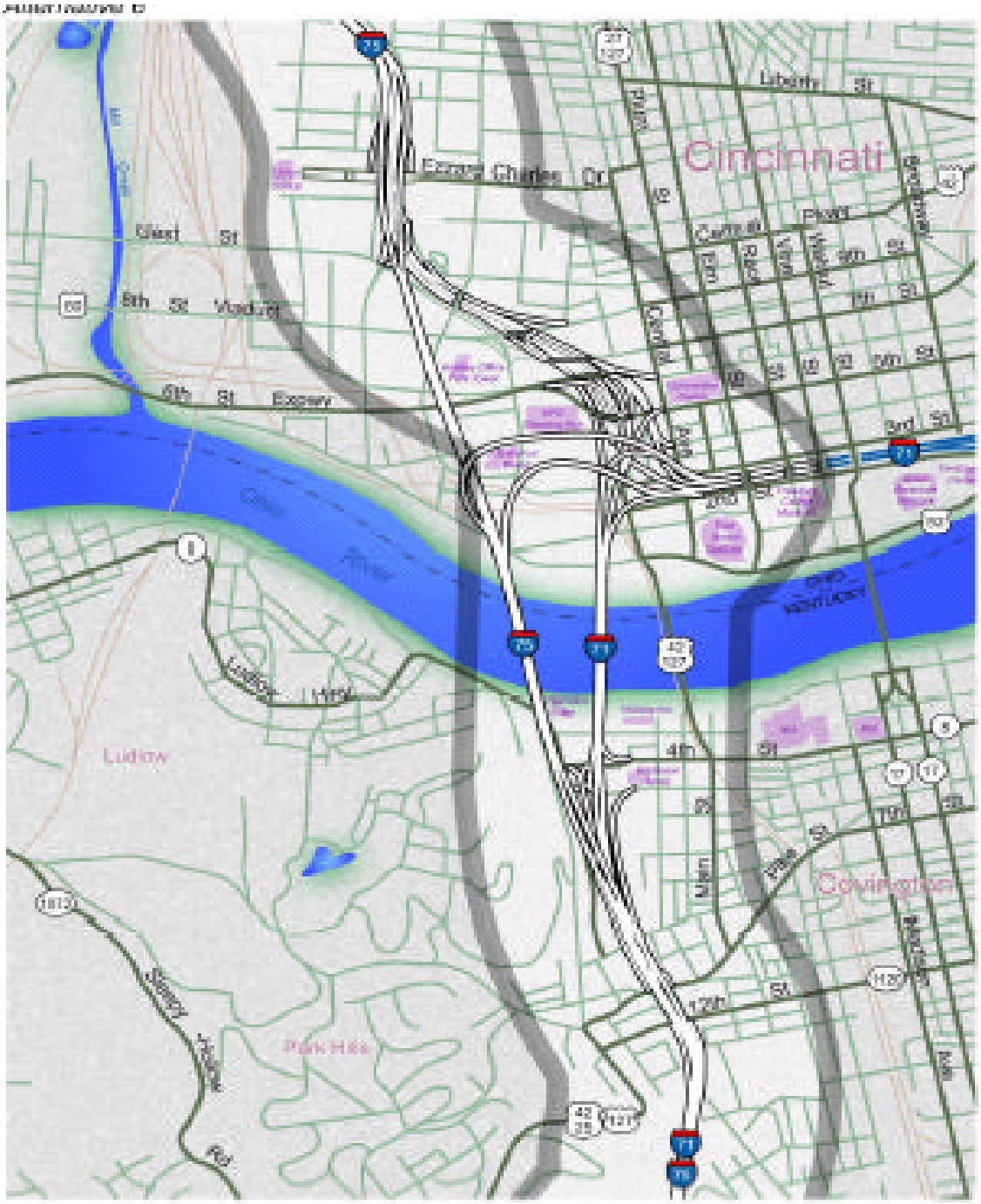
TRAFFIC FORECASTING REPORT 2004



Division of Multimodal Programs

Kentucky Transportation Cabinet

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I. Introduction

This is the fifth edition of the annual *Traffic Forecasting Report*. The 2004 *TFR* contains the latest (predominantly 2003) forecasting/modeling data as follows:

- ATR locations, k-factors, and ADTs
- Functional class average k-factors and d-factors
- Functional class average vehicle types
- Vehicle miles traveled statewide totals by functional class
- Kentucky population projections by county
- List of small urban models
- List of urbanized models
- Kentucky Statewide Model Summary
- List of county-level models
- List of index station locations and ADTs
- Monthly Volume Count Factors
- Hourly Volume Percentage by Functional Class
- Average Speeds for Nonattainment Areas
- Glossary/Acronyms

II. Traffic Forecasting Process Update

A. Background

Information on the traffic forecasting process can be found on the web at http://transportation.ky.gov/Multimodal/traffic_forecasting.asp. The *TFR* serves to update new data and processes used in traffic forecasting.

