Development of Gridded Mobile Source Emissions Estimates for the Houston-Galveston Nonattainment Counties FY2007 in Support of the COAST Project

Technical Note

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16. Abstract

This report documents the methodology used to develop the Houston-Galveston Nonattainment Counties gridded mobile source emissions inventories for FY2007. Included in the report are an overview of the emissions 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 emissions rates using the EPA's MOBILE5a Hybrid program; and an outline of the method used to develop the emissions estimates using the MOBILE5a Hybrid emissions rates.

These emissions 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 EMISSIONS ESTIMATES FOR THE HOUSTON GALVESTON NONATTAINMENT COUNTIES FY2007 IN SUPPORT OF THE COAST PROJECT

by

George B. Dresser, Ph.D
Research Scientist
Texas Transportation Institute

Charles E. Bell
Systems Analyst
Texas Transportation Institute

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TEXAS TRANSPORTATION INSTITUTE
The Texas A&M University System
College Station, Texas 77843-3135

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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 FY2007. 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 author who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the Texas Natural Resource Conservation Commission (TNRCC). This report does not constitute a standard, specification, or regulation. It is not intended for construction, bidding, or permit purposes. George B. Dresser, Ph.D., is Principal Investigator for this project.

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SUMMARY

EMISSIONS 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 FY2007. 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 emissions estimates are developed by county. The emissions estimation methodology provides complete coverage for the HGAC counties.

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

PREPIN2 The PREPIN2 program was developed for use in urban areas that 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. A simplified version of the HGAC speed model was 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.

POLFAC5HB The POLFAC5HB program obtains emissions rates using MOBILE5a Hybrid.

IMPSUMA The IMPSUMA program applies the emissions rates (obtained from POLFAC5HB) and VMT mixes to the time-of-day VMT and speed estimates to estimate the emissions.

Using the PREPIN2 software, the HGAC counties' 24-hour assignments were used to develop seasonally adjusted time-of-day for weekdays (Monday - Thursday), Friday, Saturday, and Sunday 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 (September) before the time-of-day volumes and speeds are estimated.

The POLFAC5HB program was applied to develop the seasonal emissions factors for each time-of-day period for each of the analysis years. The average September event day temperatures for the subject time-of-day period were estimated and input to the POLFAC5HB application of the MOBILE5a Hybrid model. A separate 24-hour application of MOBILE5a Hybrid was used to develop the diurnal emissions 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 emissions estimates for each of the time-of-day periods and the diurnal estimates were summed to develop the final emissions 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 in developing the FY2007 emissions inventories for Houston-Galveston Area Council (HGAC) counties. The remainder of this chapter provides an overview of the emissions 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 emissions rates using the EPA's MOBILE5a Hybrid program. Chapter IV discusses the method used to develop the emissions estimates (inventories) using the MOBILE5a Hybrid emissions rates.

OVERVIEW OF EMISSIONS ESTIMATION METHODOLOGY

For the COAST project, a series of 24-hour assignments was performed for the HGAC region for FY2007. Summer mobile source emissions estimates were developed for each of these assignments. A new series of programs (i.e., the POLFAC5HB, PREPIN2, and IMPSUMA programs developed by TTI) was used for these analyses. The following briefly describes the methodology and software used in developing the estimates.

PREPIN2 The PREPIN2 program was developed for use in urban areas that 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 Hybrid emissions factors.

POLFAC5HB The POLFAC5HB program is used to apply the EPA's MOBILE5a Hybrid program to obtain the emissions FACTORS (rates). The MOBILE5a Hybrid emissions 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. The research team computed three pollution types: VOC, CO and NOx. For a given county, there are 1,512 emissions factors. These emissions factors are output to an ASCII file for subsequent input to the IMPSUMA program. POLFAC5HB is applied for each time-of-day period being used. These time-of-day emissions factors are applied using the IMPSUMA program to time-of-day VMT estimates by link.

IMPSUMA The IMPSUMA program applies the emissions rates (obtained from POLFAC5HB) 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 emissions results.
3. VMT mix by county and roadway type.
4. MOBILE5a Hybrid emissions factors developed using POLFAC5HB 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. PREPIN2 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 Hybrid emissions factors are applied to estimate the mobile source emissions for that link. The emissions for each county and emissions type are reported by both roadway type and vehicle type (i.e., cross classified by roadway type and vehicle type).

Using the PREPIN2 software, the HGAC 24-hour assignments were used to develop seasonally adjusted time-of-day average annual weekday traffic (AAWT) VMT and speed estimates for 24-hour time-of-day periods corresponding to the 24 hours of the day. Separate time-of-day for weekdays (Monday - Thursday), Friday, Saturday, and Sunday VMT and speed estimates were developed for the summer (September) season.

POLFAC5HB was applied to develop the seasonal emissions 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 was input to the POLFAC5HB application of the MOBILE5a Hybrid a model. Separate 24-hour applications of MOBILE5a Hybrid 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 that experienced a temperature increase. Diurnal emissions only occur during periods of temperature rise. The emissions estimates for each of the 24 time-of-day periods and the diurnal estimates were summed to develop the final emissions estimates.

24-HOUR TRAFFIC ASSIGNMENTS

The 24-hour capacity-restrained traffic assignments were developed by HGAC (MPO). The forecast year (FY2007) 24-hour traffic assignments, trip tables, and networks were used in the analyses.

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 PREPIN2 program. PREPIN2 is one of a series of programs developed by TTI to facilitate the application of EPA's MOBILE5a Hybrid program in estimating mobile source emissions. The PREPIN2 program was developed for use in urban areas that 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. A simplified version of the HGAC speed model was 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 Hybrid emissions rates.

For the development of gridded emissions, the HGAC 24-hour assignment was used as input to the PREPIN2 program. For a given application, 24 applications of PREPIN2 are run to estimate the directional VMT and speeds for each of the 24 one-hour time periods comprising the 24-hour period. The research team performed four PREPIN2 applications to estimate gridded emissions for Houston-Galveston area. These four applications included weekday, Friday, Saturday, and Sunday subject event days.

The PREPIN2 applications were used to develop VMT and speed estimates for the weekday, Friday, Saturday, and Sunday subject days. The weekday PREPIN2 applications are used in conjunction with the Tuesday, Wednesday, and Thursday POLFAC5HB application to develop gridded emissions estimates for the respective subject day using IMPSUMA. The Friday, Saturday, and Sunday PREPIN2 applications are used in conjunction with the respective Friday, Saturday, and Sunday POLFAC5HB applications using IMPSUMA.

For a given application of the PREPIN2 program for the Houston-Galveston area analyses, the following parameters and data were input to PREPIN2:

- County table of equals
- Area type table of equals (obtained from a field on the link data)
- 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
- Intrazonal trip tables by zone
- Zonal radii data
- Capacity restrained assignment results

The remainder of this section discusses the essential input data used in the Houston-Galveston area PREPIN2 applications to prepare the time-of-day VMT and speed estimates. The primary output of PREPIN2 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 Hybrid emissions rates (developed using the POLFAC5HB 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 emissions estimates to obtain 24-hour gridded emissions.

COUNTY SPECIFICATIONS

The PREPIN2 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 PREPIN2 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 emissions 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 PREPIN2. The specification of the county number in these data allows the IMPSUMA program to accumulate and report the mobile source emissions estimates by county and/or grid.

AREA TYPE SPECIFICATIONS

PREPIN2 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 1
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 where the link is located is determined by using the link's associated zone number.

TRAVEL MODEL BASED VMT AND HPMS ADJUSTMENT FACTORS

Baseline estimates of VMT for the forecast year (FY2007) are taken from the FY2007 travel model runs produced by HGAC. Control totals and forecasts from a known base year are not used. Base year (1995) travel model VMT is, however, adjusted to match base year (1995) HPMS VMT estimates in much the same way as control totals are adjusted in the forecast based method.

HGAC travel model VMT is average seasonal (i.e., non-summer) weekday traffic (ASWT), that is, Monday through Friday, September through May. HPMS, unfortunately, is average annual daily traffic (AADT), meaning Monday through Sunday, January through December. The desired HPMS adjustment factor is, therefore, the ratio of HPMS ASWT to HGAC ASWT. HPMS AADT is converted to HPMS ASWT using 1995 ATR (Automatic Traffic Recorder) data published by TxDOT. These data are available by month, by day of week, for each of the count stations in the eight-county HGAC area. (The definitions of county count station area is as described for the seasonal adjustment factors, below.)

Total counts for these combined stations for ASWT (Monday through Friday, September through May) are divided by the total counts for the same set of stations for AADT (Monday through Sunday, January through December). This produces a single ASWT VMT adjustment factor that converts AADT to ASWT for the eight county area. For 1995, this factor is 1.07352 (see Table 3).

This factor is used to convert HPMS AADT to HPMS ASWT to make it comparable with HGAC travel model ASWT. In developing VMT estimates for generation of the HPMS conversion factor, non-local VMT is treated separately from local VMT. Specifically, the local VMT estimates for 1995 developed by HGAC (Conformity Determinations Appendix D for Vision 2020 Metropolitan Transportation Plan and the 1998-2000 Transportation Improvement

Program, as adopted October 1997) are used (after being "deseasonalized" using HGAC's own ozone season factor of 1.009). This procedure is summarized in Table 3. The HPMS adjustment factor produced by this procedure is 1.02932. This factor is used to adjust HGAC travel model VMT to be consistent with HPMS VMT.

TABLE 2
VMT HPMS Adjustment Factors Procedure

Data Source	1995 VMT		
	Non-Local	Local	Total
HPMS AADT	88,836,011	11,223,238	100,059,249
HPMS ASWT	1.07352		107,415,605
HGAC ASWT	93,941,960	10,414,203	104,356,163
HPMS Factor	107,415,605 / 104,356,163 = 1.02932		

SEASONAL VMT ADJUSTMENT FACTORS

Because travel on the highway system varies somewhat by season, PREPIN2 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. VMT adjustment factors are used to convert seasonally adjusted AADT to the desired day of week.

Combined seasonal and VMT adjustment factors were calculated along with the daily VMT adjustment factors in a single step using 1996 ATR Traffic Recorder) data (published by the TxDOT). Travel models simulate AWT for a typical school year (September through May) and weekday (Monday through Friday). These factors convert September through May, Monday through Friday ADT to September weekday, Friday, Saturday, and Sunday (i.e., for September 6-12, 2007) ADT. Travel model estimates of the AWT (Monday through Friday) were adjusted to September weekday (Monday through Thursday), Friday, Saturday, and Sunday using these factors. The factors are a ratio of ADT for each weekday and each month over ADT for September through May, Monday through Friday, for each ATR station, aggregated by county. The combined seasonal - daily factors used in the analysis are shown in Table 4.

TABLE 3
Seasonal VMT Adjustment Factors by County and Day of the Week

County	VMT Adjustment Factors			
	Weekday	Friday	Saturday	Sunday
Brazoria	1.02033	1.16100	0.98318	0.85886
Chambers	0.97930	1.10248	1.41304	1.23810
Fort Bend	0.98088	1.07335	0.82003	0.64611
Galveston	0.98205	1.09229	1.05248	0.95384
Harris	0.97970	1.07082	0.81580	0.64091
Liberty	0.98228	1.07961	0.93688	0.79995
Montgomery	0.96843	1.09964	0.89909	0.72679
Waller	0.97856	1.07421	0.82491	0.65049

ATR data collection stations used in HGRTS for the gridded emissions 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

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

TABLE 4
2007 Final Seasonally Adjusted Model VMT

County	2007 Final Seasonally Adjusted Model VMT by Day of the Week			
	Weekday	Friday	Saturday	Sunday
Brazoria	7,637,145	9,033,613	8,199,635	6,742,926
Chambers	1,981,012	2,294,390	2,698,561	2,595,272
Fort Bend	9,789,704	11,627,151	8,683,439	7,289,864
Galveston	5,601,400	6,874,232	7,209,230	4,873,550
Harris	101,551,829	120,657,803	89,614,732	75,314,203
Liberty	2,158,780	2,628,922	2,143,136	1,778,984
Montgomery	9,157,376	10,903,847	9,058,367	7,718,875
Waller	1,590,537	1,889,714	1,424,014	1,200,226
All Counties	139,467,783	165,909,672	129,031,114	107,513,900

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 PREPIN2. This program was run for weekday, Friday, Saturday, and Sunday applications. The time-of-day travel factors are shown in Tables 5 through 24.

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.010101	0.010101	0.008866	0.008866	0.005589	0.005589	0.010101	0.010101	0.008866	0.008866	0.008866	0.005589	0.005589
2	0.006459	0.006459	0.005825	0.005825	0.003887	0.003887	0.006459	0.006459	0.005825	0.005825	0.005825	0.003887	0.003887
3	0.005878	0.005878	0.004893	0.004893	0.003872	0.003872	0.005878	0.005878	0.004893	0.004893	0.004893	0.003872	0.003872
4	0.004804	0.004804	0.003173	0.003173	0.004226	0.004226	0.004804	0.004804	0.003173	0.003173	0.003173	0.004226	0.004226
5	0.006928	0.006928	0.004247	0.004247	0.008401	0.008401	0.006928	0.006928	0.004247	0.004247	0.004247	0.008401	0.008401
6	0.021776	0.021776	0.014491	0.014491	0.024648	0.024648	0.021776	0.021776	0.014491	0.014491	0.014491	0.024648	0.024648
7	0.059444	0.059444	0.045344	0.045344	0.040888	0.040888	0.059444	0.059444	0.045344	0.045344	0.045344	0.040888	0.040888
8	0.077120	0.077120	0.073845	0.073845	0.059638	0.059638	0.077120	0.077120	0.073845	0.073845	0.073845	0.059638	0.059638
9	0.060234	0.060234	0.067518	0.067518	0.051857	0.051857	0.060234	0.060234	0.067518	0.067518	0.067518	0.051857	0.051857
10	0.051292	0.051292	0.052463	0.052463	0.042857	0.042857	0.051292	0.051292	0.052463	0.052463	0.052463	0.042857	0.042857
11	0.050670	0.050670	0.049986	0.049986	0.041494	0.041494	0.050670	0.050670	0.049986	0.049986	0.049986	0.041494	0.041494
12	0.053514	0.053514	0.057882	0.057882	0.044710	0.044710	0.053514	0.053514	0.057882	0.057882	0.057882	0.044710	0.044710
13	0.053456	0.053456	0.060293	0.060293	0.049498	0.049498	0.053456	0.053456	0.060293	0.060293	0.060293	0.049498	0.049498
14	0.055162	0.055162	0.058553	0.058553	0.058642	0.058642	0.055162	0.055162	0.058553	0.058553	0.058553	0.058642	0.058642
15	0.058541	0.058541	0.061388	0.061388	0.056962	0.056962	0.058541	0.058541	0.061388	0.061388	0.061388	0.056962	0.056962
16	0.066065	0.066065	0.065776	0.065776	0.072409	0.072409	0.066065	0.066065	0.065776	0.065776	0.065776	0.072409	0.072409
17	0.074882	0.074882	0.075768	0.075768	0.082195	0.082195	0.074882	0.074882	0.075768	0.075768	0.075768	0.082195	0.082195
18	0.078599	0.078599	0.077365	0.077365	0.093206	0.093206	0.078599	0.078599	0.077365	0.077365	0.077365	0.093206	0.093206
19	0.056445	0.056445	0.058969	0.058969	0.082526	0.082526	0.056445	0.056445	0.058969	0.058969	0.058969	0.082526	0.082526
20	0.041706	0.041706	0.044604	0.044604	0.060561	0.060561	0.041706	0.041706	0.044604	0.044604	0.044604	0.060561	0.060561
21	0.033109	0.033109	0.034782	0.034782	0.045316	0.045316	0.033109	0.033109	0.034782	0.034782	0.034782	0.045316	0.045316
22	0.030036	0.030036	0.030965	0.030965	0.033547	0.033547	0.030036	0.030036	0.030965	0.030965	0.030965	0.033547	0.033547
23	0.025845	0.025845	0.025821	0.025821	0.022644	0.022644	0.025845	0.025845	0.025821	0.025821	0.025821	0.022644	0.022644
24	0.017936	0.017936	0.017183	0.017183	0.010428	0.010428	0.017936	0.017936	0.017183	0.017183	0.017183	0.010428	0.010428

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.010101	0.010101	0.008866	0.008866	0.005589	0.005589	0.010101	0.010101	0.008866	0.008866	0.008866	0.005589	0.005589
2	0.006459	0.006459	0.005825	0.005825	0.003887	0.003887	0.006459	0.006459	0.005825	0.005825	0.005825	0.003887	0.003887
3	0.005878	0.005878	0.004893	0.004893	0.003872	0.003872	0.005878	0.005878	0.004893	0.004893	0.004893	0.003872	0.003872
4	0.004804	0.004804	0.003173	0.003173	0.004226	0.004226	0.004804	0.004804	0.003173	0.003173	0.003173	0.004226	0.004226
5	0.006928	0.006928	0.004247	0.004247	0.008401	0.008401	0.006928	0.006928	0.004247	0.004247	0.004247	0.008401	0.008401
6	0.021776	0.021776	0.014491	0.014491	0.024648	0.024648	0.021776	0.021776	0.014491	0.014491	0.014491	0.024648	0.024648
7	0.059444	0.059444	0.045344	0.045344	0.040888	0.040888	0.059444	0.059444	0.045344	0.045344	0.045344	0.040888	0.040888
8	0.077120	0.077120	0.073845	0.073845	0.059638	0.059638	0.077120	0.077120	0.073845	0.073845	0.073845	0.059638	0.059638
9	0.060234	0.060234	0.067518	0.067518	0.051857	0.051857	0.060234	0.060234	0.067518	0.067518	0.067518	0.051857	0.051857
10	0.051292	0.051292	0.052463	0.052463	0.042857	0.042857	0.051292	0.051292	0.052463	0.052463	0.052463	0.042857	0.042857
11	0.050670	0.050670	0.049986	0.049986	0.041494	0.041494	0.050670	0.050670	0.049986	0.049986	0.049986	0.041494	0.041494
12	0.053514	0.053514	0.057882	0.057882	0.044710	0.044710	0.053514	0.053514	0.057882	0.057882	0.057882	0.044710	0.044710
13	0.053456	0.053456	0.060293	0.060293	0.049498	0.049498	0.053456	0.053456	0.060293	0.060293	0.060293	0.049498	0.049498
14	0.055162	0.055162	0.058553	0.058553	0.058642	0.058642	0.055162	0.055162	0.058553	0.058553	0.058553	0.058642	0.058642
15	0.058541	0.058541	0.061388	0.061388	0.056962	0.056962	0.058541	0.058541	0.061388	0.061388	0.061388	0.056962	0.056962
16	0.066065	0.066065	0.065776	0.065776	0.072409	0.072409	0.066065	0.066065	0.065776	0.065776	0.065776	0.072409	0.072409
17	0.074882	0.074882	0.075768	0.075768	0.082195	0.082195	0.074882	0.074882	0.075768	0.075768	0.075768	0.082195	0.082195
18	0.078599	0.078599	0.077365	0.077365	0.093206	0.093206	0.078599	0.078599	0.077365	0.077365	0.077365	0.093206	0.093206
19	0.056445	0.056445	0.058969	0.058969	0.082526	0.082526	0.056445	0.056445	0.058969	0.058969	0.058969	0.082526	0.082526
20	0.041706	0.041706	0.044604	0.044604	0.060561	0.060561	0.041706	0.041706	0.044604	0.044604	0.044604	0.060561	0.060561
21	0.033109	0.033109	0.034782	0.034782	0.045316	0.045316	0.033109	0.033109	0.034782	0.034782	0.034782	0.045316	0.045316
22	0.030036	0.030036	0.030965	0.030965	0.033547	0.033547	0.030036	0.030036	0.030965	0.030965	0.030965	0.033547	0.033547
23	0.025845	0.025845	0.025821	0.025821	0.022644	0.022644	0.025845	0.025845	0.025821	0.025821	0.025821	0.022644	0.022644
24	0.017936	0.017936	0.017183	0.017183	0.010428	0.010428	0.017936	0.017936	0.017183	0.017183	0.017183	0.010428	0.010428

