196,654.5	44,370.4
Aug. 18, 1996	20,127.4	196,013.5	44,366.0
Aug. 19, 1996	20,204.0	196,256.1	44,367.5
Aug. 20, 1996	21,364.2	208,182.0	47,820.8
Aug. 21, 1996	15,232.0	150,436.5	31,629.5

Table 69
1996 Total Emissions by Subject Day for Waller County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	4,644.7	56,659.2	11,362.6
Aug. 18, 1996	4,610.2	56,397.8	11,363.9
Aug. 19, 1996	4,627.5	56,492.0	11,363.6
Aug. 20, 1996	4,905.6	60,030.5	12,265.7
Aug. 21, 1996	3,549.0	43,598.1	8,101.1

Table 70
1996 Total Emissions by Subject Day for Montgomery County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	19342.0	202650.2	45938.6
Aug. 18, 1996	19200.9	201894.1	45937.4
Aug. 19, 1996	19274.3	202176.1	45938.1
Aug. 20, 1996	20928.4	220099.2	50754.0
Aug. 21, 1996	16754.0	178437.4	37171.4

Table 71
1996 Total Emissions by Subject Day for Liberty County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	6089.7	59776.3	13739.3
Aug. 18, 1996	6043.0	59542.2	13739.9
Aug. 19, 1996	6067.0	59629.1	13739.9
Aug. 20, 1996	6616.7	65104.9	15201.6
Aug. 21, 1996	5205.6	51792.0	11248.5

Table 72
1996 Total Emissions by Subject Day for Chambers County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	4966.1	64591.7	14846.5
Aug. 18, 1996	4944.1	64364.9	14846.9
Aug. 19, 1996	4966.0	64591.3	14846.5
Aug. 20, 1996	6045.2	78676.5	18345.7
Aug. 21, 1996	6889.3	89736.8	18369.3

Table 73
1996 Total Emissions by Subject Day for Galveston County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1996	19999.5	194037.1	39982.7
Aug. 18, 1996	19912.6	193452.9	39984.4
Aug. 19, 1996	20002.8	194075.0	39982.8
Aug. 20, 1996	23328.9	22645.6	46973.3
Aug. 21, 1996	23716.5	231771.3	43625.3

Table 74
1999 Total Emissions by Subject Day for Harris County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	270858.5	2449853.1	525907.4
Aug. 18, 1999	268990.3	2444890.2	525730.3
Aug. 19, 1999	270012.5	2446860.0	525781.6
Aug. 20, 1999	264647.3	2584088.1	563701.5
Aug. 21, 1999	201946.6	1895394.4	380577.4

Table 75
1999 Total Emissions by Subject Day for Brazoria County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	16839.5	157680.7	38212.0
Aug. 18, 1999	16774.7	157363.4	38200.3
Aug. 19, 1999	16839.9	157689.4	38212.9
Aug. 20, 1999	19016.8	178053.8	43508.5
Aug. 21, 1999	16799.5	158896.1	35389.3

Table 76
1999 Total Emissions by Subject Day for Fort Bend County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	20161.3	183094.8	42917.3
Aug. 18, 1999	20020.0	182675.1	42908.1
Aug. 19, 1999	20097.3	182837.7	42908.1
Aug. 20, 1999	21258.3	194088.9	46208.7
Aug. 21, 1999	15192.6	141060.1	30771.9

Table 77
1999 Total Emissions by Subject Day for Waller County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	4331.6	48699.0	10821.6
Aug. 18, 1999	4300.4	48527.0	10819.8
Aug. 19, 1999	4317.1	48589.2	10820.3
Aug. 20, 1999	4574.3	51681.6	11675.9
Aug. 21, 1999	3326.0	37773.5	7737.4

Table 78
1999 Total Emissions by Subject Day for Montgomery County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	18704.6	179185.9	44081.1
Aug. 18, 1999	18570.9	178702.1	44069.4
Aug. 19, 1999	18644.1	178884.9	44072.7
Aug. 20, 1999	20230.2	194800.1	48639.4
Aug. 21, 1999	16257.8	159158.6	35993.9