B. Process Improvement

Several mechanisms are used to improve the forecasting process including the KY MUG, research studies, and the web page. The traffic forecasting area is always evolving in response to new customers (see list of customers in Table 1) and the ever-changing world in which we live.

1. Kentucky Traffic Model Users Group

The Traffic Model Users Group is a forum that discusses current forecasting issues and shares information. The Traffic Model Users Group (MUG) consists of Cabinet forecasters/modelers, MPO modelers, consultant partners, research partners (Kentucky Transportation Center and the University of Kentucky), the Federal Highway Administration, and interested Cabinet decision-makers.

The MUG meets as needed and has sponsored several workshops. Table 2 is a list of MUG meetings and speakers over the past nine years. The MUG web page is at: http://transportation.ky.gov/Multimodal/MUG.asp.

2. Research Studies

KYTC has initiated several research studies in an effort to continuously improve the art of traffic forecasting. Recent research studies conducted by the Kentucky Transportation Center (KTC) in the forecasting area include:

- **Analysis of Vehicle Classification Data -** KTC has developed a vehicle classification viewer that can be accessed on the traffic forecasting web page under tools. This program contains hourly vehicle classification data for the 1991-2001 period.
- **Traffic Growth Rate Analysis -** This research study developed new means of estimating vehicle miles traveled (VMT), especially on local roads. Also developed were new ways of forecasting VMT into the future. The study can be found at http://www.ktc.uky.edu/Reports%20Pubished%20Recently.htm.
- **Superpave ESAL Program –** This program can be used to calculate quick response

ESAL estimates at adequate accuracy for superpave mix design.

- **Speed Estimation –** This study produced average highway speeds on all state maintained roads using the HERS equations.
- **WIM/ESAL Analysis** - This study developed a new means to calibrate weigh-in-motion data being collected by the KYTC Division of Planning. This is needed since recent WIM data has not been consistent or accurate which has made the data impossible to use for ESAL table development.

3. Other Developments

Other developments include the electronic archiving of all traffic forecasts, a traffic forecasting workshop for MPO staff, an in-house examination of ESAL parameter sensitivity, and the use of a standard deviation or range on some traffic forecasting projects.

III. Traffic Forecasting Data Sources Update

Traffic forecasting is a very data intensive process. This section covers traffic forecasting data sources, including traffic monitoring data, socioeconomic data, trip data, and HPMS data.

A. Traffic Monitoring Data

Traffic monitoring system changes include new data for the ATRs and index stations. Table 3A lists the ATRs and gives important data such as K-factors and average daily traffic.

Functional class averages derived from the ATRs and other traffic monitoring stations are located in the following tables:

- Table 4A – Functional Class Average K-factors and Average Daily Traffic
- Table 4B – Functional Class Average Growth Rates
- Table 4C – Aggregate Class ESAL Defaults
- Table 4D – Functional Classes and Aggregate Classes
- Table 4E – Travel Activity by Vehicle Type
- Table 4F – Truck Percentage and Axle Factor Averages
- Table 4G – Monthly Volume Count Factors
- Table 4H – Hourly Volume Percentage

Table 3B lists the index stations and gives the most recent average daily traffic volumes.

The Division of Planning provides access to count maps and on their web site (http://transportation.ky.gov/planning/maps/count_maps/count_maps.shtm). The web site contains traffic count maps, which portray count data at locations in every county and in most cities. It also contains the CTS computer program, which contains historical data and current year estimates at more than 15,000 count locations in Kentucky.

B. Other Data

While traffic monitoring data is the most important source of data for traffic forecasts, other data is also needed. Some of the other data inputs into traffic forecasting include socioeconomic data, trip data, land use data, highway data and Highway Performance Monitoring System (HPMS) data.

1. Socioeconomic Data

Population data has been made available by the 2000 decennial census. The new census data for each Kentucky county along with 1990 population data and projections for 2005, 2010, 2015, 2020, 2025, and 2030 for high, medium and low population levels are shown in Table 5. The projections were made by the state demographer--the University of Louisville Urban Study Center (see Table 6 for socioeconomic data providers).