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.009899	0.009899	0.010740	0.010740	0.005589	0.005589	0.009899	0.009899	0.010740	0.010740	0.010740	0.005589	0.005589
2	0.005988	0.005988	0.006907	0.006907	0.003887	0.003887	0.005988	0.005988	0.006907	0.006907	0.006907	0.003887	0.003887
3	0.005155	0.005155	0.006124	0.006124	0.003872	0.003872	0.005155	0.005155	0.006124	0.006124	0.006124	0.003872	0.003872
4	0.003777	0.003777	0.003907	0.003907	0.004226	0.004226	0.003777	0.003777	0.003907	0.003907	0.003907	0.004226	0.004226
5	0.004681	0.004681	0.004999	0.004999	0.008401	0.008401	0.004681	0.004681	0.004999	0.004999	0.004999	0.008401	0.008401
6	0.012244	0.012244	0.013746	0.013746	0.024648	0.024648	0.012244	0.012244	0.013746	0.013746	0.013746	0.024648	0.024648
7	0.038290	0.038290	0.036543	0.036543	0.040888	0.040888	0.038290	0.038290	0.036543	0.036543	0.036543	0.040888	0.040888
8	0.077547	0.077547	0.058773	0.058773	0.059638	0.059638	0.077547	0.077547	0.058773	0.058773	0.058773	0.059638	0.059638
9	0.053864	0.053864	0.056626	0.056626	0.051857	0.051857	0.053864	0.053864	0.056626	0.056626	0.056626	0.051857	0.051857
10	0.045773	0.045773	0.046060	0.046060	0.042857	0.042857	0.045773	0.045773	0.046060	0.046060	0.046060	0.042857	0.042857
11	0.049657	0.049657	0.042817	0.042817	0.041494	0.041494	0.049657	0.049657	0.042817	0.042817	0.042817	0.041494	0.041494
12	0.054705	0.054705	0.054264	0.054264	0.044710	0.044710	0.054705	0.054705	0.054264	0.054264	0.054264	0.044710	0.044710
13	0.055931	0.055931	0.060487	0.060487	0.049498	0.049498	0.055931	0.055931	0.060487	0.060487	0.060487	0.049498	0.049498
14	0.057659	0.057659	0.061056	0.061056	0.058642	0.058642	0.057659	0.057659	0.061056	0.061056	0.061056	0.058642	0.058642
15	0.061588	0.061588	0.062705	0.062705	0.056962	0.056962	0.061588	0.061588	0.062705	0.062705	0.062705	0.056962	0.056962
16	0.069080	0.069080	0.066580	0.066580	0.072409	0.072409	0.069080	0.069080	0.066580	0.066580	0.066580	0.072409	0.072409
17	0.081243	0.081243	0.075315	0.075315	0.082195	0.082195	0.081243	0.081243	0.075315	0.075315	0.075315	0.082195	0.082195
18	0.088592	0.088592	0.080516	0.080516	0.093206	0.093206	0.088592	0.088592	0.080516	0.080516	0.080516	0.093206	0.093206
19	0.060774	0.060774	0.068529	0.068529	0.082526	0.082526	0.060774	0.060774	0.068529	0.068529	0.068529	0.082526	0.082526
20	0.045996	0.045996	0.053810	0.053810	0.060561	0.060561	0.045996	0.045996	0.053810	0.053810	0.053810	0.060561	0.060561
21	0.037494	0.037494	0.044524	0.044524	0.045316	0.045316	0.037494	0.037494	0.044524	0.044524	0.044524	0.045316	0.045316
22	0.032374	0.032374	0.037856	0.037856	0.033547	0.033547	0.032374	0.032374	0.037856	0.037856	0.037856	0.033547	0.033547
23	0.027675	0.027675	0.028272	0.028272	0.022644	0.022644	0.027675	0.027675	0.028272	0.028272	0.028272	0.022644	0.022644
24	0.020013	0.020013	0.018844	0.018844	0.010428	0.010428	0.020013	0.020013	0.018844	0.018844	0.018844	0.010428	0.010428

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.012058	0.012058	0.007230	0.007230	0.005589	0.005589	0.012058	0.012058	0.007230	0.007230	0.007230	0.005589	0.005589
2	0.008543	0.008543	0.004469	0.004469	0.003887	0.003887	0.008543	0.008543	0.004469	0.004469	0.004469	0.003887	0.003887
3	0.007630	0.007630	0.003407	0.003407	0.003872	0.003872	0.007630	0.007630	0.003407	0.003407	0.003407	0.003872	0.003872
4	0.006802	0.006802	0.003897	0.003897	0.004226	0.004226	0.006802	0.006802	0.003897	0.003897	0.003897	0.004226	0.004226
5	0.009587	0.009587	0.011269	0.011269	0.008401	0.008401	0.009587	0.009587	0.011269	0.011269	0.011269	0.008401	0.008401
6	0.025017	0.025017	0.039913	0.039913	0.024648	0.024648	0.025017	0.025017	0.039913	0.039913	0.039913	0.024648	0.024648
7	0.053346	0.053346	0.069782	0.069782	0.040888	0.040888	0.053346	0.053346	0.069782	0.069782	0.069782	0.040888	0.040888
8	0.058888	0.058888	0.073848	0.073848	0.059638	0.059638	0.058888	0.058888	0.073848	0.073848	0.073848	0.059638	0.059638
9	0.052111	0.052111	0.050499	0.050499	0.051857	0.051857	0.052111	0.052111	0.050499	0.050499	0.050499	0.051857	0.051857
10	0.049725	0.049725	0.047721	0.047721	0.042857	0.042857	0.049725	0.049725	0.047721	0.047721	0.047721	0.042857	0.042857
11	0.051473	0.051473	0.046411	0.046411	0.041494	0.041494	0.051473	0.051473	0.046411	0.046411	0.046411	0.041494	0.041494
12	0.053914	0.053914	0.048967	0.048967	0.044710	0.044710	0.053914	0.053914	0.048967	0.048967	0.048967	0.044710	0.044710
13	0.055094	0.055094	0.049400	0.049400	0.049498	0.049498	0.055094	0.055094	0.049400	0.049400	0.049400	0.049498	0.049498
14	0.056912	0.056912	0.050419	0.050419	0.058642	0.058642	0.056912	0.056912	0.050419	0.050419	0.050419	0.058642	0.058642
15	0.059225	0.059225	0.055513	0.055513	0.056962	0.056962	0.059225	0.059225	0.055513	0.055513	0.055513	0.056962	0.056962
16	0.063828	0.063828	0.066804	0.066804	0.072409	0.072409	0.063828	0.063828	0.066804	0.066804	0.066804	0.072409	0.072409
17	0.067577	0.067577	0.079738	0.079738	0.082195	0.082195	0.067577	0.067577	0.079738	0.079738	0.079738	0.082195	0.082195
18	0.070278	0.070278	0.084603	0.084603	0.093206	0.093206	0.070278	0.070278	0.084603	0.084603	0.084603	0.093206	0.093206
19	0.063623	0.063623	0.065777	0.065777	0.082526	0.082526	0.063623	0.063623	0.065777	0.065777	0.065777	0.082526	0.082526
20	0.050700	0.050700	0.044074	0.044074	0.060561	0.060561	0.050700	0.050700	0.044074	0.044074	0.044074	0.060561	0.060561
21	0.040109	0.040109	0.033823	0.033823	0.045316	0.045316	0.040109	0.040109	0.033823	0.033823	0.033823	0.045316	0.045316
22	0.035201	0.035201	0.028184	0.028184	0.033547	0.033547	0.035201	0.035201	0.028184	0.028184	0.028184	0.033547	0.033547
23	0.028106	0.028106	0.020766	0.020766	0.022644	0.022644	0.028106	0.028106	0.020766	0.020766	0.020766	0.022644	0.022644
24	0.020252	0.020252	0.013484	0.013484	0.010428	0.010428	0.020252	0.020252	0.013484	0.013484	0.013484	0.010428	0.010428

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.008329	0.008329	0.008329	0.008329	0.007435	0.007435	0.008329	0.008329	0.008329	0.008329	0.008329	0.007435	0.007435
2	0.005598	0.005598	0.005598	0.005598	0.005318	0.005318	0.005598	0.005598	0.005598	0.005598	0.005598	0.005318	0.005318
3	0.005042	0.005042	0.005042	0.005042	0.005082	0.005082	0.005042	0.005042	0.005042	0.005042	0.005042	0.005082	0.005082
4	0.005221	0.005221	0.005221	0.005221	0.005345	0.005345	0.005221	0.005221	0.005221	0.005221	0.005221	0.005345	0.005345
5	0.009803	0.009803	0.009803	0.009803	0.010056	0.010056	0.009803	0.009803	0.009803	0.009803	0.009803	0.010056	0.010056
6	0.032432	0.032432	0.032432	0.032432	0.035002	0.035002	0.032432	0.032432	0.032432	0.032432	0.032432	0.035002	0.035002
7	0.058440	0.058440	0.058440	0.058440	0.063302	0.063302	0.058440	0.058440	0.058440	0.058440	0.058440	0.063302	0.063302
8	0.065128	0.065128	0.065128	0.065128	0.074663	0.074663	0.065128	0.065128	0.065128	0.065128	0.065128	0.074663	0.074663
9	0.057697	0.057697	0.057697	0.057697	0.052601	0.052601	0.057697	0.057697	0.057697	0.057697	0.057697	0.052601	0.052601
10	0.050154	0.050154	0.050154	0.050154	0.045776	0.045776	0.050154	0.050154	0.050154	0.050154	0.050154	0.045776	0.045776
11	0.049355	0.049355	0.049355	0.049355	0.044185	0.044185	0.049355	0.049355	0.049355	0.049355	0.049355	0.044185	0.044185
12	0.051135	0.051135	0.051135	0.051135	0.040610	0.040610	0.051135	0.051135	0.051135	0.051135	0.051135	0.040610	0.040610
13	0.052099	0.052099	0.052099	0.052099	0.040004	0.040004	0.052099	0.052099	0.052099	0.052099	0.052099	0.040004	0.040004
14	0.053785	0.053785	0.053785	0.053785	0.043907	0.043907	0.053785	0.053785	0.053785	0.053785	0.053785	0.043907	0.043907
15	0.057769	0.057769	0.057769	0.057769	0.055401	0.055401	0.057769	0.057769	0.057769	0.057769	0.057769	0.055401	0.055401
16	0.064759	0.064759	0.064759	0.064759	0.064946	0.064946	0.064759	0.064759	0.064759	0.064759	0.064759	0.064946	0.064946
17	0.072303	0.072303	0.072303	0.072303	0.086134	0.086134	0.072303	0.072303	0.072303	0.072303	0.072303	0.086134	0.086134
18	0.077950	0.077950	0.077950	0.077950	0.097080	0.097080	0.077950	0.077950	0.077950	0.077950	0.077950	0.097080	0.097080
19	0.068825	0.068825	0.068825	0.068825	0.076326	0.076326	0.068825	0.068825	0.068825	0.068825	0.068825	0.076326	0.076326
20	0.048420	0.048420	0.048420	0.048420	0.049511	0.049511	0.048420	0.048420	0.048420	0.048420	0.048420	0.049511	0.049511
21	0.036254	0.036254	0.036254	0.036254	0.035285	0.035285	0.036254	0.036254	0.036254	0.036254	0.036254	0.035285	0.035285
22	0.030705	0.030705	0.030705	0.030705	0.028952	0.028952	0.030705	0.030705	0.030705	0.030705	0.030705	0.028952	0.028952
23	0.023659	0.023659	0.023659	0.023659	0.021654	0.021654	0.023659	0.023659	0.023659	0.023659	0.023659	0.021654	0.021654
24	0.015140	0.015140	0.015140	0.015140	0.011426	0.011426	0.015140	0.015140	0.015140	0.015140	0.015140	0.011426	0.011426

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.010471	0.010471	0.011076	0.011076	0.007579	0.007579	0.010471	0.010471	0.011076	0.011076	0.011076	0.007579	0.007579
2	0.006731	0.006731	0.007169	0.007169	0.005305	0.005305	0.006731	0.006731	0.007169	0.007169	0.007169	0.005305	0.005305
3	0.006217	0.006217	0.006541	0.006541	0.004509	0.004509	0.006217	0.006217	0.006541	0.006541	0.006541	0.004509	0.004509
4	0.004850	0.004850	0.003954	0.003954	0.004843	0.004843	0.004850	0.004850	0.003954	0.003954	0.003954	0.004843	0.004843
5	0.006563	0.006563	0.004602	0.004602	0.008555	0.008555	0.006563	0.006563	0.004602	0.004602	0.004602	0.008555	0.008555
6	0.020103	0.020103	0.012871	0.012871	0.021824	0.021824	0.020103	0.020103	0.012871	0.012871	0.012871	0.021824	0.021824
7	0.055063	0.055063	0.041158	0.041158	0.037392	0.037392	0.055063	0.055063	0.041158	0.041158	0.041158	0.037392	0.037392
8	0.073058	0.073058	0.069485	0.069485	0.058856	0.058856	0.073058	0.073058	0.069485	0.069485	0.069485	0.058856	0.058856
9	0.057194	0.057194	0.064100	0.064100	0.054373	0.054373	0.057194	0.057194	0.064100	0.064100	0.064100	0.054373	0.054373
10	0.050046	0.050046	0.051805	0.051805	0.045420	0.045420	0.050046	0.050046	0.051805	0.051805	0.051805	0.045420	0.045420
11	0.051079	0.051079	0.052728	0.052728	0.047013	0.047013	0.051079	0.051079	0.052728	0.052728	0.052728	0.047013	0.047013
12	0.054594	0.054594	0.061134	0.061134	0.050044	0.050044	0.054594	0.054594	0.061134	0.061134	0.061134	0.050044	0.050044
13	0.056045	0.056045	0.063637	0.063637	0.058856	0.058856	0.056045	0.056045	0.063637	0.063637	0.063637	0.058856	0.058856
14	0.056870	0.056870	0.061811	0.061811	0.055927	0.055927	0.056870	0.056870	0.061811	0.061811	0.061811	0.055927	0.055927
15	0.060864	0.060864	0.061260	0.061260	0.059062	0.059062	0.060864	0.060864	0.061260	0.061260	0.061260	0.059062	0.059062
16	0.067715	0.067715	0.064926	0.064926	0.067539	0.067539	0.067715	0.067715	0.064926	0.064926	0.064926	0.067539	0.067539
17	0.074252	0.074252	0.070001	0.070001	0.069222	0.069222	0.074252	0.074252	0.070001	0.070001	0.070001	0.069222	0.069222
18	0.073460	0.073460	0.067750	0.067750	0.076698	0.076698	0.073460	0.073460	0.067750	0.067750	0.067750	0.076698	0.076698
19	0.055095	0.055095	0.054904	0.054904	0.075799	0.075799	0.055095	0.055095	0.054904	0.054904	0.054904	0.075799	0.075799
20	0.043837	0.043837	0.045147	0.045147	0.066563	0.066563	0.043837	0.043837	0.045147	0.045147	0.045147	0.066563	0.066563
21	0.035038	0.035038	0.035422	0.035422	0.048092	0.048092	0.035038	0.035038	0.035422	0.035422	0.035422	0.048092	0.048092
22	0.031029	0.031029	0.032764	0.032764	0.034849	0.034849	0.031029	0.031029	0.032764	0.032764	0.032764	0.034849	0.034849
23	0.027844	0.027844	0.030791	0.030791	0.024868	0.024868	0.027844	0.027844	0.030791	0.030791	0.030791	0.024868	0.024868
24	0.021981	0.021981	0.024963	0.024963	0.016814	0.016814	0.021981	0.021981	0.024963	0.024963	0.024963	0.016814	0.016814

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.010471	0.010471	0.011076	0.011076	0.007579	0.007579	0.010471	0.010471	0.011076	0.011076	0.011076	0.007579	0.007579
2	0.006731	0.006731	0.007169	0.007169	0.005305	0.005305	0.006731	0.006731	0.007169	0.007169	0.007169	0.005305	0.005305
3	0.006217	0.006217	0.006541	0.006541	0.004509	0.004509	0.006217	0.006217	0.006541	0.006541	0.006541	0.004509	0.004509
4	0.004850	0.004850	0.003954	0.003954	0.004843	0.004843	0.004850	0.004850	0.003954	0.003954	0.003954	0.004843	0.004843
5	0.006563	0.006563	0.004602	0.004602	0.008555	0.008555	0.006563	0.006563	0.004602	0.004602	0.004602	0.008555	0.008555
6	0.020103	0.020103	0.012871	0.012871	0.021824	0.021824	0.020103	0.020103	0.012871	0.012871	0.012871	0.021824	0.021824
7	0.055063	0.055063	0.041158	0.041158	0.037392	0.037392	0.055063	0.055063	0.041158	0.041158	0.041158	0.037392	0.037392
8	0.073058	0.073058	0.069485	0.069485	0.058856	0.058856	0.073058	0.073058	0.069485	0.069485	0.069485	0.058856	0.058856
9	0.057194	0.057194	0.064100	0.064100	0.054373	0.054373	0.057194	0.057194	0.064100	0.064100	0.064100	0.054373	0.054373
10	0.050046	0.050046	0.051805	0.051805	0.045420	0.045420	0.050046	0.050046	0.051805	0.051805	0.051805	0.045420	0.045420
11	0.051079	0.051079	0.052728	0.052728	0.047013	0.047013	0.051079	0.051079	0.052728	0.052728	0.052728	0.047013	0.047013
12	0.054594	0.054594	0.061134	0.061134	0.050044	0.050044	0.054594	0.054594	0.061134	0.061134	0.061134	0.050044	0.050044
13	0.056045	0.056045	0.063637	0.063637	0.058856	0.058856	0.056045	0.056045	0.063637	0.063637	0.063637	0.058856	0.058856
14	0.056870	0.056870	0.061811	0.061811	0.055927	0.055927	0.056870	0.056870	0.061811	0.061811	0.061811	0.055927	0.055927
15	0.060864	0.060864	0.061260	0.061260	0.059062	0.059062	0.060864	0.060864	0.061260	0.061260	0.061260	0.059062	0.059062
16	0.067715	0.067715	0.064926	0.064926	0.067539	0.067539	0.067715	0.067715	0.064926	0.064926	0.064926	0.067539	0.067539
17	0.074252	0.074252	0.070001	0.070001	0.069222	0.069222	0.074252	0.074252	0.070001	0.070001	0.070001	0.069222	0.069222
18	0.073460	0.073460	0.067750	0.067750	0.076698	0.076698	0.073460	0.073460	0.067750	0.067750	0.067750	0.076698	0.076698
19	0.055095	0.055095	0.054904	0.054904	0.075799	0.075799	0.055095	0.055095	0.054904	0.054904	0.054904	0.075799	0.075799
20	0.043837	0.043837	0.045147	0.045147	0.066563	0.066563	0.043837	0.043837	0.045147	0.045147	0.045147	0.066563	0.066563
21	0.035038	0.035038	0.035422	0.035422	0.048092	0.048092	0.035038	0.035038	0.035422	0.035422	0.035422	0.048092	0.048092
22	0.031029	0.031029	0.032764	0.032764	0.034849	0.034849	0.031029	0.031029	0.032764	0.032764	0.032764	0.034849	0.034849
23	0.027844	0.027844	0.030791	0.030791	0.024868	0.024868	0.027844	0.027844	0.030791	0.030791	0.030791	0.024868	0.024868
24	0.021981	0.021981	0.024963	0.024963	0.016814	0.016814	0.021981	0.021981	0.024963	0.024963	0.024963	0.016814	0.016814