Table 79
1999 Total Emissions by Subject Day for Liberty County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	5693.7	51233.4	12948.1
Aug. 18, 1999	5651.1	51088.1	12944.6
Aug. 19, 1999	5674.5	51139.1	12945.6
Aug. 20, 1999	6189.0	55902.2	14309.4
Aug. 21, 1999	4884.2	44856.1	10657.2

Table 80
1999 Total Emissions by Subject Day for Chambers County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	4578.3	53338.0	13550.8
Aug. 18, 1999	4560.3	53189.6	13547.8
Aug. 19, 1999	4578.1	53337.2	13550.9
Aug. 20, 1999	5571.5	64974.3	16729.5
Aug. 21, 1999	6386.0	74416.1	16902.7

Table 81
1999 Total Emissions by Subject Day for Galveston County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 1999	18566.4	171214.2	36731.0
Aug. 18, 1999	18495.2	170867.4	36721.2
Aug. 19, 1999	18568.3	171235.8	36732.1
Aug. 20, 1999	21677.1	200155.1	43109.8
Aug. 21, 1999	22132.8	206347.1	40348.8

Table 82
2007 Total Emissions by Subject Day for Harris County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007		2991729.8	690975.9
Aug. 18, 2007	336845.9	2991132.9	690625.1
Aug. 19, 2007	338034.6	2991489.7	690724.0
Aug. 20, 2007	329241.1	3122179.2	729461.1
Aug. 21, 2007	272055.9	2471196.4	554727.6

Table 83
2007 Total Emissions by Subject Day for Brazoria County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	31778.2	287788.0	76615.1
Aug. 18, 2007	31696.0	287736.2	76555.4
Aug. 19, 2007	31816.7	287813.2	76641.2
Aug. 20, 2007	33976.8	306538.9	82578.9
Aug. 21, 2007	31598.0	289667.5	72639.3

Table 84
2007 Total Emissions by Subject Day for Fort Bend County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	21103.7	187775.9	44619.9
Aug. 18, 2007	20981.6	187702.6	44595.6
Aug. 19, 2007	21056.0	187702.6	44595.6
Aug. 20, 2007	22313.4	199539.5	47921.8
Aug. 21, 2007	15959.4	146160.0	32564.5

Table 85
2007 Total Emissions by Subject Day for Waller County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	4932.0	43643.5	12326.6
Aug. 18, 2007	4901.7	43615.5	12320.7
Aug. 19, 2007	4921.3	43625.7	12322.3
Aug. 20, 2007	5162.1	46040.4	13137.4
Aug. 21, 2007	3999.4	35985.5	9554.4

Table 86
2007 Total Emissions by Subject Day for Montgomery County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	20628.5	180739.5	46981.8
Aug. 18, 2007	20507.0	180739.5	46955.9
Aug. 19, 2007	20583.1	180713.9	46962.8
Aug. 20, 2007	22218.7	195714.8	51510.0
Aug. 21, 2007	18178.3	164145.4	39316.8

Table 87
2007 Total Emissions by Subject Day for Liberty County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	5368.1	41873.7	12110.4
Aug. 18, 2007	5332.6	41857.6	12103.2
Aug. 19, 2007	5354.7	41865.5	12105.1
Aug. 20, 2007	5845.3	45824.4	13341.2
Aug. 21, 2007	4626.0	37240.7	10145.2

Table 88
2007 Total Emissions by Subject Day for Chambers County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	4285.0	43106.0	12284.0
Aug. 18, 2007	4274.3	43084.2	12276.8
Aug. 19, 2007	4284.8	43106.1	12284.3
Aug. 20, 2007	5212.8	52469.8	15108.8
Aug. 21, 2007	5994.3	60894.4	15716.4

Table 89
2007 Total Emissions by Subject Day for Galveston County (pounds)

Subject Day	VOC	CO	NOX
Aug. 17, 2007	16730.7	149030.4	33485.6
Aug. 18, 2007	16690.9	149008.5	33464.2
Aug. 19, 2007	16730.8	149032.0	33487.7
Aug. 20, 2007	19541.9	174189.6	39187.9
Aug. 21, 2007	20028.0	181784.4	37431.2