2. Travel Data

Travel data consists of information derived from travel diaries, origin-destination surveys, census data, and other specialized data sources. Table 6 lists travel data sources, the type of data, and the web address if available.

The Transportation Cabinet has purchased some data add-ons from the Bureau of Transportation Statistic's National Personal Transportation Survey (NPTS). The NPTS nationwide survey is made every five years and contains information about tripmaking for almost every conceivable stratification including income, rural/urban, race, gender, and many other categories. The add-on surveys provide Kentucky-specific data for use in traffic modeling. Add-on surveys were made in Carter, Edmonson, Pulaski, and Scott county. The survey data has been analyzed as a part of the ongoing statewide model contract.

Census Transportation Planning Package (CTPP) data has been released. This includes the valuable journey-to-work data.

3. HPMS Data

Vehicle miles traveled (VMT) is one key product of HPMS that is related to traffic forecasting. The research study mentioned in part II resulted in revisions to how local road VMT are calculated along with some modifications to future VMT estimation. Table 7 gives statewide VMT submitted to the HPMS system from 1993 to 2003.

4. Speed Data

Average highway speeds are needed for air quality conformity analysis and for mobility analysis. Table 12 gives average speeds for the nonattainment counties and the source of the data.

IV. Traffic Demand Model Update

The most complex tools used by traffic forecasters are computerized traffic demand models. Listed below are the types of models and other traffic model information.

A. Model Types

- Small Urban Models
- County Models
- Kentucky Statewide Model
- MPO Models
- Other Models

1. Small Urban Area Models

The Cabinet develops small urban area models for use in urban area studies, special needs studies and traffic forecasts. Table 8 lists all of the small urban areas and the status of modeling in each area. A recent small urban area model completed by the Cabinet is Madison County. Mason County is currently in progress. A GISDK interface was developed for existing models in Hopkins County and Paducah. Top priorities for new SUA models are Georgetown, Danville, and Middlesboro. See web at http://transportation.ky.gov/Multimodal/SUA.asp for Small Urban Area information.

2. County-level Models

KYTC started a new modeling endeavor recently to respond to air quality conformity issues. The Cabinet is producing county-level models for counties that are expected to be non-attainment areas. Table 9 lists the county-level models developed thus far.

3. Kentucky Statewide Traffic Model Update

The Kentucky Transportation Cabinet has used a statewide traffic model (KYSTM) for many years. Table 10 gives a history of major updates along with model specifications. A major KYSTM update is currently underway.

4. MPO Models

Each Metropolitan Planning Organization (MPO) is responsible for its own models. KYTC provides technical support as needed. Recent major model activities include:

- New Radcliff-Elizabethtown model developed in TransCAD

- Lexington model developed in TransCAD.
- Bowling Green model developed in MinUTP
- Christian County model under development in TransCAD..

B. Other Traffic Demand Model Information

1. Model Updates

KYTC's recent models have been developed by the following methods:

- Statewide Modeling Contract (currently four consultants)
- Small Urban Area updates
- Traffic Forecasting projects

2. Simulation Models

Considerable overlap occurs between traffic demand models and traffic simulation models. Simulation models have been developed for forecasting projects at Northern Kentucky University and in the Mammoth Street Corridor in Newport. The Division of Traffic Operations coordinates simulation modeling activities for the Cabinet.

3. Model Documentation and Innovations

The Division of Multimodal Programs is in the process of developing a Traffic Demand Model Guide. This report will contain model standards, model inventories, and will serve as a repository of the latest model innovations.

GLOSSARY AND ACRONYMS

Glossary

Automated Traffic Recorder (ATR) – ATRs record traffic data continuously (365 days/yr.). They are used as source data for k-factors and d-factors.

Average Daily Traffic (ADT) – ADT is the average traffic volume going past a point in one day. It is interchangeable with Annual Average Daily Traffic (AADT).

Design Hour Volume (DHV) – DHV is a volume unit based on the 30th highest hourly volume on a road in a year. It is commonly used for highway capacity analysis.

Directional Factor (D-Factor) – D-Factors are measures of the peak hour directionality on two-lane highways. They are based on the average of the 10th through 50th hours in the year.

Equivalent Single Axleload (ESAL) – ESALs are measures of pavement damage and are used in pavement design.

Index Stations – These are locators where traffic volume is collected for one week annually. The frequency and accuracy of their counts allow index stations to be used to factor adjacent interstate locations.