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.009913	0.009913	0.010123	0.010123	0.007579	0.007579	0.009913	0.009913	0.010123	0.010123	0.010123	0.007579	0.007579
2	0.006020	0.006020	0.006658	0.006658	0.005305	0.005305	0.006020	0.006020	0.006658	0.006658	0.006658	0.005305	0.005305
3	0.005405	0.005405	0.005566	0.005566	0.004509	0.004509	0.005405	0.005405	0.005566	0.005566	0.005566	0.004509	0.004509
4	0.003451	0.003451	0.003321	0.003321	0.004843	0.004843	0.003451	0.003451	0.003321	0.003321	0.003321	0.004843	0.004843
5	0.004539	0.004539	0.004193	0.004193	0.008555	0.008555	0.004539	0.004539	0.004193	0.004193	0.004193	0.008555	0.008555
6	0.011386	0.011386	0.012278	0.012278	0.021824	0.021824	0.011386	0.011386	0.012278	0.012278	0.012278	0.021824	0.021824
7	0.033268	0.033268	0.030476	0.030476	0.037392	0.037392	0.033268	0.033268	0.030476	0.030476	0.030476	0.037392	0.037392
8	0.067127	0.067127	0.045694	0.045694	0.058856	0.058856	0.067127	0.067127	0.045694	0.045694	0.045694	0.058856	0.058856
9	0.048200	0.048200	0.047730	0.047730	0.054373	0.054373	0.048200	0.048200	0.047730	0.047730	0.047730	0.054373	0.054373
10	0.042227	0.042227	0.047548	0.047548	0.045420	0.045420	0.042227	0.042227	0.047548	0.047548	0.047548	0.045420	0.045420
11	0.048185	0.048185	0.051906	0.051906	0.047013	0.047013	0.048185	0.048185	0.051906	0.051906	0.051906	0.047013	0.047013
12	0.053645	0.053645	0.059542	0.059542	0.050044	0.050044	0.053645	0.053645	0.059542	0.059542	0.059542	0.050044	0.050044
13	0.056112	0.056112	0.065262	0.065262	0.058856	0.058856	0.056112	0.056112	0.065262	0.065262	0.065262	0.058856	0.058856
14	0.057979	0.057979	0.065824	0.065824	0.055927	0.055927	0.057979	0.057979	0.065824	0.065824	0.065824	0.055927	0.055927
15	0.062809	0.062809	0.064659	0.064659	0.059062	0.059062	0.062809	0.062809	0.064659	0.064659	0.064659	0.059062	0.059062
16	0.070705	0.070705	0.066172	0.066172	0.067539	0.067539	0.070705	0.070705	0.066172	0.066172	0.066172	0.067539	0.067539
17	0.079790	0.079790	0.073436	0.073436	0.069222	0.069222	0.079790	0.079790	0.073436	0.073436	0.073436	0.069222	0.069222
18	0.083257	0.083257	0.075966	0.075966	0.076698	0.076698	0.083257	0.083257	0.075966	0.075966	0.075966	0.076698	0.076698
19	0.062888	0.062888	0.065336	0.065336	0.075799	0.075799	0.062888	0.062888	0.065336	0.065336	0.065336	0.075799	0.075799
20	0.052739	0.052739	0.053897	0.053897	0.066563	0.066563	0.052739	0.052739	0.053897	0.053897	0.053897	0.066563	0.066563
21	0.043425	0.043425	0.045221	0.045221	0.048092	0.048092	0.043425	0.043425	0.045221	0.045221	0.045221	0.048092	0.048092
22	0.038043	0.038043	0.039093	0.039093	0.034849	0.034849	0.038043	0.038043	0.039093	0.039093	0.039093	0.034849	0.034849
23	0.031393	0.031393	0.033214	0.033214	0.024868	0.024868	0.031393	0.031393	0.033214	0.033214	0.033214	0.024868	0.024868
24	0.027492	0.027492	0.026886	0.026886	0.016814	0.016814	0.027492	0.027492	0.026886	0.026886	0.026886	0.016814	0.016814

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.012026	0.012026	0.008305	0.008305	0.007579	0.007579	0.012026	0.012026	0.008305	0.008305	0.008305	0.007579	0.007579
2	0.008176	0.008176	0.004829	0.004829	0.005305	0.005305	0.008176	0.008176	0.004829	0.004829	0.004829	0.005305	0.005305
3	0.007102	0.007102	0.004212	0.004212	0.004509	0.004509	0.007102	0.007102	0.004212	0.004212	0.004212	0.004509	0.004509
4	0.006289	0.006289	0.003864	0.003864	0.004843	0.004843	0.006289	0.006289	0.003864	0.003864	0.003864	0.004843	0.004843
5	0.008705	0.008705	0.008848	0.008848	0.008555	0.008555	0.008705	0.008705	0.008848	0.008848	0.008848	0.008555	0.008555
6	0.021736	0.021736	0.033128	0.033128	0.021824	0.021824	0.021736	0.021736	0.033128	0.033128	0.033128	0.021824	0.021824
7	0.046291	0.046291	0.063347	0.063347	0.037392	0.037392	0.046291	0.046291	0.063347	0.063347	0.063347	0.037392	0.037392
8	0.052832	0.052832	0.068755	0.068755	0.058856	0.058856	0.052832	0.052832	0.068755	0.068755	0.068755	0.058856	0.058856
9	0.047673	0.047673	0.047210	0.047210	0.054373	0.054373	0.047673	0.047673	0.047210	0.047210	0.047210	0.054373	0.054373
10	0.047236	0.047236	0.043681	0.043681	0.045420	0.045420	0.047236	0.047236	0.043681	0.043681	0.043681	0.045420	0.045420
11	0.051430	0.051430	0.046538	0.046538	0.047013	0.047013	0.051430	0.051430	0.046538	0.046538	0.046538	0.047013	0.047013
12	0.054352	0.054352	0.049546	0.049546	0.050044	0.050044	0.054352	0.054352	0.049546	0.049546	0.049546	0.050044	0.050044
13	0.056341	0.056341	0.050578	0.050578	0.058856	0.058856	0.056341	0.056341	0.050578	0.050578	0.050578	0.058856	0.058856
14	0.059094	0.059094	0.051996	0.051996	0.055927	0.055927	0.059094	0.059094	0.051996	0.051996	0.051996	0.055927	0.055927
15	0.061636	0.061636	0.057302	0.057302	0.059062	0.059062	0.061636	0.061636	0.057302	0.057302	0.057302	0.059062	0.059062
16	0.064633	0.064633	0.069407	0.069407	0.067539	0.067539	0.064633	0.064633	0.069407	0.069407	0.069407	0.067539	0.067539
17	0.065896	0.065896	0.080336	0.080336	0.069222	0.069222	0.065896	0.065896	0.080336	0.080336	0.080336	0.069222	0.069222
18	0.067191	0.067191	0.080907	0.080907	0.076698	0.076698	0.067191	0.067191	0.080907	0.080907	0.080907	0.076698	0.076698
19	0.063774	0.063774	0.066914	0.066914	0.075799	0.075799	0.063774	0.063774	0.066914	0.066914	0.066914	0.075799	0.075799
20	0.056371	0.056371	0.048226	0.048226	0.066563	0.066563	0.056371	0.056371	0.048226	0.048226	0.048226	0.066563	0.066563
21	0.044712	0.044712	0.036640	0.036640	0.048092	0.048092	0.044712	0.044712	0.036640	0.036640	0.036640	0.048092	0.048092
22	0.038399	0.038399	0.031368	0.031368	0.034849	0.034849	0.038399	0.038399	0.031368	0.031368	0.031368	0.034849	0.034849
23	0.031023	0.031023	0.025114	0.025114	0.024868	0.024868	0.031023	0.031023	0.025114	0.025114	0.025114	0.024868	0.024868
24	0.027080	0.027080	0.018951	0.018951	0.016814	0.016814	0.027080	0.027080	0.018951	0.018951	0.018951	0.016814	0.016814

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.022911	0.022911	0.023840	0.023840	0.014013	0.014013	0.022911	0.022911	0.023840	0.023840	0.023840	0.014013	0.014013
2	0.015420	0.015420	0.016897	0.016897	0.009598	0.009598	0.015420	0.015420	0.016897	0.016897	0.016897	0.009598	0.009598
3	0.014053	0.014053	0.015981	0.015981	0.005816	0.005816	0.014053	0.014053	0.015981	0.015981	0.015981	0.005816	0.005816
4	0.008927	0.008927	0.008574	0.008574	0.005530	0.005530	0.008927	0.008927	0.008574	0.008574	0.008574	0.005530	0.005530
5	0.008630	0.008630	0.007037	0.007037	0.005756	0.005756	0.008630	0.008630	0.007037	0.007037	0.007037	0.005756	0.005756
6	0.015599	0.015599	0.010068	0.010068	0.011059	0.011059	0.015599	0.015599	0.010068	0.010068	0.010068	0.011059	0.011059
7	0.029610	0.029610	0.019469	0.019469	0.018578	0.018578	0.029610	0.029610	0.019469	0.019469	0.019469	0.018578	0.018578
8	0.037068	0.037068	0.030413	0.030413	0.027844	0.027844	0.037068	0.037068	0.030413	0.030413	0.030413	0.027844	0.027844
9	0.043762	0.043762	0.041701	0.041701	0.042008	0.042008	0.043762	0.043762	0.041701	0.041701	0.041701	0.042008	0.042008
10	0.050848	0.050848	0.049928	0.049928	0.059094	0.059094	0.050848	0.050848	0.049928	0.049928	0.049928	0.059094	0.059094
11	0.056300	0.056300	0.057028	0.057028	0.068466	0.068466	0.056300	0.056300	0.057028	0.057028	0.057028	0.068466	0.068466
12	0.060863	0.060863	0.062926	0.062926	0.070982	0.070982	0.060863	0.060863	0.062926	0.062926	0.062926	0.070982	0.070982
13	0.064256	0.064256	0.065193	0.065193	0.071193	0.071193	0.064256	0.064256	0.065193	0.065193	0.065193	0.071193	0.071193
14	0.063009	0.063009	0.064643	0.064643	0.069490	0.069490	0.063009	0.063009	0.064643	0.064643	0.064643	0.069490	0.069490
15	0.063108	0.063108	0.064356	0.064356	0.066914	0.066914	0.063108	0.063108	0.064356	0.064356	0.064356	0.066914	0.066914
16	0.063158	0.063158	0.064895	0.064895	0.067697	0.067697	0.063158	0.063158	0.064895	0.064895	0.064895	0.067697	0.067697
17	0.060532	0.060532	0.060966	0.060966	0.065151	0.065151	0.060532	0.060532	0.060966	0.060966	0.060966	0.065151	0.065151
18	0.059662	0.059662	0.059252	0.059252	0.068255	0.068255	0.059662	0.059662	0.059252	0.059252	0.059252	0.068255	0.068255
19	0.056923	0.056923	0.059192	0.059192	0.063026	0.063026	0.056923	0.056923	0.059192	0.059192	0.059192	0.063026	0.063026
20	0.049759	0.049759	0.053003	0.053003	0.056276	0.056276	0.049759	0.049759	0.053003	0.053003	0.053003	0.056276	0.056276
21	0.044237	0.044237	0.044479	0.044479	0.046588	0.046588	0.044237	0.044237	0.044479	0.044479	0.044479	0.046588	0.046588
22	0.042319	0.042319	0.042461	0.042461	0.037909	0.037909	0.042319	0.042319	0.042461	0.042461	0.042461	0.037909	0.037909
23	0.038450	0.038450	0.041807	0.041807	0.027890	0.027890	0.038450	0.038450	0.041807	0.041807	0.041807	0.027890	0.027890
24	0.030595	0.030595	0.035890	0.035890	0.020868	0.020868	0.030595	0.030595	0.035890	0.035890	0.035890	0.020868	0.020868

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.022911	0.022911	0.023840	0.023840	0.014013	0.014013	0.022911	0.022911	0.023840	0.023840	0.023840	0.014013	0.014013
2	0.015420	0.015420	0.016897	0.016897	0.009598	0.009598	0.015420	0.015420	0.016897	0.016897	0.016897	0.009598	0.009598
3	0.014053	0.014053	0.015981	0.015981	0.005816	0.005816	0.014053	0.014053	0.015981	0.015981	0.015981	0.005816	0.005816
4	0.008927	0.008927	0.008574	0.008574	0.005530	0.005530	0.008927	0.008927	0.008574	0.008574	0.008574	0.005530	0.005530
5	0.008630	0.008630	0.007037	0.007037	0.005756	0.005756	0.008630	0.008630	0.007037	0.007037	0.007037	0.005756	0.005756
6	0.015599	0.015599	0.010068	0.010068	0.011059	0.011059	0.015599	0.015599	0.010068	0.010068	0.010068	0.011059	0.011059
7	0.029610	0.029610	0.019469	0.019469	0.018578	0.018578	0.029610	0.029610	0.019469	0.019469	0.019469	0.018578	0.018578
8	0.037068	0.037068	0.030413	0.030413	0.027844	0.027844	0.037068	0.037068	0.030413	0.030413	0.030413	0.027844	0.027844
9	0.043762	0.043762	0.041701	0.041701	0.042008	0.042008	0.043762	0.043762	0.041701	0.041701	0.041701	0.042008	0.042008
10	0.050848	0.050848	0.049928	0.049928	0.059094	0.059094	0.050848	0.050848	0.049928	0.049928	0.049928	0.059094	0.059094
11	0.056300	0.056300	0.057028	0.057028	0.068466	0.068466	0.056300	0.056300	0.057028	0.057028	0.057028	0.068466	0.068466
12	0.060863	0.060863	0.062926	0.062926	0.070982	0.070982	0.060863	0.060863	0.062926	0.062926	0.062926	0.070982	0.070982
13	0.064256	0.064256	0.065193	0.065193	0.071193	0.071193	0.064256	0.064256	0.065193	0.065193	0.065193	0.071193	0.071193
14	0.063009	0.063009	0.064643	0.064643	0.069490	0.069490	0.063009	0.063009	0.064643	0.064643	0.064643	0.069490	0.069490
15	0.063108	0.063108	0.064356	0.064356	0.066914	0.066914	0.063108	0.063108	0.064356	0.064356	0.064356	0.066914	0.066914
16	0.063158	0.063158	0.064895	0.064895	0.067697	0.067697	0.063158	0.063158	0.064895	0.064895	0.064895	0.067697	0.067697
17	0.060532	0.060532	0.060966	0.060966	0.065151	0.065151	0.060532	0.060532	0.060966	0.060966	0.060966	0.065151	0.065151
18	0.059662	0.059662	0.059252	0.059252	0.068255	0.068255	0.059662	0.059662	0.059252	0.059252	0.059252	0.068255	0.068255
19	0.056923	0.056923	0.059192	0.059192	0.063026	0.063026	0.056923	0.056923	0.059192	0.059192	0.059192	0.063026	0.063026
20	0.049759	0.049759	0.053003	0.053003	0.056276	0.056276	0.049759	0.049759	0.053003	0.053003	0.053003	0.056276	0.056276
21	0.044237	0.044237	0.044479	0.044479	0.046588	0.046588	0.044237	0.044237	0.044479	0.044479	0.044479	0.046588	0.046588
22	0.042319	0.042319	0.042461	0.042461	0.037909	0.037909	0.042319	0.042319	0.042461	0.042461	0.042461	0.037909	0.037909
23	0.038450	0.038450	0.041807	0.041807	0.027890	0.027890	0.038450	0.038450	0.041807	0.041807	0.041807	0.027890	0.027890
24	0.030595	0.030595	0.035890	0.035890	0.020868	0.020868	0.030595	0.030595	0.035890	0.035890	0.035890	0.020868	0.020868

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.017711	0.017711	0.021883	0.021883	0.014013	0.014013	0.017711	0.017711	0.021883	0.021883	0.021883	0.014013	0.014013
2	0.011974	0.011974	0.015763	0.015763	0.009598	0.009598	0.011974	0.011974	0.015763	0.015763	0.015763	0.009598	0.009598
3	0.010424	0.010424	0.013405	0.013405	0.005816	0.005816	0.010424	0.010424	0.013405	0.013405	0.013405	0.005816	0.005816
4	0.006665	0.006665	0.006880	0.006880	0.005530	0.005530	0.006665	0.006665	0.006880	0.006880	0.006880	0.005530	0.005530
5	0.006350	0.006350	0.005281	0.005281	0.005756	0.005756	0.006350	0.006350	0.005281	0.005281	0.005281	0.005756	0.005756
6	0.011742	0.011742	0.007338	0.007338	0.011059	0.011059	0.011742	0.011742	0.007338	0.007338	0.007338	0.011059	0.011059
7	0.019583	0.019583	0.013776	0.013776	0.018578	0.018578	0.019583	0.019583	0.013776	0.013776	0.013776	0.018578	0.018578
8	0.023455	0.023455	0.023723	0.023723	0.027844	0.027844	0.023455	0.023455	0.023723	0.023723	0.023723	0.027844	0.027844
9	0.028801	0.028801	0.035304	0.035304	0.042008	0.042008	0.028801	0.028801	0.035304	0.035304	0.035304	0.042008	0.042008
10	0.039316	0.039316	0.046147	0.046147	0.059094	0.059094	0.039316	0.039316	0.046147	0.046147	0.046147	0.059094	0.059094
11	0.052084	0.052084	0.054643	0.054643	0.068466	0.068466	0.052084	0.052084	0.054643	0.054643	0.054643	0.068466	0.068466
12	0.063115	0.063115	0.062928	0.062928	0.070982	0.070982	0.063115	0.063115	0.062928	0.062928	0.062928	0.070982	0.070982
13	0.067263	0.067263	0.068751	0.068751	0.071193	0.071193	0.067263	0.067263	0.068751	0.068751	0.068751	0.071193	0.071193
14	0.068798	0.068798	0.070535	0.070535	0.069490	0.069490	0.068798	0.068798	0.070535	0.070535	0.070535	0.069490	0.069490
15	0.069772	0.069772	0.069471	0.069471	0.066914	0.066914	0.069772	0.069772	0.069471	0.069471	0.069471	0.066914	0.066914
16	0.071232	0.071232	0.069078	0.069078	0.067697	0.067697	0.071232	0.071232	0.069078	0.069078	0.069078	0.067697	0.067697
17	0.073157	0.073157	0.067457	0.067457	0.065151	0.065151	0.073157	0.073157	0.067457	0.067457	0.067457	0.065151	0.065151
18	0.072034	0.072034	0.064370	0.064370	0.068255	0.068255	0.072034	0.072034	0.064370	0.064370	0.064370	0.068255	0.068255
19	0.067039	0.067039	0.061511	0.061511	0.063026	0.063026	0.067039	0.067039	0.061511	0.061511	0.061511	0.063026	0.063026
20	0.056772	0.056772	0.055920	0.055920	0.056276	0.056276	0.056772	0.056772	0.055920	0.055920	0.055920	0.056276	0.056276
21	0.049275	0.049275	0.050137	0.050137	0.046588	0.046588	0.049275	0.049275	0.050137	0.050137	0.050137	0.046588	0.046588
22	0.044340	0.044340	0.044647	0.044647	0.037909	0.037909	0.044340	0.044340	0.044647	0.044647	0.044647	0.037909	0.037909
23	0.038020	0.038020	0.038677	0.038677	0.027890	0.027890	0.038020	0.038020	0.038677	0.038677	0.038677	0.027890	0.027890
24	0.031078	0.031078	0.032375	0.032375	0.020868	0.020868	0.031078	0.031078	0.032375	0.032375	0.032375	0.020868	0.020868

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.020471	0.020471	0.016126	0.016126	0.014013	0.014013	0.020471	0.020471	0.016126	0.016126	0.016126	0.014013	0.014013
2	0.013403	0.013403	0.010988	0.010988	0.009598	0.009598	0.013403	0.013403	0.010988	0.010988	0.010988	0.009598	0.009598
3	0.011103	0.011103	0.008801	0.008801	0.005816	0.005816	0.011103	0.011103	0.008801	0.008801	0.008801	0.005816	0.005816
4	0.008036	0.008036	0.005807	0.005807	0.005530	0.005530	0.008036	0.008036	0.005807	0.005807	0.005807	0.005530	0.005530
5	0.008687	0.008687	0.008418	0.008418	0.005756	0.005756	0.008687	0.008687	0.008418	0.008418	0.008418	0.005756	0.005756
6	0.014689	0.014689	0.021428	0.021428	0.011059	0.011059	0.014689	0.014689	0.021428	0.021428	0.021428	0.011059	0.011059
7	0.024790	0.024790	0.033802	0.033802	0.018578	0.018578	0.024790	0.024790	0.033802	0.033802	0.033802	0.018578	0.018578
8	0.033163	0.033163	0.035171	0.035171	0.027844	0.027844	0.033163	0.033163	0.035171	0.035171	0.035171	0.027844	0.027844
9	0.041781	0.041781	0.042349	0.042349	0.042008	0.042008	0.041781	0.041781	0.042349	0.042349	0.042349	0.042008	0.042008
10	0.052389	0.052389	0.052765	0.052765	0.059094	0.059094	0.052389	0.052389	0.052765	0.052765	0.052765	0.059094	0.059094
11	0.060482	0.060482	0.059308	0.059308	0.068466	0.068466	0.060482	0.060482	0.059308	0.059308	0.059308	0.068466	0.068466
12	0.064605	0.064605	0.063454	0.063454	0.070982	0.070982	0.064605	0.064605	0.063454	0.063454	0.063454	0.070982	0.070982
13	0.066855	0.066855	0.063698	0.063698	0.071193	0.071193	0.066855	0.066855	0.063698	0.063698	0.063698	0.071193	0.071193
14	0.067146	0.067146	0.063723	0.063723	0.069490	0.069490	0.067146	0.067146	0.063723	0.063723	0.063723	0.069490	0.069490
15	0.065800	0.065800	0.064879	0.064879	0.066914	0.066914	0.065800	0.065800	0.064879	0.064879	0.064879	0.066914	0.066914
16	0.065032	0.065032	0.065200	0.065200	0.067697	0.067697	0.065032	0.065032	0.065200	0.065200	0.065200	0.067697	0.067697
17	0.065021	0.065021	0.064707	0.064707	0.065151	0.065151	0.065021	0.065021	0.064707	0.064707	0.064707	0.065151	0.065151
18	0.064143	0.064143	0.069100	0.069100	0.068255	0.068255	0.064143	0.064143	0.069100	0.069100	0.069100	0.068255	0.068255
19	0.059779	0.059779	0.063072	0.063072	0.063026	0.063026	0.059779	0.059779	0.063072	0.063072	0.063072	0.063026	0.063026
20	0.051822	0.051822	0.050935	0.050935	0.056276	0.056276	0.051822	0.051822	0.050935	0.050935	0.050935	0.056276	0.056276
21	0.042466	0.042466	0.042458	0.042458	0.046588	0.046588	0.042466	0.042466	0.042458	0.042458	0.042458	0.046588	0.046588
22	0.038559	0.038559	0.037732	0.037732	0.037909	0.037909	0.038559	0.038559	0.037732	0.037732	0.037732	0.037909	0.037909
23	0.032845	0.032845	0.031846	0.031846	0.027890	0.027890	0.032845	0.032845	0.031846	0.031846	0.031846	0.027890	0.027890
24	0.026934	0.026934	0.024232	0.024232	0.020868	0.020868	0.026934	0.026934	0.024232	0.024232	0.024232	0.020868	0.020868

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

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.016090	0.016090	0.016090	0.016090	0.016501	0.016501	0.016090	0.016090	0.016090	0.016090	0.016090	0.016501	0.016501
2	0.010318	0.010318	0.010318	0.010318	0.010640	0.010640	0.010318	0.010318	0.010318	0.010318	0.010318	0.010640	0.010640
3	0.008287	0.008287	0.008287	0.008287	0.008150	0.008150	0.008287	0.008287	0.008287	0.008287	0.008287	0.008150	0.008150
4	0.006549	0.006549	0.006549	0.006549	0.006761	0.006761	0.006549	0.006549	0.006549	0.006549	0.006549	0.006761	0.006761
5	0.008288	0.008288	0.008288	0.008288	0.008832	0.008832	0.008288	0.008288	0.008288	0.008288	0.008288	0.008832	0.008832
6	0.016421	0.016421	0.016421	0.016421	0.016650	0.016650	0.016421	0.016421	0.016421	0.016421	0.016421	0.016650	0.016650
7	0.026134	0.026134	0.026134	0.026134	0.026792	0.026792	0.026134	0.026134	0.026134	0.026134	0.026134	0.026792	0.026792
8	0.033231	0.033231	0.033231	0.033231	0.036584	0.036584	0.033231	0.033231	0.033231	0.033231	0.033231	0.036584	0.036584
9	0.042452	0.042452	0.042452	0.042452	0.047364	0.047364	0.042452	0.042452	0.042452	0.042452	0.042452	0.047364	0.047364
10	0.053777	0.053777	0.053777	0.053777	0.058012	0.058012	0.053777	0.053777	0.053777	0.053777	0.053777	0.058012	0.058012
11	0.062740	0.062740	0.062740	0.062740	0.063769	0.063769	0.062740	0.062740	0.062740	0.062740	0.062740	0.063769	0.063769
12	0.066991	0.066991	0.066991	0.066991	0.067228	0.067228	0.066991	0.066991	0.066991	0.066991	0.066991	0.067228	0.067228
13	0.067260	0.067260	0.067260	0.067260	0.065612	0.065612	0.067260	0.067260	0.067260	0.067260	0.067260	0.065612	0.065612
14	0.067184	0.067184	0.067184	0.067184	0.063070	0.063070	0.067184	0.067184	0.067184	0.067184	0.067184	0.063070	0.063070
15	0.065853	0.065853	0.065853	0.065853	0.062170	0.062170	0.065853	0.065853	0.065853	0.065853	0.065853	0.062170	0.062170
16	0.065724	0.065724	0.065724	0.065724	0.062511	0.062511	0.065724	0.065724	0.065724	0.065724	0.065724	0.062511	0.062511
17	0.066607	0.066607	0.066607	0.066607	0.065970	0.065970	0.066607	0.066607	0.066607	0.066607	0.066607	0.065970	0.065970
18	0.065933	0.065933	0.065933	0.065933	0.065935	0.065935	0.065933	0.065933	0.065933	0.065933	0.065933	0.065935	0.065935
19	0.060866	0.060866	0.060866	0.060866	0.063498	0.063498	0.060866	0.060866	0.060866	0.060866	0.060866	0.063498	0.063498
20	0.052960	0.052960	0.052960	0.052960	0.053382	0.053382	0.052960	0.052960	0.052960	0.052960	0.052960	0.053382	0.053382
21	0.042660	0.042660	0.042660	0.042660	0.042009	0.042009	0.042660	0.042660	0.042660	0.042660	0.042660	0.042009	0.042009
22	0.038890	0.038890	0.038890	0.038890	0.038436	0.038436	0.038890	0.038890	0.038890	0.038890	0.038890	0.038436	0.038436
23	0.031138	0.031138	0.031138	0.031138	0.028312	0.028312	0.031138	0.031138	0.031138	0.031138	0.031138	0.028312	0.028312
24	0.023649	0.023649	0.023649	0.023649	0.021812	0.021812	0.023649	0.023649	0.023649	0.023649	0.023649	0.021812	0.021812

TABLE 20
Time-of-Day Factors by Period for Area Type 1 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.027892	0.027892	0.030863	0.030863	0.016281	0.016281	0.027892	0.027892	0.030863	0.030863	0.030863	0.016281	0.016281
2	0.020635	0.020635	0.023655	0.023655	0.011101	0.011101	0.020635	0.020635	0.023655	0.023655	0.023655	0.011101	0.011101
3	0.018906	0.018906	0.022156	0.022156	0.007184	0.007184	0.018906	0.018906	0.022156	0.022156	0.022156	0.007184	0.007184
4	0.010059	0.010059	0.010848	0.010848	0.004892	0.004892	0.010059	0.010059	0.010848	0.010848	0.010848	0.004892	0.004892
5	0.007383	0.007383	0.007162	0.007162	0.004458	0.004458	0.007383	0.007383	0.007162	0.007162	0.007162	0.004458	0.004458
6	0.010479	0.010479	0.008378	0.008378	0.007653	0.007653	0.010479	0.010479	0.008378	0.008378	0.008378	0.007653	0.007653
7	0.017844	0.017844	0.013830	0.013830	0.010198	0.010198	0.017844	0.017844	0.013830	0.013830	0.013830	0.010198	0.010198
8	0.021022	0.021022	0.018521	0.018521	0.016985	0.016985	0.021022	0.021022	0.018521	0.018521	0.018521	0.016985	0.016985
9	0.027064	0.027064	0.025814	0.025814	0.027707	0.027707	0.027064	0.027064	0.025814	0.025814	0.025814	0.027707	0.027707
10	0.040756	0.040756	0.038307	0.038307	0.051533	0.051533	0.040756	0.040756	0.038307	0.038307	0.038307	0.051533	0.051533
11	0.049140	0.049140	0.048851	0.048851	0.056064	0.056064	0.049140	0.049140	0.048851	0.048851	0.048851	0.056064	0.056064
12	0.053593	0.053593	0.056264	0.056264	0.066912	0.066912	0.053593	0.053593	0.056264	0.056264	0.056264	0.066912	0.066912
13	0.062934	0.062934	0.066443	0.066443	0.083789	0.083789	0.062934	0.062934	0.066443	0.066443	0.066443	0.083789	0.083789
14	0.066700	0.066700	0.067478	0.067478	0.082291	0.082291	0.066700	0.066700	0.067478	0.067478	0.067478	0.082291	0.082291
15	0.068007	0.068007	0.069079	0.069079	0.081912	0.081912	0.068007	0.068007	0.069079	0.069079	0.069079	0.081912	0.081912
16	0.068180	0.068180	0.069193	0.069193	0.071497	0.071497	0.068180	0.068180	0.069193	0.069193	0.069193	0.071497	0.071497
17	0.066677	0.066677	0.068513	0.068513	0.071569	0.071569	0.066677	0.066677	0.068513	0.068513	0.068513	0.071569	0.071569
18	0.069350	0.069350	0.068709	0.068709	0.076334	0.076334	0.069350	0.069350	0.068709	0.068709	0.068709	0.076334	0.076334
19	0.067097	0.067097	0.065059	0.065059	0.070504	0.070504	0.067097	0.067097	0.065059	0.065059	0.065059	0.070504	0.070504
20	0.058058	0.058058	0.055670	0.055670	0.061407	0.061407	0.058058	0.058058	0.055670	0.055670	0.055670	0.061407	0.061407
21	0.052857	0.052857	0.050549	0.050549	0.050559	0.050559	0.052857	0.052857	0.050549	0.050549	0.050549	0.050559	0.050559
22	0.049075	0.049075	0.045855	0.045855	0.035216	0.035216	0.049075	0.049075	0.045855	0.045855	0.045855	0.035216	0.035216
23	0.039978	0.039978	0.039509	0.039509	0.022130	0.022130	0.039978	0.039978	0.039509	0.039509	0.039509	0.022130	0.022130
24	0.026313	0.026313	0.029295	0.029295	0.011823	0.011823	0.026313	0.026313	0.029295	0.029295	0.029295	0.011823	0.011823

TABLE 21
Time-of-Day Factors by Period for Area Type 2 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.027892	0.027892	0.030863	0.030863	0.016281	0.016281	0.027892	0.027892	0.030863	0.030863	0.030863	0.016281	0.016281
2	0.020635	0.020635	0.023655	0.023655	0.011101	0.011101	0.020635	0.020635	0.023655	0.023655	0.023655	0.011101	0.011101
3	0.018906	0.018906	0.022156	0.022156	0.007184	0.007184	0.018906	0.018906	0.022156	0.022156	0.022156	0.007184	0.007184
4	0.010059	0.010059	0.010848	0.010848	0.004892	0.004892	0.010059	0.010059	0.010848	0.010848	0.010848	0.004892	0.004892
5	0.007383	0.007383	0.007162	0.007162	0.004458	0.004458	0.007383	0.007383	0.007162	0.007162	0.007162	0.004458	0.004458
6	0.010479	0.010479	0.008378	0.008378	0.007653	0.007653	0.010479	0.010479	0.008378	0.008378	0.008378	0.007653	0.007653
7	0.017844	0.017844	0.013830	0.013830	0.010198	0.010198	0.017844	0.017844	0.013830	0.013830	0.013830	0.010198	0.010198
8	0.021022	0.021022	0.018521	0.018521	0.016985	0.016985	0.021022	0.021022	0.018521	0.018521	0.018521	0.016985	0.016985
9	0.027064	0.027064	0.025814	0.025814	0.027707	0.027707	0.027064	0.027064	0.025814	0.025814	0.025814	0.027707	0.027707
10	0.040756	0.040756	0.038307	0.038307	0.051533	0.051533	0.040756	0.040756	0.038307	0.038307	0.038307	0.051533	0.051533
11	0.049140	0.049140	0.048851	0.048851	0.056064	0.056064	0.049140	0.049140	0.048851	0.048851	0.048851	0.056064	0.056064
12	0.053593	0.053593	0.056264	0.056264	0.066912	0.066912	0.053593	0.053593	0.056264	0.056264	0.056264	0.066912	0.066912
13	0.062934	0.062934	0.066443	0.066443	0.083789	0.083789	0.062934	0.062934	0.066443	0.066443	0.066443	0.083789	0.083789
14	0.066700	0.066700	0.067478	0.067478	0.082291	0.082291	0.066700	0.066700	0.067478	0.067478	0.067478	0.082291	0.082291
15	0.068007	0.068007	0.069079	0.069079	0.081912	0.081912	0.068007	0.068007	0.069079	0.069079	0.069079	0.081912	0.081912
16	0.068180	0.068180	0.069193	0.069193	0.071497	0.071497	0.068180	0.068180	0.069193	0.069193	0.069193	0.071497	0.071497
17	0.066677	0.066677	0.068513	0.068513	0.071569	0.071569	0.066677	0.066677	0.068513	0.068513	0.068513	0.071569	0.071569
18	0.069350	0.069350	0.068709	0.068709	0.076334	0.076334	0.069350	0.069350	0.068709	0.068709	0.068709	0.076334	0.076334
19	0.067097	0.067097	0.065059	0.065059	0.070504	0.070504	0.067097	0.067097	0.065059	0.065059	0.065059	0.070504	0.070504
20	0.058058	0.058058	0.055670	0.055670	0.061407	0.061407	0.058058	0.058058	0.055670	0.055670	0.055670	0.061407	0.061407
21	0.052857	0.052857	0.050549	0.050549	0.050559	0.050559	0.052857	0.052857	0.050549	0.050549	0.050549	0.050559	0.050559
22	0.049075	0.049075	0.045855	0.045855	0.035216	0.035216	0.049075	0.049075	0.045855	0.045855	0.045855	0.035216	0.035216
23	0.039978	0.039978	0.039509	0.039509	0.022130	0.022130	0.039978	0.039978	0.039509	0.039509	0.039509	0.022130	0.022130
24	0.026313	0.026313	0.029295	0.029295	0.011823	0.011823	0.026313	0.026313	0.029295	0.029295	0.029295	0.011823	0.011823

TABLE 22
Time-of-Day Factors by Period for Area Type 3 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.023218	0.023218	0.032589	0.032589	0.016281	0.016281	0.023218	0.023218	0.032589	0.032589	0.032589	0.016281	0.016281
2	0.015602	0.015602	0.025516	0.025516	0.011101	0.011101	0.015602	0.015602	0.025516	0.025516	0.025516	0.011101	0.011101
3	0.013649	0.013649	0.022972	0.022972	0.007184	0.007184	0.013649	0.013649	0.022972	0.022972	0.022972	0.007184	0.007184
4	0.007883	0.007883	0.011817	0.011817	0.004892	0.004892	0.007883	0.007883	0.011817	0.011817	0.011817	0.004892	0.004892
5	0.006583	0.006583	0.007236	0.007236	0.004458	0.004458	0.006583	0.006583	0.007236	0.007236	0.007236	0.004458	0.004458
6	0.010318	0.010318	0.007240	0.007240	0.007653	0.007653	0.010318	0.010318	0.007240	0.007240	0.007240	0.007653	0.007653
7	0.016205	0.016205	0.011170	0.011170	0.010198	0.010198	0.016205	0.016205	0.011170	0.011170	0.011170	0.010198	0.010198
8	0.016600	0.016600	0.016624	0.016624	0.016985	0.016985	0.016600	0.016600	0.016624	0.016624	0.016624	0.016985	0.016985
9	0.020249	0.020249	0.025514	0.025514	0.027707	0.027707	0.020249	0.020249	0.025514	0.025514	0.025514	0.027707	0.027707
10	0.032607	0.032607	0.038702	0.038702	0.051533	0.051533	0.032607	0.032607	0.038702	0.038702	0.038702	0.051533	0.051533
11	0.050343	0.050343	0.049750	0.049750	0.056064	0.056064	0.050343	0.050343	0.049750	0.049750	0.049750	0.056064	0.056064
12	0.067374	0.067374	0.059532	0.059532	0.066912	0.066912	0.067374	0.067374	0.059532	0.059532	0.059532	0.066912	0.066912
13	0.075937	0.075937	0.071515	0.071515	0.083789	0.083789	0.075937	0.075937	0.071515	0.071515	0.071515	0.083789	0.083789
14	0.081143	0.081143	0.074205	0.074205	0.082291	0.082291	0.081143	0.081143	0.074205	0.074205	0.074205	0.082291	0.082291
15	0.081763	0.081763	0.073598	0.073598	0.081912	0.081912	0.081763	0.081763	0.073598	0.073598	0.073598	0.081912	0.081912
16	0.080093	0.080093	0.070918	0.070918	0.071497	0.071497	0.080093	0.080093	0.070918	0.070918	0.070918	0.071497	0.071497
17	0.077615	0.077615	0.070341	0.070341	0.071569	0.071569	0.077615	0.077615	0.070341	0.070341	0.070341	0.071569	0.071569
18	0.075472	0.075472	0.067884	0.067884	0.076334	0.076334	0.075472	0.075472	0.067884	0.067884	0.067884	0.076334	0.076334
19	0.068605	0.068605	0.062202	0.062202	0.070504	0.070504	0.068605	0.068605	0.062202	0.062202	0.062202	0.070504	0.070504
20	0.055558	0.055558	0.051145	0.051145	0.061407	0.061407	0.055558	0.055558	0.051145	0.051145	0.051145	0.061407	0.061407
21	0.046746	0.046746	0.047711	0.047711	0.050559	0.050559	0.046746	0.046746	0.047711	0.047711	0.047711	0.050559	0.050559
22	0.035980	0.035980	0.043906	0.043906	0.035216	0.035216	0.035980	0.035980	0.043906	0.043906	0.043906	0.035216	0.035216
23	0.024948	0.024948	0.034635	0.034635	0.022130	0.022130	0.024948	0.024948	0.034635	0.034635	0.034635	0.022130	0.022130
24	0.015507	0.015507	0.023276	0.023276	0.011823	0.011823	0.015507	0.015507	0.023276	0.023276	0.023276	0.011823	0.011823