K-Factor - This factor is based on the 30th highest hour of the year and is used to compute DHVs.

Metropolitan Planning Organization (MPO) – MPOs are the planning authority in areas populations over 50,000.

Milepoint – The milepoints used in this report describe the locations of ATRs and index stations, based on the midpoint of a highway section between two exits.

Urban Areas – These areas are cities with a population of 5,000 to 49,999. Roads in these areas have urban classifications.

Urbanized Areas – These areas are cities with a population greater than 50,000.

Vehicle Miles Traveled (VMT) – VMTs are the common unit of measure of travel for an area (e.g. county). One VMT is the equivalent of one vehicle traveling one mile.

Acronyms

HPMS – Highway Performance Modeling System

KTC - Kentucky Transportation Center

KYSTM - Kentucky Statewide Traffic Model

KYTC - Kentucky Transportation Cabinet

MUG – Traffic Model Users Group

NPTS - National Personal Transportation Survey

TAZ - Traffic Analysis Zone

TABLE 1

Traffic Forecasting Products and Customers

Data Products	Forecast Year	Customers					
		Design	Planning	Air Quality	Materials	HPMS	Traffic
ESALs	10yr/20yr/40yr	X			X		
ADTs	Current, Construction, Design, Air Quality	X	X	X	X	X	X
DHVs	Current, Construction, Design, Air Quality	X	X	X			X
Truck Percentages	Current, Construction, Design, Air Quality	X	X	X		X	
Measures of Effectiveness (VMT, VHT)	Current, Construction, Design, Air Quality		X	X			
Speed Estimation	Air Quality		X	X			

NOTES

1. Data products come in various formats including maps, worksheets, intersection turning movement diagrams, summary computer files, and reports.
2. Specialized forecasting data products include select link analysis, networks, and zone maps.
3. Typical forecasting scenarios are build, no build, and residual traffic.

TABLE 2

Kentucky Traffic Model Users Group Meeting Summary

Date	Presentation	Presenter
10/29/2004	Kentucky-specific travel demand modeling techniques in	Ken Kaltenbach
	the areas of trip distribution, trip assignment and	Vince Bernardin
	validation / calibration	John Gliebe
		Scott Walker
05/27/2004	Network Development & Trip Generation	Ken Kaltenbach
		Vince Bernardin
		Diane Zimmerman
		Scott Walker
03/16/2004 -	TransCAD Workshop	Paul Ricotta
03/19/2004		
11/07/2003	Congestion Performance Measures	Marc Clark
	TTI's Annual Urban Mobility Study	Tim Lomax
	Texas Business Council	Tim Lomax
	Simpson County Model Congestion Analysis	Marc Williams
	Mobility Monitoring at Trimarc	Rich Margiotta
	Archived Data Management System in Kentucky	Mei Chen
07/22/2003	Simpson County Model	Scott Walker
	Lexington Model	Kyeil Kim
	Madison County Model	Diane Zimmerman
	Mobile6 Parameter Update	Jesse Mayes
	Purpose of Meeting & History/Use of Ky. Statewide Model	Rob Bostrom
	Update on Current Activities: Network and TransCAD	Tom Cooney
	KySTM Brainstorming (Draft Wishlist of Model Objectives)	Marc Williams
	Statewide Model State of Practice	Tom Cooney
		Mark Byram
		Vince Bernardin
		Steve Smith
04/22/2003	Purposes of Data Collection, Sample Travel Diary & Survey Types	Elaine Murakami
	Survey Process	
	Household Travel Surveys	
	KIPDA's Household Survey	Randy Simon
	Kentucky's NHTS Add-On Surveys	Ben Pierce
	Geocoding & GPS	Elaine Murakami
		Ben Pierce
01/28/2003 -	TransCAD Workshop	Paul Ricotta
01/30/2003		
12/06/2002	Summary of Speed Requirements for MOBILE6	Jesse Mayes
	Review of Atlanta Speed Study	Andrew Smith
	TMIP Review	Rob Bostrom
	Review of Current Methodology for Determining Speeds	
	from Transportation Demand Models	
10/25/2002	Madison Model TransCAD GISDK Script	Marc Williams
	Kentucky Statewide Model Combined Zones	
	KY 22/ Old Henry Road/ Crestwood Connector Subarea Model	Nick Uhren
	Lexington Regional Model	Vince Bernardin
	Ashland Regional Model	Ken Kaltenbach
08/14/2002	Seminar on Speed Estimation for Planning Purposes	Rich Margiotta
04/04/2002	Transearch Database	Joe Bryan
	North-South Initiative (Cincinnati to Datona) Freight Model	John Gliebe
	Freight Analysis Framework	Mohammed Alam
	Critical Issues Facing Freight Data Collection	Fawn Thompson