TABLE 23
Time-of-Day Factors by Period for Area Type 4 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.020631	0.020631	0.018801	0.018801	0.016281	0.016281	0.020631	0.020631	0.018801	0.018801	0.018801	0.016281	0.016281
2	0.014164	0.014164	0.013289	0.013289	0.011101	0.011101	0.014164	0.014164	0.013289	0.013289	0.013289	0.011101	0.011101
3	0.011722	0.011722	0.010427	0.010427	0.007184	0.007184	0.011722	0.011722	0.010427	0.010427	0.010427	0.007184	0.007184
4	0.007425	0.007425	0.006383	0.006383	0.004892	0.004892	0.007425	0.007425	0.006383	0.006383	0.006383	0.004892	0.004892
5	0.006436	0.006436	0.006870	0.006870	0.004458	0.004458	0.006436	0.006436	0.006870	0.006870	0.006870	0.004458	0.004458
6	0.009270	0.009270	0.015448	0.015448	0.007653	0.007653	0.009270	0.009270	0.015448	0.015448	0.015448	0.007653	0.007653
7	0.014088	0.014088	0.021859	0.021859	0.010198	0.010198	0.014088	0.014088	0.021859	0.021859	0.021859	0.010198	0.010198
8	0.018314	0.018314	0.019856	0.019856	0.016985	0.016985	0.018314	0.018314	0.019856	0.019856	0.019856	0.016985	0.016985
9	0.025066	0.025066	0.026091	0.026091	0.027707	0.027707	0.025066	0.025066	0.026091	0.026091	0.026091	0.027707	0.027707
10	0.037630	0.037630	0.037423	0.037423	0.051533	0.051533	0.037630	0.037630	0.037423	0.037423	0.037423	0.051533	0.051533
11	0.047729	0.047729	0.047243	0.047243	0.056064	0.056064	0.047729	0.047729	0.047243	0.047243	0.047243	0.056064	0.056064
12	0.057365	0.057365	0.056886	0.056886	0.066912	0.066912	0.057365	0.057365	0.056886	0.056886	0.056886	0.066912	0.066912
13	0.068891	0.068891	0.063614	0.063614	0.083789	0.083789	0.068891	0.068891	0.063614	0.063614	0.063614	0.083789	0.083789
14	0.073562	0.073562	0.068650	0.068650	0.082291	0.082291	0.073562	0.073562	0.068650	0.068650	0.068650	0.082291	0.082291
15	0.075911	0.075911	0.072355	0.072355	0.081912	0.081912	0.075911	0.075911	0.072355	0.072355	0.072355	0.081912	0.081912
16	0.076570	0.076570	0.073752	0.073752	0.071497	0.071497	0.076570	0.076570	0.073752	0.073752	0.073752	0.071497	0.071497
17	0.078121	0.078121	0.076212	0.076212	0.071569	0.071569	0.078121	0.078121	0.076212	0.076212	0.076212	0.071569	0.071569
18	0.079592	0.079592	0.083385	0.083385	0.076334	0.076334	0.079592	0.079592	0.083385	0.083385	0.083385	0.076334	0.076334
19	0.071293	0.071293	0.077442	0.077442	0.070504	0.070504	0.071293	0.071293	0.077442	0.077442	0.077442	0.070504	0.070504
20	0.059772	0.059772	0.062720	0.062720	0.061407	0.061407	0.059772	0.059772	0.062720	0.062720	0.062720	0.061407	0.061407
21	0.049490	0.049490	0.052037	0.052037	0.050559	0.050559	0.049490	0.049490	0.052037	0.052037	0.052037	0.050559	0.050559
22	0.041793	0.041793	0.040739	0.040739	0.035216	0.035216	0.041793	0.041793	0.040739	0.040739	0.040739	0.035216	0.035216
23	0.031582	0.031582	0.030236	0.030236	0.022130	0.022130	0.031582	0.031582	0.030236	0.030236	0.030236	0.022130	0.022130
24	0.023582	0.023582	0.018282	0.018282	0.011823	0.011823	0.023582	0.023582	0.018282	0.018282	0.018282	0.011823	0.011823

TABLE 24
Time-of-Day Factors by Period for Area Type 5 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	0.018802	0.018802	0.018802	0.018802	0.016621	0.016621	0.018802	0.018802	0.018802	0.018802	0.018802	0.016621	0.016621
2	0.013795	0.013795	0.013795	0.013795	0.011741	0.011741	0.013795	0.013795	0.013795	0.013795	0.013795	0.011741	0.011741
3	0.019237	0.019237	0.019237	0.019237	0.009126	0.009126	0.019237	0.019237	0.019237	0.019237	0.019237	0.009126	0.009126
4	0.006387	0.006387	0.006387	0.006387	0.006178	0.006178	0.006387	0.006387	0.006387	0.006387	0.006387	0.006178	0.006178
5	0.006266	0.006266	0.006266	0.006266	0.006159	0.006159	0.006266	0.006266	0.006266	0.006266	0.006266	0.006159	0.006159
6	0.010767	0.010767	0.010767	0.010767	0.010716	0.010716	0.010767	0.010767	0.010767	0.010767	0.010767	0.010716	0.010716
7	0.014977	0.014977	0.014977	0.014977	0.015245	0.015245	0.014977	0.014977	0.014977	0.014977	0.014977	0.015245	0.015245
8	0.018251	0.018251	0.018251	0.018251	0.018661	0.018661	0.018251	0.018251	0.018251	0.018251	0.018251	0.018661	0.018661
9	0.024995	0.024995	0.024995	0.024995	0.026723	0.026723	0.024995	0.024995	0.024995	0.024995	0.024995	0.026723	0.026723
10	0.038644	0.038644	0.038644	0.038644	0.043031	0.043031	0.038644	0.038644	0.038644	0.038644	0.038644	0.043031	0.043031
11	0.047730	0.047730	0.047730	0.047730	0.049278	0.049278	0.047730	0.047730	0.047730	0.047730	0.047730	0.049278	0.049278
12	0.058113	0.058113	0.058113	0.058113	0.058901	0.058901	0.058113	0.058113	0.058113	0.058113	0.058113	0.058901	0.058901
13	0.070038	0.070038	0.070038	0.070038	0.069783	0.069783	0.070038	0.070038	0.070038	0.070038	0.070038	0.069783	0.069783
14	0.074999	0.074999	0.074999	0.074999	0.075932	0.075932	0.074999	0.074999	0.074999	0.074999	0.074999	0.075932	0.075932
15	0.075682	0.075682	0.075682	0.075682	0.073853	0.073853	0.075682	0.075682	0.075682	0.075682	0.075682	0.073853	0.073853
16	0.076499	0.076499	0.076499	0.076499	0.075844	0.075844	0.076499	0.076499	0.076499	0.076499	0.076499	0.075844	0.075844
17	0.077639	0.077639	0.077639	0.077639	0.072272	0.072272	0.077639	0.077639	0.077639	0.077639	0.077639	0.072272	0.072272
18	0.078955	0.078955	0.078955	0.078955	0.082657	0.082657	0.078955	0.078955	0.078955	0.078955	0.078955	0.082657	0.082657
19	0.071574	0.071574	0.071574	0.071574	0.075942	0.075942	0.071574	0.071574	0.071574	0.071574	0.071574	0.075942	0.075942
20	0.060023	0.060023	0.060023	0.060023	0.065987	0.065987	0.060023	0.060023	0.060023	0.060023	0.060023	0.065987	0.065987
21	0.048188	0.048188	0.048188	0.048188	0.051913	0.051913	0.048188	0.048188	0.048188	0.048188	0.048188	0.051913	0.051913
22	0.040617	0.040617	0.040617	0.040617	0.041333	0.041333	0.040617	0.040617	0.040617	0.040617	0.040617	0.041333	0.041333
23	0.029344	0.029344	0.029344	0.029344	0.026527	0.026527	0.029344	0.029344	0.029344	0.029344	0.029344	0.026527	0.026527
24	0.018479	0.018479	0.018479	0.018479	0.015577	0.015577	0.018479	0.018479	0.018479	0.018479	0.018479	0.015577	0.015577

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 PREPIN2 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 PREPIN2 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 Hybrid emissions 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. The research team ran GET_SPLT, the FORTRAN program developed by TTI for this application, to obtain 24 sets of these factors (i.e., a set for each of the 24 one-hour periods). These results were entered into SPLIT records for input to PREPIN2. The directional split factors used are shown in Tables 25 through 44.

TABLE 25
Directional Split Factors by Period for Area Type 1 (weekdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Time Period
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 26
Directional Split Factors by Period for Area Type 2 (weekdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 27
Directional Split Factors by Period for Area Type 3 (weekdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 28
Directional Split Factors by Period for Area Type 4 (weekdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 29
Directional Split Factors by Period for Area Type 5 (weekdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 30
Directional Split Factors by Period for Area Type 1 (Fridays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 31
Directional Split Factors by Period for Area Type 2 (Fridays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 32
Directional Split Factors by Period for Area Type 3 (Fridays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 33
Directional Split Factors by Period for Area Type 4 (Fridays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 34
Directional Split Factors by Period for Area Type 5 (Fridays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 35
Directional Split Factors by Period for Area Type 1 (Saturdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 36
Directional Split Factors by Period for Area Type 2 (Saturdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 37
Directional Split Factors by Period for Area Type 3 (Saturdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 38
Directional Split Factors by Period for Area Type 4 (Saturdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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 39
Directional Split Factors by Period for Area Type 5 (Saturdays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
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

TABLE 40
Directional Split Factors by Period for Area Type 1 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	51.98310	51.98310	59.93290	59.93290	61.33940	61.33940	51.98310	51.98310	59.93290	59.93290	59.93290	61.33940	61.33940
2	52.86600	52.86600	61.91080	61.91080	56.75340	56.75340	52.86600	52.86600	61.91080	61.91080	61.91080	56.75340	56.75340
3	52.55800	52.55800	62.60920	62.60920	63.04530	63.04530	52.55800	52.55800	62.60920	62.60920	62.60920	63.04530	63.04530
4	52.74990	52.74990	64.45100	64.45100	66.06580	66.06580	52.74990	52.74990	64.45100	64.45100	64.45100	66.06580	66.06580
5	54.29130	54.29130	61.49420	61.49420	66.52080	66.52080	54.29130	54.29130	61.49420	61.49420	61.49420	66.52080	66.52080
6	53.48210	53.48210	63.96730	63.96730	78.60400	78.60400	53.48210	53.48210	63.96730	63.96730	63.96730	78.60400	78.60400
7	53.19610	53.19610	61.04620	61.04620	61.58370	61.58370	53.19610	53.19610	61.04620	61.04620	61.04620	61.58370	61.58370
8	52.24380	52.24380	61.08120	61.08120	63.18110	63.18110	52.24380	52.24380	61.08120	61.08120	61.08120	63.18110	63.18110
9	54.08110	54.08110	62.27630	62.27630	62.98860	62.98860	54.08110	54.08110	62.27630	62.27630	62.27630	62.98860	62.98860
10	53.95300	53.95300	63.00340	63.00340	58.00910	58.00910	53.95300	53.95300	63.00340	63.00340	63.00340	58.00910	58.00910
11	53.77880	53.77880	59.18070	59.18070	54.10190	54.10190	53.77880	53.77880	59.18070	59.18070	59.18070	54.10190	54.10190
12	52.50100	52.50100	57.19240	57.19240	59.55130	59.55130	52.50100	52.50100	57.19240	57.19240	57.19240	59.55130	59.55130
13	53.53230	53.53230	57.87160	57.87160	54.68640	54.68640	53.53230	53.53230	57.87160	57.87160	57.87160	54.68640	54.68640
14	52.52050	52.52050	56.47610	56.47610	56.55850	56.55850	52.52050	52.52050	56.47610	56.47610	56.47610	56.55850	56.55850
15	52.24350	52.24350	56.63200	56.63200	54.42140	54.42140	52.24350	52.24350	56.63200	56.63200	56.63200	54.42140	54.42140
16	51.99150	51.99150	56.77710	56.77710	55.93830	55.93830	51.99150	51.99150	56.77710	56.77710	56.77710	55.93830	55.93830
17	52.50210	52.50210	58.79810	58.79810	56.72890	56.72890	52.50210	52.50210	58.79810	58.79810	58.79810	56.72890	56.72890
18	52.43390	52.43390	57.81360	57.81360	58.76290	58.76290	52.43390	52.43390	57.81360	57.81360	57.81360	58.76290	58.76290
19	52.27190	52.27190	56.61140	56.61140	59.18900	59.18900	52.27190	52.27190	56.61140	56.61140	56.61140	59.18900	59.18900
20	53.63310	53.63310	58.40410	58.40410	59.78210	59.78210	53.63310	53.63310	58.40410	58.40410	58.40410	59.78210	59.78210
21	53.81090	53.81090	59.52850	59.52850	60.91050	60.91050	53.81090	53.81090	59.52850	59.52850	59.52850	60.91050	60.91050
22	54.59800	54.59800	59.90310	59.90310	59.52000	59.52000	54.59800	54.59800	59.90310	59.90310	59.90310	59.52000	59.52000
23	53.66040	53.66040	61.26470	61.26470	62.16130	62.16130	53.66040	53.66040	61.26470	61.26470	61.26470	62.16130	62.16130
24	54.16190	54.16190	63.00370	63.00370	62.49100	62.49100	54.16190	54.16190	63.00370	63.00370	63.00370	62.49100	62.49100

TABLE 41
Directional Split Factors by Period for Area Type 2 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	51.98310	51.98310	59.93290	59.93290	61.33940	61.33940	51.98310	51.98310	59.93290	59.93290	59.93290	61.33940	61.33940
2	52.86600	52.86600	61.91080	61.91080	56.75340	56.75340	52.86600	52.86600	61.91080	61.91080	61.91080	56.75340	56.75340
3	52.55800	52.55800	62.60920	62.60920	63.04530	63.04530	52.55800	52.55800	62.60920	62.60920	62.60920	63.04530	63.04530
4	52.74990	52.74990	64.45100	64.45100	66.06580	66.06580	52.74990	52.74990	64.45100	64.45100	64.45100	66.06580	66.06580
5	54.29130	54.29130	61.49420	61.49420	66.52080	66.52080	54.29130	54.29130	61.49420	61.49420	61.49420	66.52080	66.52080
6	53.48210	53.48210	63.96730	63.96730	78.60400	78.60400	53.48210	53.48210	63.96730	63.96730	63.96730	78.60400	78.60400
7	53.19610	53.19610	61.04620	61.04620	61.58370	61.58370	53.19610	53.19610	61.04620	61.04620	61.04620	61.58370	61.58370
8	52.24380	52.24380	61.08120	61.08120	63.18110	63.18110	52.24380	52.24380	61.08120	61.08120	61.08120	63.18110	63.18110
9	54.08110	54.08110	62.27630	62.27630	62.98860	62.98860	54.08110	54.08110	62.27630	62.27630	62.27630	62.98860	62.98860
10	53.95300	53.95300	63.00340	63.00340	58.00910	58.00910	53.95300	53.95300	63.00340	63.00340	63.00340	58.00910	58.00910
11	53.77880	53.77880	59.18070	59.18070	54.10190	54.10190	53.77880	53.77880	59.18070	59.18070	59.18070	54.10190	54.10190
12	52.50100	52.50100	57.19240	57.19240	59.55130	59.55130	52.50100	52.50100	57.19240	57.19240	57.19240	59.55130	59.55130
13	53.53230	53.53230	57.87160	57.87160	54.68640	54.68640	53.53230	53.53230	57.87160	57.87160	57.87160	54.68640	54.68640
14	52.52050	52.52050	56.47610	56.47610	56.55850	56.55850	52.52050	52.52050	56.47610	56.47610	56.47610	56.55850	56.55850
15	52.24350	52.24350	56.63200	56.63200	54.42140	54.42140	52.24350	52.24350	56.63200	56.63200	56.63200	54.42140	54.42140
16	51.99150	51.99150	56.77710	56.77710	55.93830	55.93830	51.99150	51.99150	56.77710	56.77710	56.77710	55.93830	55.93830
17	52.50210	52.50210	58.79810	58.79810	56.72890	56.72890	52.50210	52.50210	58.79810	58.79810	58.79810	56.72890	56.72890
18	52.43390	52.43390	57.81360	57.81360	58.76290	58.76290	52.43390	52.43390	57.81360	57.81360	57.81360	58.76290	58.76290
19	52.27190	52.27190	56.61140	56.61140	59.18900	59.18900	52.27190	52.27190	56.61140	56.61140	56.61140	59.18900	59.18900
20	53.63310	53.63310	58.40410	58.40410	59.78210	59.78210	53.63310	53.63310	58.40410	58.40410	58.40410	59.78210	59.78210
21	53.81090	53.81090	59.52850	59.52850	60.91050	60.91050	53.81090	53.81090	59.52850	59.52850	59.52850	60.91050	60.91050
22	54.59800	54.59800	59.90310	59.90310	59.52000	59.52000	54.59800	54.59800	59.90310	59.90310	59.90310	59.52000	59.52000
23	53.66040	53.66040	61.26470	61.26470	62.16130	62.16130	53.66040	53.66040	61.26470	61.26470	61.26470	62.16130	62.16130
24	54.16190	54.16190	63.00370	63.00370	62.49100	62.49100	54.16190	54.16190	63.00370	63.00370	63.00370	62.49100	62.49100

TABLE 42
Directional Split Factors by Period for Area Type 3 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	60.88640	60.88640	58.45270	58.45270	61.33940	61.33940	60.88640	60.88640	58.45270	58.45270	58.45270	61.33940	61.33940
2	62.58780	62.58780	59.75520	59.75520	56.75340	56.75340	62.58780	62.58780	59.75520	59.75520	59.75520	56.75340	56.75340
3	62.32150	62.32150	61.81960	61.81960	63.04530	63.04530	62.32150	62.32150	61.81960	61.81960	61.81960	63.04530	63.04530
4	58.41220	58.41220	59.85990	59.85990	66.06580	66.06580	58.41220	58.41220	59.85990	59.85990	59.85990	66.06580	66.06580
5	53.62580	53.62580	58.94880	58.94880	66.52080	66.52080	53.62580	53.62580	58.94880	58.94880	58.94880	66.52080	66.52080
6	68.41370	68.41370	59.27420	59.27420	78.60400	78.60400	68.41370	68.41370	59.27420	59.27420	59.27420	78.60400	78.60400
7	67.60660	67.60660	59.73210	59.73210	61.58370	61.58370	67.60660	67.60660	59.73210	59.73210	59.73210	61.58370	61.58370
8	53.08210	53.08210	57.16380	57.16380	63.18110	63.18110	53.08210	53.08210	57.16380	57.16380	57.16380	63.18110	63.18110
9	54.98600	54.98600	59.18800	59.18800	62.98860	62.98860	54.98600	54.98600	59.18800	59.18800	59.18800	62.98860	62.98860
10	56.32750	56.32750	58.79310	58.79310	58.00910	58.00910	56.32750	56.32750	58.79310	58.79310	58.79310	58.00910	58.00910
11	58.70070	58.70070	57.72520	57.72520	54.10190	54.10190	58.70070	58.70070	57.72520	57.72520	57.72520	54.10190	54.10190
12	58.20790	58.20790	56.92690	56.92690	59.55130	59.55130	58.20790	58.20790	56.92690	56.92690	56.92690	59.55130	59.55130
13	54.73430	54.73430	56.40990	56.40990	54.68640	54.68640	54.73430	54.73430	56.40990	56.40990	56.40990	54.68640	54.68640
14	53.61260	53.61260	55.47220	55.47220	56.55850	56.55850	53.61260	53.61260	55.47220	55.47220	55.47220	56.55850	56.55850
15	53.12500	53.12500	56.34190	56.34190	54.42140	54.42140	53.12500	53.12500	56.34190	56.34190	56.34190	54.42140	54.42140
16	59.52600	59.52600	56.98870	56.98870	55.93830	55.93830	59.52600	59.52600	56.98870	56.98870	56.98870	55.93830	55.93830
17	64.52980	64.52980	57.11700	57.11700	56.72890	56.72890	64.52980	64.52980	57.11700	57.11700	57.11700	56.72890	56.72890
18	66.53630	66.53630	58.16450	58.16450	58.76290	58.76290	66.53630	66.53630	58.16450	58.16450	58.16450	58.76290	58.76290
19	66.76640	66.76640	58.29850	58.29850	59.18900	59.18900	66.76640	66.76640	58.29850	58.29850	58.29850	59.18900	59.18900
20	68.08830	68.08830	58.68300	58.68300	59.78210	59.78210	68.08830	68.08830	58.68300	58.68300	58.68300	59.78210	59.78210
21	69.75450	69.75450	58.11090	58.11090	60.91050	60.91050	69.75450	69.75450	58.11090	58.11090	58.11090	60.91050	60.91050
22	66.24860	66.24860	58.22570	58.22570	59.52000	59.52000	66.24860	66.24860	58.22570	58.22570	58.22570	59.52000	59.52000
23	59.07620	59.07620	58.12640	58.12640	62.16130	62.16130	59.07620	59.07620	58.12640	58.12640	58.12640	62.16130	62.16130
24	57.12610	57.12610	60.30260	60.30260	62.49100	62.49100	57.12610	57.12610	60.30260	60.30260	60.30260	62.49100	62.49100

TABLE 43
Directional Split Factors by Period for Area Type 4 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	55.03350	55.03350	56.84400	56.84400	61.33940	61.33940	55.03350	55.03350	56.84400	56.84400	56.84400	61.33940	61.33940
2	55.44720	55.44720	59.21240	59.21240	56.75340	56.75340	55.44720	55.44720	59.21240	59.21240	59.21240	56.75340	56.75340
3	57.41610	57.41610	63.17610	63.17610	63.04530	63.04530	57.41610	57.41610	63.17610	63.17610	63.17610	63.04530	63.04530
4	55.31830	55.31830	59.78060	59.78060	66.06580	66.06580	55.31830	55.31830	59.78060	59.78060	59.78060	66.06580	66.06580
5	53.30810	53.30810	53.98090	53.98090	66.52080	66.52080	53.30810	53.30810	53.98090	53.98090	53.98090	66.52080	66.52080
6	56.18070	56.18070	57.74470	57.74470	78.60400	78.60400	56.18070	56.18070	57.74470	57.74470	57.74470	78.60400	78.60400
7	53.76040	53.76040	55.60870	55.60870	61.58370	61.58370	53.76040	53.76040	55.60870	55.60870	55.60870	61.58370	61.58370
8	58.67510	58.67510	58.30350	58.30350	63.18110	63.18110	58.67510	58.67510	58.30350	58.30350	58.30350	63.18110	63.18110
9	55.45510	55.45510	57.78570	57.78570	62.98860	62.98860	55.45510	55.45510	57.78570	57.78570	57.78570	62.98860	62.98860
10	53.93420	53.93420	55.27350	55.27350	58.00910	58.00910	53.93420	53.93420	55.27350	55.27350	55.27350	58.00910	58.00910
11	54.13630	54.13630	54.52670	54.52670	54.10190	54.10190	54.13630	54.13630	54.52670	54.52670	54.52670	54.10190	54.10190
12	52.33020	52.33020	53.70290	53.70290	59.55130	59.55130	52.33020	52.33020	53.70290	53.70290	53.70290	59.55130	59.55130
13	51.99210	51.99210	53.56140	53.56140	54.68640	54.68640	51.99210	51.99210	53.56140	53.56140	53.56140	54.68640	54.68640
14	51.56170	51.56170	54.31080	54.31080	56.55850	56.55850	51.56170	51.56170	54.31080	54.31080	54.31080	56.55850	56.55850
15	51.36520	51.36520	52.98870	52.98870	54.42140	54.42140	51.36520	51.36520	52.98870	52.98870	52.98870	54.42140	54.42140
16	51.56050	51.56050	53.12510	53.12510	55.93830	55.93830	51.56050	51.56050	53.12510	53.12510	53.12510	55.93830	55.93830
17	52.82030	52.82030	53.59300	53.59300	56.72890	56.72890	52.82030	52.82030	53.59300	53.59300	53.59300	56.72890	56.72890
18	54.24620	54.24620	55.61620	55.61620	58.76290	58.76290	54.24620	54.24620	55.61620	55.61620	55.61620	58.76290	58.76290
19	56.23630	56.23630	55.07390	55.07390	59.18900	59.18900	56.23630	56.23630	55.07390	55.07390	55.07390	59.18900	59.18900
20	58.06380	58.06380	56.15470	56.15470	59.78210	59.78210	58.06380	58.06380	56.15470	56.15470	56.15470	59.78210	59.78210
21	60.14000	60.14000	56.44790	56.44790	60.91050	60.91050	60.14000	60.14000	56.44790	56.44790	56.44790	60.91050	60.91050
22	59.12720	59.12720	56.31680	56.31680	59.52000	59.52000	59.12720	59.12720	56.31680	56.31680	56.31680	59.52000	59.52000
23	57.19390	57.19390	56.67690	56.67690	62.16130	62.16130	57.19390	57.19390	56.67690	56.67690	56.67690	62.16130	62.16130
24	58.28260	58.28260	56.61320	56.61320	62.49100	62.49100	58.28260	58.28260	56.61320	56.61320	56.61320	62.49100	62.49100

TABLE 44
Directional Split Factors by Period for Area Type 5 (Sundays)

Time Period	Urban Interstate	Urban Other Freeway	Urban Principal Arterial	Urban Other Arterial	Urban Collector	Local (Central Conn.)	Rural Interstate	Rural Other Freeway	Rural Principal Arterial	Rural Other Arterial	Rural Major Collector	Rural Collector	Local
1	62.67080	62.67080	62.67080	62.67080	55.73490	55.73490	62.67080	62.67080	62.67080	62.67080	62.67080	55.73490	55.73490
2	62.99110	62.99110	62.99110	62.99110	57.12380	57.12380	62.99110	62.99110	62.99110	62.99110	62.99110	57.12380	57.12380
3	66.01180	66.01180	66.01180	66.01180	63.17530	63.17530	66.01180	66.01180	66.01180	66.01180	66.01180	63.17530	63.17530
4	61.90810	61.90810	61.90810	61.90810	61.23250	61.23250	61.90810	61.90810	61.90810	61.90810	61.90810	61.23250	61.23250
5	62.79050	62.79050	62.79050	62.79050	60.68490	60.68490	62.79050	62.79050	62.79050	62.79050	62.79050	60.68490	60.68490
6	67.72120	67.72120	67.72120	67.72120	65.00890	65.00890	67.72120	67.72120	67.72120	67.72120	67.72120	65.00890	65.00890
7	57.83520	57.83520	57.83520	57.83520	68.06730	68.06730	57.83520	57.83520	57.83520	57.83520	57.83520	68.06730	68.06730
8	53.80060	53.80060	53.80060	53.80060	56.82950	56.82950	53.80060	53.80060	53.80060	53.80060	53.80060	56.82950	56.82950
9	54.05910	54.05910	54.05910	54.05910	57.23690	57.23690	54.05910	54.05910	54.05910	54.05910	54.05910	57.23690	57.23690
10	54.06620	54.06620	54.06620	54.06620	60.70310	60.70310	54.06620	54.06620	54.06620	54.06620	54.06620	60.70310	60.70310
11	54.37240	54.37240	54.37240	54.37240	59.56320	59.56320	54.37240	54.37240	54.37240	54.37240	54.37240	59.56320	59.56320
12	55.64220	55.64220	55.64220	55.64220	56.94660	56.94660	55.64220	55.64220	55.64220	55.64220	55.64220	56.94660	56.94660
13	57.64590	57.64590	57.64590	57.64590	55.53390	55.53390	57.64590	57.64590	57.64590	57.64590	57.64590	55.53390	55.53390
14	57.19960	57.19960	57.19960	57.19960	57.56010	57.56010	57.19960	57.19960	57.19960	57.19960	57.19960	57.56010	57.56010
15	56.25300	56.25300	56.25300	56.25300	56.39800	56.39800	56.25300	56.25300	56.25300	56.25300	56.25300	56.39800	56.39800
16	57.34400	57.34400	57.34400	57.34400	57.13100	57.13100	57.34400	57.34400	57.34400	57.34400	57.34400	57.13100	57.13100
17	56.48710	56.48710	56.48710	56.48710	58.45600	58.45600	56.48710	56.48710	56.48710	56.48710	56.48710	58.45600	58.45600
18	56.27170	56.27170	56.27170	56.27170	56.08210	56.08210	56.27170	56.27170	56.27170	56.27170	56.27170	56.08210	56.08210
19	56.58160	56.58160	56.58160	56.58160	57.69170	57.69170	56.58160	56.58160	56.58160	56.58160	56.58160	57.69170	57.69170
20	57.19090	57.19090	57.19090	57.19090	57.82940	57.82940	57.19090	57.19090	57.19090	57.19090	57.19090	57.82940	57.82940
21	58.18770	58.18770	58.18770	58.18770	60.18830	60.18830	58.18770	58.18770	58.18770	58.18770	58.18770	60.18830	60.18830
22	56.87570	56.87570	56.87570	56.87570	58.79020	58.79020	56.87570	56.87570	56.87570	56.87570	56.87570	58.79020	58.79020
23	57.76890	57.76890	57.76890	57.76890	59.03110	59.03110	57.76890	57.76890	57.76890	57.76890	57.76890	59.03110	59.03110
24	58.75630	58.75630	58.75630	58.75630	60.36810	60.36810	58.75630	58.75630	58.75630	58.75630	58.75630	60.36810	60.36810

TIME-OF-DAY CAPACITY FACTORS

The 24-hour capacity restraint assignments were performed using nondirectional 24-hour capacities. The nondirectional capacities, included in the assignment data set, are input to PREPIN2. 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, PREPIN2 assumes the directional split for capacity to be 50-50.

The HGAC networks use 13 classifications. 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 45, a table of equals.

TABLE 45
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 46 summarizes the typical 24-hour capacities per lane used in the HGAC highway networks. Table 47 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 46
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 47
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	2,185.6	806.9	801.2	739.5
Urban	0.0	2,210.9	836.8	809.6	652.2
Urban Fringe	0.0	2,199.1	865.5	795.9	586.0
Suburban	0.0	2,242.1	890.6	783.0	500.6
Rural	0.0	2,231.9	879.8	767.7	407.8

FREEFLOW SPEED FACTORS

The research team used a simplified version of the HGAC speed model 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 the same in each direction.

Table 48 summarizes the 24-hour speeds used in the FY2007 HGAC highway networks. These speeds were developed during travel model calibration so that the travel model produced the correct link volumes, consequently, they are not operational speeds. For emissions calculation, an estimated operational speed is desired. The speeds shown in Tables 49 and 50 were developed to estimate freeflow speed factors and LOS E speed factors respectively for use by PREPIN2. These factors are developed separately for each functional group and area type. The Table 49 freeflow speeds are divided by the Table 48 24-hour speeds to calculate a freeflow speed factor. The freeflow speed factor is multiplied by the coded link 24-hour speed to estimate the link freeflow speed. Similarly, the Table 50 LOS E speeds are divided by the Table 48 24-hour speeds to estimate a LOS E speed factor. The LOS E speed factor is multiplied by the coded link 24-hour speed to estimate the link LOS E speed. The speed values in Tables 49 and 50 were developed to be compatible with speed logic used in the HGAC 1995 travel model calibration. These user-estimated speed factors are input to the PREPIN2 program using SPD2FAC records.

TABLE 48
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	37.13	19.00	17.47	18.70	9.86
Urban	0.0	45.08	31.44	29.73	24.91	17.35
Urban Fringe	0.0	50.28	34.90	33.62	26.36	19.12
Suburban	0.0	53.69	38.99	36.61	27.41	23.10
Rural	0.0	58.24	50.17	47.71	36.83	33.98

TABLE 49
Speeds Used for Calculating Freeflow (V/C = 0) Speed Factors

AREA TYPE	FUNCTIONAL GROUP					
	0	1	2	3	4	5
	Locals (Centroid Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors	Locals
CBD	0.0	54.26	23.94	22.47	21.96	9.86
Urban	0.0	57.60	27.97	25.42	21.58	17.35
Urban Fringe	0.0	59.90	33.51	27.95	22.99	19.12
Suburban	0.0	66.27	40.43	36.04	32.92	23.10
Rural	0.0	71.09	54.47	53.97	49.29	33.98

TABLE 50
Speeds Used for Calculating Average LOS E (V/C = 1) Speed Factors

AREA TYPE	FUNCTIONAL GROUP					
	0	1	2	3	4	5
	Locals (Centriod Connectors)	Freeways	Principal Arterials	Other Arterials	Collectors	Locals
CBD	0.0	33.09	15.45	13.80	13.54	9.86
Urban	0.0	34.83	19.61	18.25	14.92	17.35
Urban Fringe	0.0	39.57	24.82	20.54	17.26	19.12
Suburban	0.0	48.38	29.65	26.43	25.16	23.10
Rural	0.0	48.93	38.86	42.17	40.28	33.98

SPEED MODEL FORMULATION

The version of the Houston-Galveston speed models implemented in PREPIN2 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, that essentially describe the shape of the speed curve, are input to the PREPIN2 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. It was cited 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 research team applied the detailed Houston-Galveston speed model 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 PREPIN2. 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.