TABLE 2

Kentucky Traffic Model Users Group Meeting Summary

01/07/2002 - 01/09/2002	Workshop on Statewide Travel Forecasting	Alan Horowitz
		Bob Gorman
10/18/2001	New Traffic Simulation Product from Caliper	Paul Ricotta
	TRANSIMS: Microsimulation Package	Larry Rilett
	TRANSIMS: Software Development Update	Naveem Lamba
	Integrated Model	David Schmitt
		Paul Dorothy
	Simulation Case Studies	Karen Mohammadi
		Brian Aldridge
	Comparison of Industry Traffic Simulation Packages	Marc Williams
	KYTC Usage of Traffic Simulation	Dawn Jones
	Traffic Simulation Usage Roundtable	David Smith
07/27/2001	Summary of KYTC Air Quality Activities and How	Jesse Mayes
	They Relate to Traffic Modeling	
	Air Quality Interface to Owensboro Model	Ken Kaltenbach
	Impact of Parameter Adjustments to Air Quality Models	Paul Lederer
	Traffic Growth Rates Research for VMT Estimation/Prediction	Barry House
05/17/2001	Socioeconomic Data Collection & Use in	Joe Barkevich
	Kentucky's Traffic Models	
	Population Estimating and Growth Trends in Kentucky	Ron Crouch
	Economic Data Inputs into Transportation Planning	Eric Thompson
	Studies and Traffic Models in Kentucky	
02/15/2001	County Level Modeling Using TransCAD	Marc Williams
		Alan Davis
	Consolidated Travel Demand Modeling System	Rosella Picado
	for OKI and MVRPC	
10/17/2000	Innovative Modeling Technologies	Charlie Crevo
	Freight Modeling Data: TransSearch Applications in Ky.	Lisa Aultman-Hall
	KYTC's GIS and HIS Using Arcview & EXOR	Bill Jones
		Greg Witt
	TransCAD Network Data	Carroll Collins
	Viper Network Data and Manipulations	David Schmidt
	Census Data	Ed Christopher
	NPTS Usage and ITS Traffic Data	Patricia Hu
	Traffic Survey Data: Origin-Destination & Household Surveys	Mark Byram
	Traffic Monitoring Data Issues	Clark Graves
		Rob Bostrom
07/14/2000	TRANSIMS Overview	Kim Fisher
04/17/2000	Florida Land Use Allocation Model	Mike Brown
	Discussion of Kentucky L.U. Allocation Practice	
	Discussion of MUG Organzational Issues	
02/16/2000	TransCAD Model Conversion	Rob Bostrom
	KY Statewide Model Update	Marc Williams
	Mobile 6.0	Tom Creasey
		Lynn Soporowski
	Air Quality Issues	Charles Shaub
		Randy Simon
		Brent Sweger

TABLE 2

Kentucky Traffic Model Users Group Meeting Summary

07/16/1999	Use of Demand Model Network to Create	Tom Creasey
	a Traffic Simulation Model	
	The Density Saturation Gradient L.U. Model	Max Conyers
	Using GIS in Travel Demand Models w/	Sunil Saha
	Application of the Indianapolis Model	
	Get Prepared for the 2000 CTPP	Derek Hungness
03/17/1999	TransCAD Software Demonstration	Howard Slavin
		Andres Requeros
	Discussion of Traffic Model Alternatives	
11/17/1998	External Trip Synthesizing	Vince Bernardin
	Ky. Small Urban Modeling Practice	Diane Zimmerman
	Roundtable Discussion on model updates of	
	MPO models, small urban models, statewide	
	model and freight model	
05/06/1998	Viper Software Presentation	Victor Siu
	TP+ Software Presentation	Larry Seiders
	Discussion of Traffic Model Alternatives	
01/21/1998	Introduction to Transportation Conformity	Charles Schaub
	MPO Discussion: Modeling for Conformity	
	Modeling Software Discussion	
07/18/1997	Kentucky Statewide Traffic Model Study	Tom Cooney
	Switching to Life Style Models of Trip Generation	Sunil Saha
02/05/1997	Traffic Model Availability (Who owns the data?)	Barry House
	Improving Travel Survey Methods Research	David Wagner
	Project (GPS O-D)	
	Ohio-Kentucky-Indiana Travel Model Study	Cheng I Tsai
	Area Household Survey	
07/17/1996	Statewide Traffic Model Update	Rob Bostrom
	Report on Traffic Model Briefing to Secretary of	Charles Schaub
	KYTC	
	Nodal Modeling Using TMODEL2	Bob Hazlett
	Traffic Model Calibration, Assignment Post-	Vince Bernardin
	Processing and O-D Simulation	
03/20/1996	Statewide Traffic Model Update	Tom Cooney
	TMIP Overview	Charles Schaub
	Northern Kentucky O-D Survey Status Report	Cheng I Tsai
11/17/1995	Usage of Traffic Data by Designers	John Sacksteder
	TMIP Overview	Charles Schaub
09/13/1995	Louisville MPO External Station O-D Survey	Harold Tull
	Cincinnati MPO Traffic Model Update	Cheng I Tsai
	Maptitude Report	Rob Bostrom
07/12/1995	New Developments in MINUTP and TRANPLAN	Ken Kaltenbach
	Scope of Users Group Discussion	