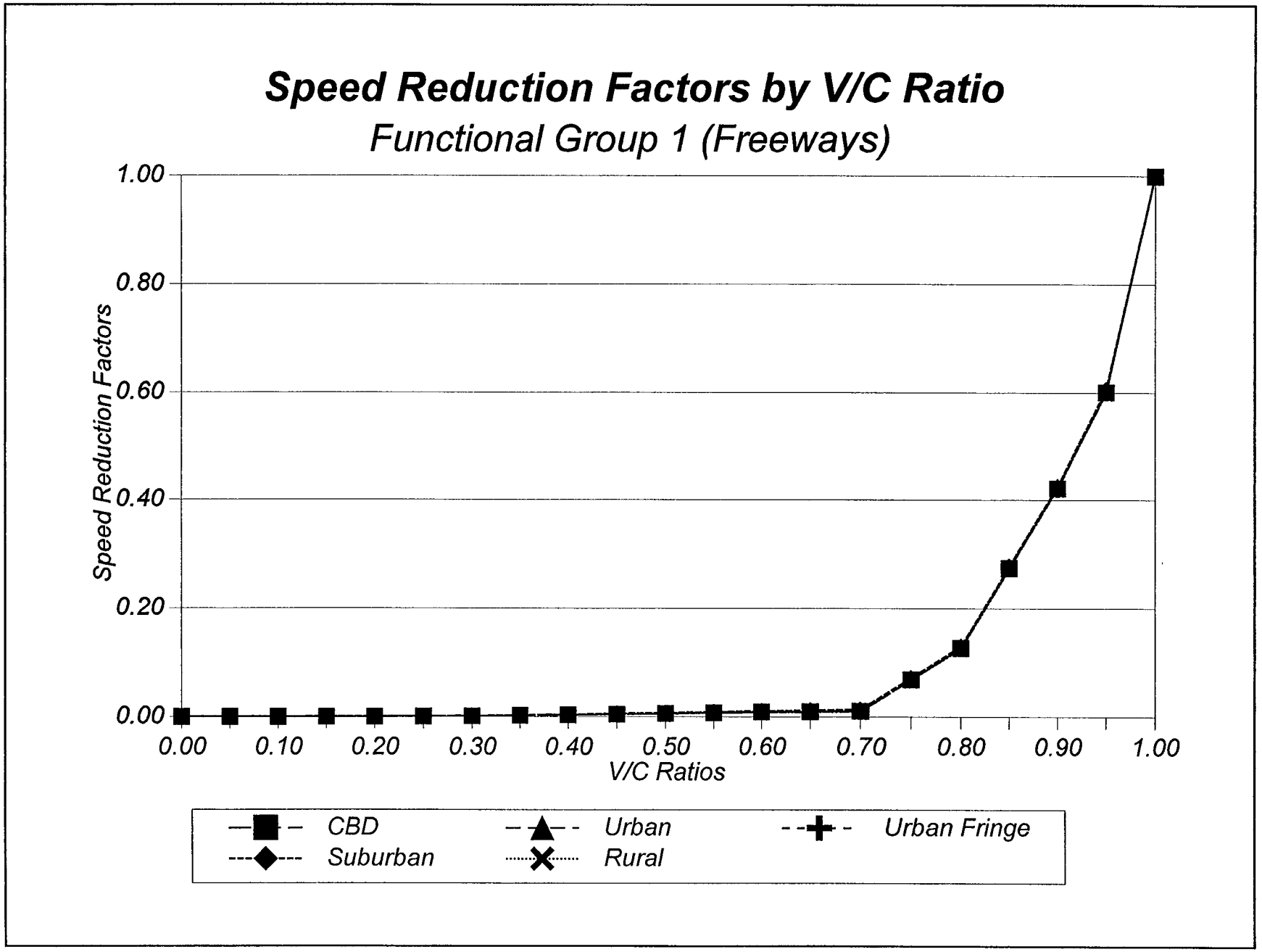

FIGURE 1. Freeway Speed Reduction Factors by V/C Ratio

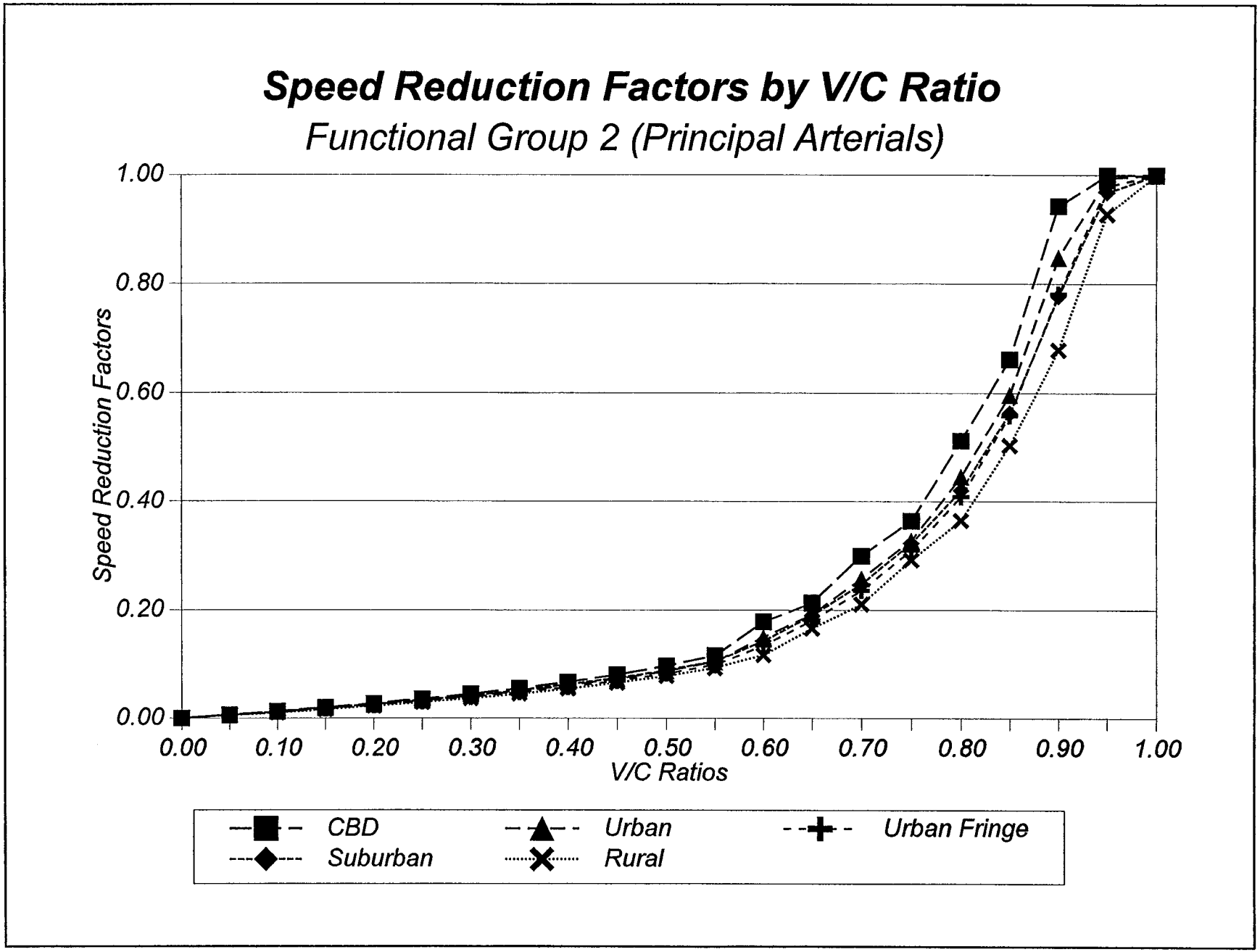

FIGURE 2. Principal Arterial Speed Reduction Factors by V/C Ratio

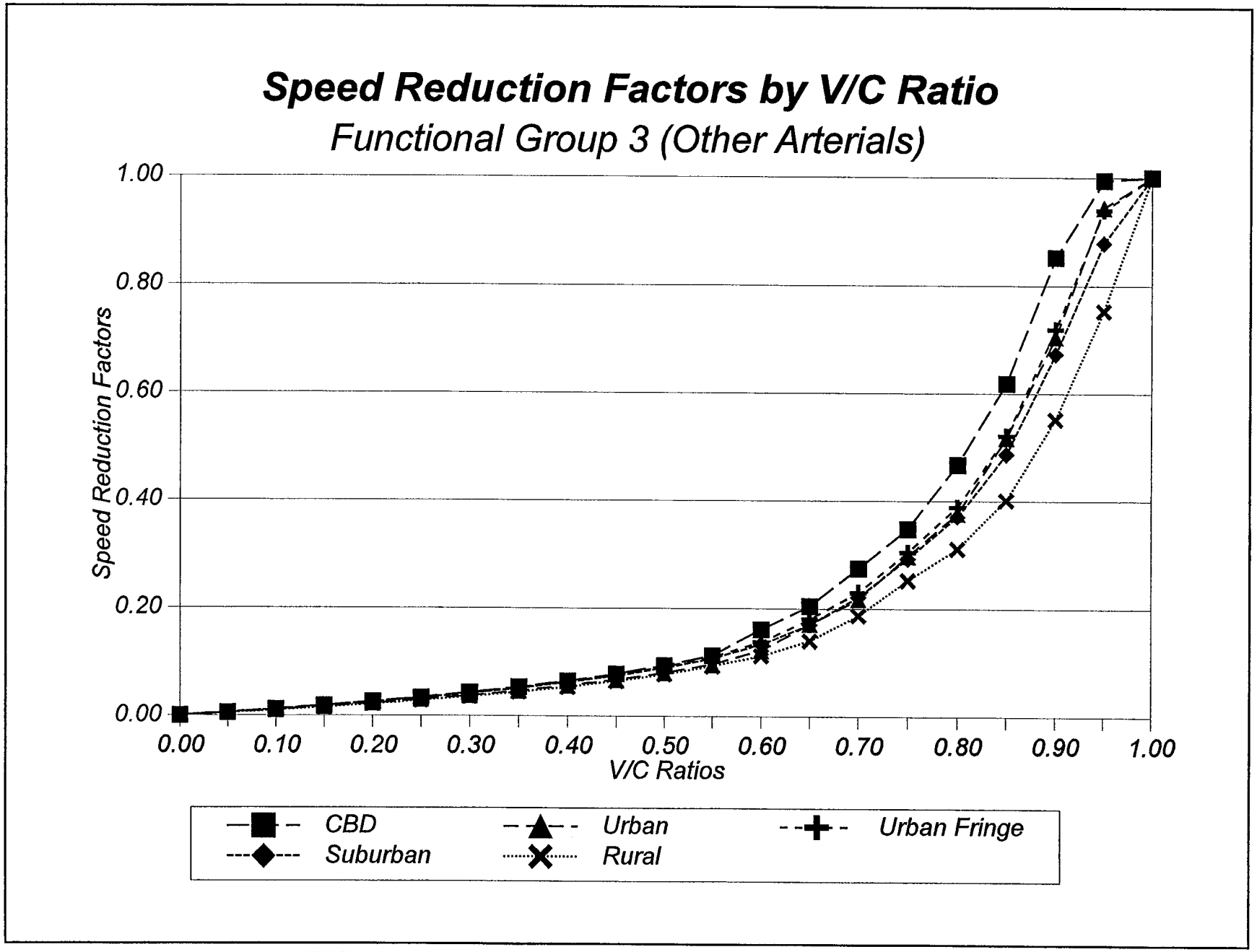

FIGURE 3. Other Arterial Speed Reduction Factors by V/C Ratio

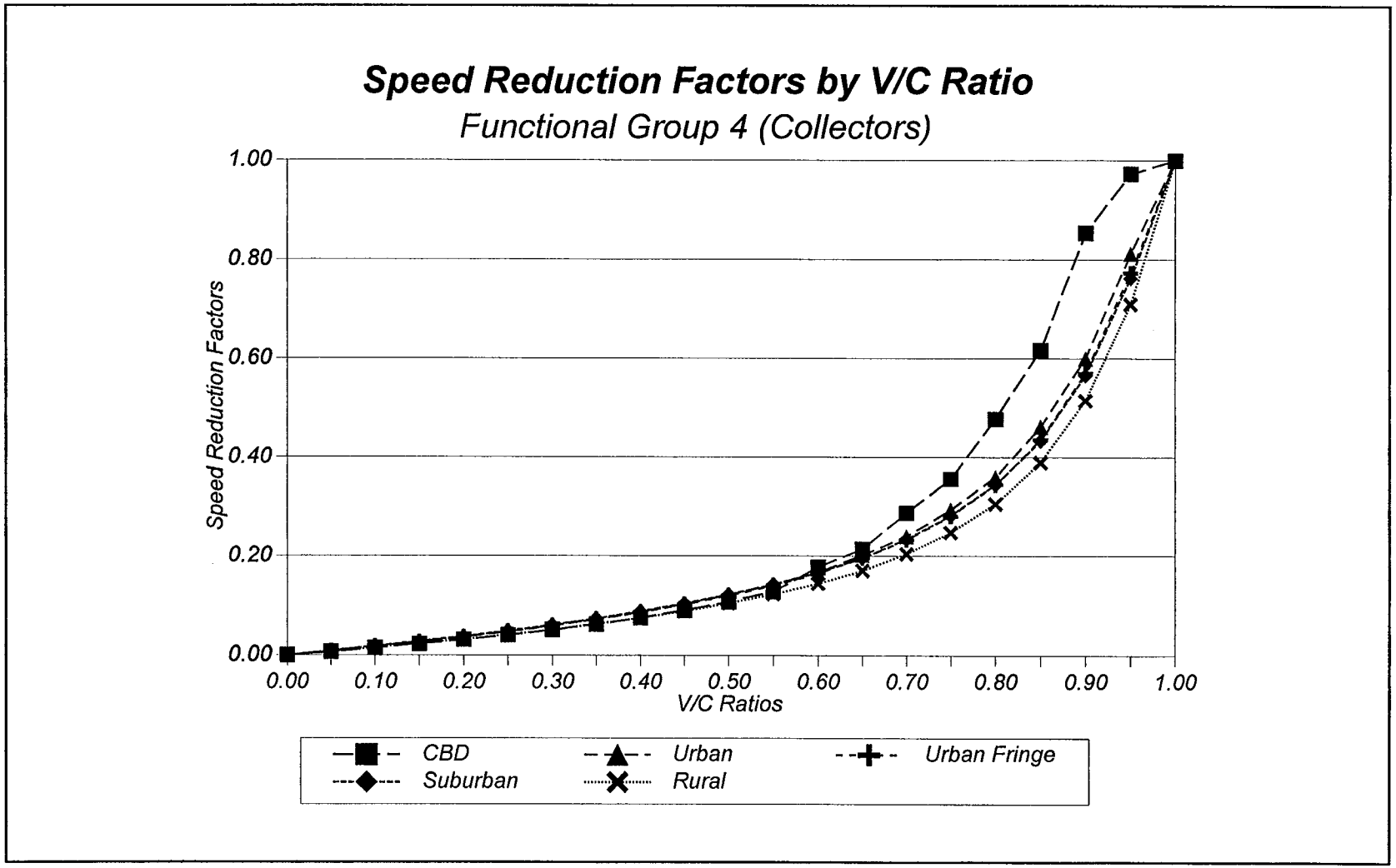

FIGURE 4. Collector Speed Reduction Factors by V/C Ratio

OTHER DATA INPUTS

The remaining data inputs to the PREPIN2 program are:

- The 24-hour Assignment Data Set: This network data set with assignment results was produced by the EMM2 program. The EMME2 assignment was converted to an ASCII file. This ASCII file was combined with another ASCII file containing speed and capacity and the combined file was input to PREPIN2. PREPIN2 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 directional capacity-restrained assignment volume.

- The Intrazonal Trip Volumes: PREPIN2 reads the 24-hour intrazonal trips for each zone from this data set.

- 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 PREPIN2 to estimate the average trip length of intrazonal trips.

III. ESTIMATION OF EMISSIONS RATES USING MOBILE5a HYBRID

The research team used the MOBILE5a Hybrid program to compute the mobile source emissions rates (or factors) for the HGRTS gridded emissions estimates. The POLFAC5HB program was used to compute 24-hour diurnal emissions rates. MOBILE5a Hybrid was applied using POLFAC5HB to estimate the emissions rates by speed for each of the 24 one-hour time-of-day periods.

POLFAC5HB is one of a series of programs developed by TTI to facilitate the computation of mobile source emissions. POLFAC5HB is used to apply MOBILE5a Hybrid to obtain emissions rates. The emissions 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 emissions rates. These emissions rates are output to an ASCII file for subsequent input to the IMPSUMA program. For HGRTS, the POLFAC5HB program was applied for each of the 24 one-hour time periods for a given subject day. The emissions rates from POLFAC5HB are applied using the IMPSUMA program to estimate emissions.

For Harris County, three applications of POLFAC5HB were run for each of the subject days. The three applications were used to calculate three emissions rates for Harris County. Three applications of POLFAC5HB were necessary to reflect Harris County's I/M anti-tampering program (ATP).

Three applications of POLFAC5HB for Harris County produce emissions 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 emissions rates developed for the respective ATPs 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 emissions rates that account for both of the ATPs and subtracting the emissions rates developed for Harris County without an ATP, the appropriate emissions 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 emissions rates produced by POLFAC5HB. 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 POLFAC5HB. Each application of MOBILE5a Hybrid 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 51 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 52 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.

As mentioned previously, the research team used the PREPIN2 applications to develop the VMT and speed estimates for the weekday, Friday, Saturday, and Sunday subject days. The weekday PREPIN2 applications are used in conjunction with the Monday, Tuesday, Wednesday, and Thursday POLFAC5HB application to develop gridded emissions estimates for the respective subject day. The Friday, Saturday, and Sunday PREPIN2 applications are used in conjunction with the respective Friday, Saturday, and Sunday POLFAC5HB applications.

Table 51
MOBILE5a Hybrid Temperature Inputs Used for HGRTS Gridded Emission Applications for Harris, Fort Bend, Waller, Montgomery, and Liberty Counties

	MOBILE5a Hybrid Temperature Inputs for Harris, Fort Bend, Waller, Montgomery, and Liberty Counties																				
	Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday		
	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient
Time Period 1	74.8	74.8	74.8	76.5	76.5	76.5	73.8	73.8	73.8	80.2	80.2	80.2	78.1	78.1	78.1	79.0	79.0	79.0	77.0	77.0	77.0
Time Period 2	72.7	72.7	72.7	76.6	76.6	76.6	72.7	72.7	72.7	80.8	80.8	80.8	77.5	77.5	77.5	78.1	78.1	78.1	77.5	77.5	77.5
Time Period 3	72.0	72.0	72.0	76.1	76.1	76.1	72.7	72.7	72.7	80.2	80.2	80.2	76.8	76.8	76.8	76.5	76.5	76.5	76.2	76.2	76.2
Time Period 4	72.0	72.0	72.0	75.2	75.2	75.2	71.6	71.6	71.6	78.4	78.4	78.4	76.5	76.5	76.5	75.4	75.4	75.4	76.1	76.1	76.1
Time Period 5	71.1	71.1	71.1	74.3	74.3	74.3	71.1	71.1	71.1	77.5	77.5	77.5	75.6	75.6	75.6	74.3	74.3	74.3	76.0	76.0	76.0
Time Period 6	70.7	70.7	70.7	73.8	73.8	73.8	70.0	70.0	70.0	77.4	77.4	77.4	75.0	75.0	75.0	74.1	74.1	74.1	76.5	76.5	76.5
Time Period 7	70.9	70.9	70.9	73.4	73.4	73.4	70.3	70.3	70.3	77.2	77.2	77.2	75.4	75.4	75.4	74.5	74.5	74.5	76.5	76.5	76.5
Time Period 8	75.2	75.2	75.2	76.8	76.8	76.8	75.2	75.2	75.2	77.5	77.5	77.5	78.6	78.6	78.6	78.4	78.4	78.4	80.1	80.1	80.1
Time Period 9	80.2	80.2	80.2	81.1	81.1	81.1	81.0	81.0	81.0	78.4	78.4	78.4	82.8	82.8	82.8	82.8	82.8	82.8	84.2	84.2	84.2
Time Period 10	84.9	84.9	84.9	85.3	85.3	85.3	86.0	86.0	86.0	80.1	80.1	80.1	86.4	86.4	86.4	85.8	85.8	85.8	87.7	87.7	87.7
Time Period 11	87.4	87.4	87.4	88.9	88.9	88.9	89.2	89.2	89.2	81.7	81.7	81.7	89.2	89.2	89.2	88.7	88.7	88.7	89.9	89.9	89.9
Time Period 12	89.8	89.8	89.8	91.2	91.2	91.2	91.8	91.8	91.8	83.5	83.5	83.5	91.4	91.4	91.4	91.2	91.2	91.2	86.8	86.8	86.8
Time Period 13	90.1	90.1	90.1	92.1	92.1	92.1	93.7	93.7	93.7	85.6	85.6	85.6	92.8	92.8	92.8	93.0	93.0	93.0	81.7	81.7	81.7
Time Period 14	91.0	91.0	91.0	93.4	93.4	93.4	95.4	95.4	95.4	87.4	87.4	87.4	93.9	93.9	93.9	93.7	93.7	93.7	83.0	83.0	83.0
Time Period 15	91.4	91.4	91.4	93.7	93.7	93.7	95.4	95.4	95.4	88.3	88.3	88.3	95.0	95.0	95.0	90.7	90.7	90.7	85.8	85.8	85.8
Time Period 16	91.0	91.0	91.0	93.9	93.9	93.9	95.5	95.5	95.5	89.1	89.1	89.1	94.8	94.8	94.8	87.4	87.4	87.4	86.3	86.3	86.3
Time Period 17	90.3	90.3	90.3	93.6	93.6	93.6	94.8	94.8	94.8	88.9	88.9	88.9	93.2	93.2	93.2	85.6	85.6	85.6	85.4	85.4	85.4
Time Period 18	88.7	88.7	88.7	91.8	91.8	91.8	91.8	91.8	91.8	87.4	87.4	87.4	90.5	90.5	90.5	84.9	84.9	84.9	82.4	82.4	82.4
Time Period 19	86.2	86.2	86.2	88.2	88.2	88.2	87.8	87.8	87.8	84.9	84.9	84.9	87.8	87.8	87.8	82.4	82.4	82.4	81.1	81.1	81.1
Time Period 20	83.1	83.1	83.1	83.3	83.3	83.3	84.9	84.9	84.9	82.2	82.2	82.2	83.8	83.8	83.8	82.2	82.2	82.2	80.8	80.8	80.8
Time Period 21	81.5	81.5	81.5	80.4	80.4	80.4	83.8	83.8	83.8	81.5	81.5	81.5	81.7	81.7	81.7	80.4	80.4	80.4	80.9	80.9	80.9
Time Period 22	79.7	79.7	79.7	78.4	78.4	78.4	82.8	82.8	82.8	80.8	80.8	80.8	81.3	81.3	81.3	79.7	79.7	79.7	80.3	80.3	80.3
Time Period 23	78.4	78.4	78.4	76.5	76.5	76.5	81.7	81.7	81.7	80.2	80.2	80.2	81.1	81.1	81.1	79.3	79.3	79.3	80.8	80.8	80.8
Time Period 24	77.2	77.2	77.2	74.5	74.5	74.5	80.8	80.8	80.8	79.2	79.2	79.2	80.1	80.1	80.1	77.2	77.2	77.2	81.1	81.1	81.1
24-hour Diurnal	70.7	91.4	84.5	73.4	93.9	87.1	70.0	95.5	87.0	77.2	89.1	85.1	75.0	95.0	88.3	74.1	93.7	87.2	76.0	89.9	85.3

Table 52
MOBILE5a Temperature Inputs Used for HGRTS Gridded Emission Applications for Galveston, Brazoria, and Chambers Counties

	MOBILE5a Hybrid Temperature Inputs for Galveston, Brazoria, and Chambers Counties																				
	Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday		
	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient	Low	High	Ambient
Time Period 1	78.1	78.1	78.1	78.1	78.1	78.1	75.9	75.9	75.9	79.0	79.0	79.0	79.0	79.0	79.0	78.1	78.1	78.1	81.0	81.0	81.0
Time Period 2	75.9	75.9	75.9	79.0	79.0	79.0	75.0	75.0	75.0	77.0	77.0	77.0	78.1	78.1	78.1	78.1	78.1	78.1	82.0	82.0	82.0
Time Period 3	75.0	75.0	75.0	80.1	80.1	80.1	73.9	73.9	73.9	79.0	79.0	79.0	78.1	78.1	78.1	77.0	77.0	77.0	82.0	82.0	82.0
Time Period 4	75.0	75.0	75.0	80.1	80.1	80.1	73.9	73.9	73.9	78.1	78.1	78.1	75.9	75.9	75.9	77.0	77.0	77.0	82.0	82.0	82.0
Time Period 5	75.9	75.9	75.9	79.0	79.0	79.0	73.9	73.9	73.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	81.0	81.0	81.0
Time Period 6	75.9	75.9	75.9	78.1	78.1	78.1	73.0	73.0	73.0	73.9	73.9	73.9	75.0	75.0	75.0	75.9	75.9	75.9	81.0	81.0	81.0
Time Period 7	77.0	77.0	77.0	78.1	78.1	78.1	73.0	73.0	73.0	73.9	73.9	73.9	75.9	75.9	75.9	77.0	77.0	77.0	82.0	82.0	82.0
Time Period 8	80.1	80.1	80.1	80.1	80.1	80.1	75.9	75.9	75.9	78.1	78.1	78.1	79.0	79.0	79.0	80.1	80.1	80.1	84.0	84.0	84.0
Time Period 9	82.0	82.0	82.0	82.0	82.0	82.0	81.0	81.0	81.0	81.0	81.0	81.0	82.9	82.9	82.9	82.9	82.9	82.9	86.0	86.0	86.0
Time Period 10	84.0	84.0	84.0	84.0	84.0	84.0	84.9	84.9	84.9	84.0	84.0	84.0	84.0	84.0	84.0	84.9	84.9	84.9	87.0	87.0	87.0
Time Period 11	86.0	86.0	86.0	84.0	84.0	84.0	87.1	87.1	87.1	88.0	88.0	88.0	86.0	86.0	86.0	86.0	86.0	86.0	87.0	87.0	87.0
Time Period 12	87.1	87.1	87.1	87.1	87.1	87.1	89.1	89.1	89.1	89.1	89.1	89.1	88.0	88.0	88.0	88.0	88.0	88.0	89.0	89.0	89.0
Time Period 13	88.0	88.0	88.0	89.1	89.1	89.1	90.0	90.0	90.0	90.0	90.0	90.0	89.1	89.1	89.1	88.0	88.0	88.0	88.0	88.0	88.0
Time Period 14	89.1	89.1	89.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	89.1	89.1	89.1	87.0	87.0	87.0
Time Period 15	89.1	89.1	89.1	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	90.0	90.0	90.0	87.0	87.0	87.0
Time Period 16	89.1	89.1	89.1	91.0	91.0	91.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	87.1	87.1	87.1	88.0	88.0	88.0
Time Period 17	89.1	89.1	89.1	91.0	91.0	91.0	90.0	90.0	90.0	89.1	89.1	89.1	90.0	90.0	90.0	86.0	86.0	86.0	86.0	86.0	86.0
Time Period 18	87.1	87.1	87.1	90.0	90.0	90.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	84.9	84.9	84.9	85.0	85.0	85.0
Time Period 19	86.0	86.0	86.0	87.1	87.1	87.1	86.0	86.0	86.0	87.1	87.1	87.1	86.0	86.0	86.0	84.9	84.9	84.9	84.0	84.0	84.0
Time Period 20	84.0	84.0	84.0	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.9	84.0	84.0	84.0	82.0	82.0	82.0
Time Period 21	82.0	82.0	82.0	84.0	84.0	84.0	84.9	84.9	84.9	84.0	84.0	84.0	84.9	84.9	84.9	84.0	84.0	84.0	83.0	83.0	83.0
Time Period 22	81.0	81.0	81.0	81.0	81.0	81.0	84.0	84.0	84.0	82.0	82.0	82.0	84.0	84.0	84.0	82.9	82.9	82.9	84.0	84.0	84.0
Time Period 23	78.1	78.1	78.1	80.1	80.1	80.1	84.0	84.0	84.0	82.0	82.0	82.0	81.0	81.0	81.0	82.9	82.9	82.9	84.0	84.0	84.0
Time Period 24	77.0	77.0	77.0	78.1	78.1	78.1	84.0	84.0	84.0	81.0	81.0	81.0	79.0	79.0	79.0	82.9	82.9	82.9	84.0	84.0	84.0
24-hour Diurnal	75.0	89.1	87.1	78.1	91.0	86.7	73.9	91.0	85.0	73.9	91.1	85.3	75.0	91.0	85.7	75.9	90.0	85.3	81.0	89.0	86.3

MOBILE5a HYBRID SET-UPS

Tables 53 through 62 are the basic FY2007 subject day MOBILE5a Hybrid 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 (FY2007) to reflect the target inventory year. Subject day temperature and header data were applied for each time and diurnal application. These set-ups were used to develop the FY2007 subject day emissions rates for each of the three counties. The research team ran 25 applications of POLFAC5HB 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 Hybrid set-ups. The date difference in the MOBILE5a Hybrid set-ups is delineated by DD. The temperatures, header dates, and trip length distribution records were the only changes made in the set-ups to develop the emissions 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 Hybrid set-ups shown in Tables 53 through 62. The temperature inputs used for the other time periods are listed Table 51 and Table 52. The trip length distribution records used in the POLFAC5HB applications are shown in Table 64 by time period.

As mentioned previously, three applications of POLFAC5HB were run to develop the emissions rates for Harris County. The MOBILE5a Hybrid set-ups shown in Tables 53 through 62 present the differences in the three different MOBILE5a Hybrid set-ups. Notice that the ATPFLG (anti-tampering flag) in MOBILE5a Hybrid presented in Table 53 is set to 1, that indicates no ATP. The Harris County MOBILE5a Hybrid set-up presented in Table 54 shows the ATPFLG set to 2 that indicates that an ATP is in place. MOBILE5a Hybrid set-ups with an ATPFLG set to 2, also have an accompanying ATP record. Notice that the ATP record in Table 54 reflects the ATP for the 1968 through 1979 model year vehicles. The Harris County MOBILE5a Hybrid set-up presented in Table 55 also shows the ATPFLG set to 2, that indicates that an ATP is in place. The ATP record in Table 55 shows 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 Hybrid has zero mileage for motorcycles older than 12 years.

TABLE 53
Harris County MOBILE5a Hybrid 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 Hybrid  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 54
Harris County MOBILE5a Hybrid 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 Hybrid  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 55
Harris County MOBILE5a Hybrid 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 Hybrid  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 56
Brazoria County MOBILE5a Hybrid 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 Hybrid  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 57
Fort Bend County MOBILE5a Hybrid 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 Hybrid  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 58
Waller County MOBILE5a Hybrid 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 Hybrid  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 59
Montgomery County MOBILE5a Hybrid 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 Hybrid  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 60
Liberty County MOBILE5a Hybrid 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 Hybrid  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 61
Chambers County MOBILE5a Hybrid 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 Hybrid  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 62
Galveston County MOBILE5a Hybrid 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 Hybrid  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 63
Trip Length Distribution Records by Time Period for Input into POLFAC5HB

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 PREPIN2 applications were used to develop VMT and speed estimates for the weekday, Friday, Saturday, and Sunday subject days. The weekday VMT and speed estimates were used in conjunction with the Tuesday, Wednesday, and Thursday emissions rates, developed with the POLFAC5HB application, to develop gridded emissions estimates for the subject day. The Friday, Saturday, and Sunday VMT and speed estimates were used in conjunction with the respective Friday, Saturday, and Sunday emissions rates, developed with the POLFAC5HB application, to develop gridded emissions 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 emissions estimates. IMPSUMA applies the emissions rates, developed using POLFAC5HB, on a link-by-link basis to obtain the gridded emissions estimates by time period. SUMALL was used to sum all of the 24 one-hour gridded emissions estimates to calculate a 24-hour gridded emissions 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 emissions 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 TTI to facilitate the computation of emissions. The IMPSUMA program uses emissions factors obtained from POLFAC5HB 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 emissions 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 emissions results. The roadway types used in the gridded emissions estimates are the functional classifications used in the networks.
3. VMT mix by county used in the MOBILE5a Hybrid set-ups.
4. Emissions factors from POLFAC5HB 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 PREPIN2 program.
7. Coordinates for nodes and zones for calculation of gridded emissions.

The emissions rates produced using MOBILE5a Hybrid are stratified by eight vehicle types. To apply the emissions 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 emissions rates produced using MOBILE5a Hybrid are stratified by eight vehicle types. To apply the emissions 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 emissions day. The VMT mix estimates used in this analysis are based on a multiple year data set of vehicle classification counts collected primarily in Harris County but including counts collected throughout the COAST region. The automatic vehicle classification (AVC) equipment was calibrated to classify vehicles into the standard FHWA 13 vehicle classifications that the research team subsequently converted into the eight EPA categories. Vehicle classification counts were made at 30 sites between August 4, 1993 and September 27, 1993. In most cases, AVC counts were made for a minimum of 72 hours and included a Friday, Saturday, and Sunday during August or September. County and functional classification was recorded.

TxDOT maintains vehicle classification data collection sites throughout Texas. Data for the two most recent years (1995 and 1996) for the 11 COAST counties contain 160 of these sites. These data are collected on an ongoing basis but are available for Monday through Thursday only. The TxDOT vehicle classification data was augmented to include Friday, Saturday, and Sunday. These two existing data sources were combined to provide 181 unique data collection sites, including multiple observations (i.e., 1993, 1995, and 1996) at some sites. The combined data are summarized in Table 64. This combined data set was analyzed to determine the vehicle mix by roadway functional classification, for the entire COAST area as well as by county.

Note that the supplemental data (i.e., Friday, Saturday, and Sunday) mixes 1995 and 1996 weekday vehicle classifications with 1998 weekend classifications. The research team confirmed the validity of this procedure using those sites in the combined data where multiple (weekday) observations are available. There is no significant short-term change in vehicle classification distribution at a given site location.

TABLE 64
Vehicle Classification Data Collection Sites
by County and Roadway Functional Classification

County	Functional Classification										Total
	1	2	6	7	8	11	12	14	16	19	
Brazoria	0	8	4	3	1	0	2	0	0	0	18
Chambers	0	0	0	0	0	0	0	0	0	0	0
Fort Bend	2	4	0	0	0	2	4	4	0	0	16
Galveston	0	0	0	0	0	4	0	4	4	0	12
Hardin	0	10	2	6	0	0	0	0	0	0	18
Harris	0	2	4	0	0	30	22	10	2	2	72
Jefferson	2	0	0	0	0	0	0	8	0	0	10
Liberty	0	2	10	0	1	0	2	0	0	0	15
Montgomery	2	0	0	0	0	2	2	0	0	4	10
Orange	4	0	4	0	0	2	0	0	0	0	10
Waller	0	0	0	0	0	0	0	0	0	0	0
Total	10	26	24	9	2	40	32	26	6	6	181

Functional Classification Key:

1 = Rural Principal Arterial - Interstate
2 = Rural Principal Arterial - Other
6 = Rural Minor Arterial
7 = Rural Major Collector
8 = Rural Minor Collector

11 = Urban Principal Arterial - Interstate
12 = Urban Principal Arterial - Other Freeways & Expressways
14 = Urban Principal Arterial - Other
16 = Urban Minor Arterial
19 = Urban Local

Note sites are directional, each direction is counted as a separate site. Duplicate sites across years are counted as one site.

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 65 through 67 present the VMT mixes by aggregated functional classification and subject emissions day.

TABLE 65
VMT Mix for Freeways

Subject Emission Day	Vehicle Types							
	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.723	0.137	0.040	0.032	0.003	0.001	0.063	0.001
Friday	0.716	0.129	0.041	0.037	0.003	0.001	0.072	0.001
Saturday	0.755	0.135	0.038	0.023	0.003	0.001	0.044	0.001
Sunday	0.741	0.151	0.041	0.021	0.003	0.001	0.041	0.001

TABLE 66
VMT Mix for Arterials Principal and Other

Subject Emission Day	Vehicle Types							
	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.683	0.165	0.048	0.033	0.003	0.001	0.066	0.001
Friday	0.633	0.161	0.053	0.050	0.003	0.001	0.097	0.001
Saturday	0.679	0.163	0.048	0.035	0.003	0.001	0.069	0.001
Sunday	0.691	0.163	0.048	0.032	0.003	0.001	0.062	0.001

TABLE 67
VMT Mix for Collectors/Locals

Subject Emission Day	Vehicle Types							
	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
Weekday	0.657	0.204	0.057	0.026	0.003	0.001	0.051	0.001
Friday	0.685	0.180	0.051	0.027	0.003	0.001	0.052	0.001
Saturday	0.706	0.187	0.051	0.017	0.003	0.001	0.034	0.001
Sunday	0.714	0.189	0.050	0.014	0.003	0.001	0.028	0.001

The aggregated VMT mixes were applied in the IMPSUMA model using the respective network functional classifications shown in Table 68.

TABLE 68
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 emissions estimates are computed for each link by multiplying the appropriate emissions factors corresponding to the link's roadway type and the link's estimated speed. For non-integer speed estimates, the emissions factors are computed by interpolating between the emissions 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 emissions results are accumulated for each county by vehicle type and roadway type.

The 24-hour diurnal emissions rates were scaled to the one-hour time periods where 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 when diurnals occur were identified when the temperature data were processed for input into POLFAC5HB. To appropriately scale the 24-hour diurnal emissions 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 emissions rates. IMPSUMA also combined the diurnal emissions rates into the VOC emissions rates for the respective county and one-hour time period.

The gridded emissions estimates by each of the 24 one-hour time periods and the seven subject days were completed using IMPSUMA. The gridded emissions estimates for each of the 24 one-hour time periods for September 6-12, 2007 were included in electronic transmittals sent to TNRCC.

ESTIMATION OF 24-HOUR GRIDDED EMISSIONS

For HGRTS applications, the PREPIN2, POLFAC5HB, 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. The research team computed 24-hour diurnal emissions rates for each of the subject days and counties using the individual applications of MOBILE5a Hybrid. IMPSUMA was executed to produce gridded emissions estimates for each one-hour time period for each of the seven subject days. SUMALL was executed to produce gridded emissions estimates for each one-hour time period for September 6-12, 2007.

The SUMALL program is a utility program used to compute the 24-hour gridded emissions 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 Hybrid is not structured to compute diurnal emissions for less than a 24-hour time period; therefore, a separate run of POLFAC5HB 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. POLFAC5HB produces diurnal emissions rates on a vehicles-per-mile basis by vehicle type.

The 24-hour gridded emissions 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 69 through 76 by county and year.

TRANSMITTAL OF RESULTS

The gridded emissions estimates for each of the 24 one-hour time periods for September 6-12, 2007 were transmitted to TNRCC electronically. Gridded emissions estimates were provided for VOC, CO, NOx, exhaust hydrocarbons, running loss hydrocarbons, resting loss hydrocarbons, crankcase hydrocarbons, hot soak, and diurnal emissions.

TABLE 69
September 2007 Total Emissions by Subject Day for Harris County (pounds)

Subject Day	VOC	CO	NOx
Monday	141,578.7	1,162,074.7	380,203.2
Tuesday	144,009.7	1,157,619.3	380,387.4
Wednesday	147,760.8	1,163,836.1	381,240.0
Thursday	139,067.1	1,154,968.9	378,982.6
Friday	179,061.0	1,407,031.3	480,065.6
Saturday	121,090.9	988,115.7	321,056.7
Sunday	98,859.2	827,675.5	263,687.9

TABLE 70
September 2007 Total Emissions by Subject Day for Brazoria County (pounds)

Subject Day	VOC	CO	NOx
Monday	14,476.8	125,512.0	36,246.1
Tuesday	14,603.3	125,581.2	36,285.9
Wednesday	14,603.5	125,901.2	36,309.6
Thursday	14,588.4	125,726.0	36,293.7
Friday	17,646.5	150,821.9	46,448.3
Saturday	15,475.7	134,135.4	37,740.7
Sunday	12,641.3	109,958.1	30,344.4

TABLE 71
September 2007 Total Emissions by Subject Day for Fort Bend County (pounds)

Subject Day	VOC	CO	NOx
Monday	19,273.7	170,004.9	46,381.6
Tuesday	19,559.6	169,464.3	46,394.0
Wednesday	20,017.5	170,401.8	46,505.8
Thursday	18,937.3	168,904.5	46,221.5
Friday	23,775.9	202,975.5	58,951.8
Saturday	16,907.7	148,680.1	39,592.4
Sunday	13,859.2	124,533.8	32,439.7

TABLE 72
September 2007 Total Emissions by Subject Day for Waller County (pounds)

Subject Day	VOC	CO	NOx
Monday	2,897.8	26,839.3	8,632.0
Tuesday	2,936.1	26,740.3	8,633.1
Wednesday	3,006.9	26,908.0	8,654.6
Thursday	2,849.0	26,641.9	8,601.0
Friday	3,544.2	31,955.7	10,892.7
Saturday	2,575.0	23,768.3	7,289.4
Sunday	2,126.8	20,014.0	6,009.6

TABLE 73
September 2007 Total Emissions by Subject Day for Montgomery County (pounds)

Subject Day	VOC	CO	NOx
Monday	17,153.3	149,900.4	45,046.3
Tuesday	17,401.1	149,385.7	45,054.8
Wednesday	17,819.5	150,267.8	45,165.7
Thursday	16,854.7	148,864.0	44,887.5
Friday	21,144.7	179,241.6	57,211.1
Saturday	16,796.6	146,215.9	42,481.2
Sunday	13,993.7	124,388.0	35,371.1

TABLE 74
September 2007 Total Emissions by Subject Day for Liberty County (pounds)

Subject Day	VOC	CO	NOx
Monday	3,841.1	31,595.9	10,616.7
Tuesday	3,897.5	31,478.6	10,617.9
Wednesday	3,994.6	31,678.4	10,644.7
Thursday	3,772.9	31,360.7	10,578.2
Friday	4,869.3	38,882.8	14,198.7
Saturday	3,801.8	31,108.2	10,368.5
Sunday	3,077.9	25,719.2	8,366.6

TABLE 75
September 2007 Total Emissions by Subject Day for Chambers County (pounds)

Subject Day	VOC	CO	NOx
Monday	3,609.7	34,745.8	11,090.9
Tuesday	3,636.9	34,765.9	11,102.8
Wednesday	3,638.8	34,859.3	11,110.3
Thursday	3,635.3	34,808.3	11,105.4
Friday	4,251.5	40,498.2	13,594.9
Saturday	4,886.0	47,084.3	14,144.0
Sunday	4,692.2	45,349.7	13,377.5

TABLE 76
September 2007 Total Emissions by Subject Day for Galveston County (pounds)

Subject Day	VOC	CO	NOx
Monday	11,231.8	98,204.2	24,961.8
Tuesday	11,332.6	98,255.1	24,989.5
Wednesday	11,332.1	98,497.7	25,005.5
Thursday	11,319.9	98,364.9	24,994.7
Friday	14,209.5	122,069.6	33,067.8
Saturday	14,439.3	126,551.6	31,041.9
Sunday	9,660.5	84,858.6	20,544.6

APPENDIX A

COAST QUALITY ASSURANCE

An extensive and systematic quality assurance and verification procedure has been developed for ensuring the accuracy and internal consistency of emissions estimates and inventories. The strategy was developed specifically for link based (i.e., using travel demand model data) emissions inventories. Essential elements of the procedure include:

- Check the MOBILE set up data used as input to the model. Includes MOBILE flags, temperatures, VMT mix assumptions, fleet age assumptions.
- Check speed assumptions input into the analysis (link level).
- Check output for extreme values.
- Compare essential input data (e.g., VMT) with corresponding output data.
- Validate regional emissions model results against separately prepared regional emissions estimate, as follows:
    - Calculate a single aggregate speed for the network (i.e., VMT/VHT).
    - Look up composite emissions rate for that speed.
    - Multiply composite emissions rate by network VMT as estimate of regional emissions.
    - Verification estimates greater than 10% of the link based emissions estimate are investigated and reconciled.

Specific quality control and verification procedures completed include the following:

- Verify MOBILE set ups (Harris, Coastal, Inland) for each of 24 time periods. Flags differ between Harris and Non-Harris (IMFLAG and ATPFLAG). Temperatures change by time period. Separate Non-Harris vehicle age distribution provided by TNRCC. (Set ups are believed to be either "super SIP" or "I&M SIP" based.)
- Emission rates were examined for consistency and outliers (i.e., extreme values) for each area (Harris, Coastal, Inland), each day (Monday through Sunday), for selected speeds (3, 30, 45, 55, and 65). Rates were examined for each hour to determine variation with temperature changes, as well as for time periods of multiple hours to verify the reasonableness of the range of variation.
- County aggregate 24-hour speeds were calculated and verified for reasonablness. Extreme values (e.g., Chambers and Waller) were examined and reconciled. (The

high proportion of interstate VMT causes the aggregate 24-hour speeds to appear high.) Other aspects of this portion of the verification process are shown below.

County	24 Hr Speed	Missing Roadway Classifications	Other Comments
Brazoria	43.4 mph	No urban or rural interstate	Locals @ 35 mph
Chambers	56.0 mph	No urban anything or rural PA	Locals @ 33 & 35 mph
Galveston	38.3 mph	No rural interstate or freeway	
Harris	37.6 mph		
Fort Bend	41.7 mph		
Liberty	49.1 mph	No urban or rural interstate	Locals @ 38 mph
Montgomery	46.3 mph		Locals @ 34 mph
Waller	54.3 mph	No urban interstate, fwy or PA	Urban Collector @ 65 mph
Region	39.1 mph		

- The research team subsequently verified that the excluded roadway functional classifications are correctly excluded (i.e., consistent with the HGAC provided input data). The two counties (Chambers and Waller) with county wide 24-hour speeds in excess of 50 mph seemed suspect but were deemed reasonable based on the proportion of VMT attributable to interstates. Similarly, those counties with 24-hour speeds on local streets over 30 mph (i.e., 33 to 38 mph) were deemed reasonable based on the nature of the "local" functional classification. Finally, the urban collector in Waller county with a 24-hour speed of 65 mph has been deemed acceptable based on an analysis of the individual links.

- Aggregate emissions were calculated for each county using aggregate 24-hour speeds for that county and the corresponding emission rate for LDGV and HDDV. These aggregate emission estimates were then compared with those produced using individual link data (i.e., by the model). Extreme differences were investigated individually to determine the cause and reconcile the difference. CO was especially problematic due to the aggregate 24-hour speed being virtually at the minimum emission rate for the respective temperature range. Subsequent link analysis of the most extreme cases confirmed the analysis.