Table 3A
2003 Automatic Traffic Recorder Locations and Traffic Data Parameters

ATR #	County	Route	Milepoint	K-Factor	FC	2003 ADT	K_{100}
1	Franklin	US60	0.3	16.0%	6	4120	13.5%
2	Jefferson	FS 8720	1.9	12.6%	17	6580	11.5%
3	Franklin	CS 1381	0.7	13.3%	17	4900	12.7%
4	McCracken	CS1132	0.6	10.9%	17	2900	10.4%
6	Wolfe	KY15	11.1	N/A	7	1120	N/A
7	Hardin	US 31W	30.0	10.3%	14	19900	9.9%
8	Grayson	US 62	11.7	N/A	7	2280	N/A
10	Graves	US 45	5.0	10.9%	7	1590	9.6%
12	Pike	US 23	31.0	9.6%	2	21200	9.1%
13	Carter	US 60	19.6	11.1%	7	2870	10.0%
14	Jefferson	KY 1142	0.1	9.5%	16	12700	9.3%
15	Union	US 60	3.1	9.7%	6	2940	9.1%
16	Grant	US 25	18.1	11.8%	7	6490	10.3%
17	Daviess	US 60 B	5.0	10.4%	12	27100	9.9%
18	Harlan	US 119	9.7	9.9%	2	9950	9.3%
19	Shelby	KY 2861	5.2	N/A	8	1160	N/A
20	Clark	TR 9000	6.0	11.0%	2	12900	10.1%
21	Jefferson	US 31E	15.1	8.2%	14	20900	8.0%
22	Shelby	I 64	39.8	10.4%	1	39400	9.5%
23	Grant	I 75	162.2	14.7%	1	49600	12.1%
24	Marion	US 68	11.0	11.1%	16	10400	10.5%
25	Mercer	US 127	1.3	10.6%	2	16200	10.1%
26	Bourbon	US 68	4.0	10.9%	2	8160	10.4%
27	Pendleton	US 27	5.8	10.5%	6	3880	9.7%
28	Trimble	US 42	11.4	10.7%	7	2000	9.9%
29	Menifee	US 460	3.7	10.2%	6	3540	9.5%
30	Estill	KY 52	19.9	N/A	7	1330	N/A
31	Bell	US 25E	18.2	10.0%	2	10900	9.3%
32	Pulaski	US 27	5.9	10.1%	2	7370	9.5%
33	Russell	US 127	6.4	17.1%	2	2390	9.1%
34	Adair	KY 80	19.1	14.1%	7	3530	10.8%
35	Hancock	US 60	12.9	11.9%	2	4390	11.2%
36	Ohio	KY 54	11.0	N/A	7	1130	N/A
37	Butler	US 231	16.1	10.4%	7	2430	9.7%
38	Logan	US 68	1.5	12.0%	2	3600	10.3%
39	Marshall	US 641	17.0	13.9%	6	4680	12.4%
40	Muhlenberg	WK 9001	55.2	10.4%	2	9020	9.6%

Table 3A
2003 Automatic Traffic Recorder Locations and Traffic Data Parameters

ATR #	County	Route	Milepoint	K-Factor	FC	2003 ADT	K_{100}
41	Elliott	KY 7	9.9	N/A	6	N/A	N/A
42	Boyd	US 23	0.7	10.3%	2	10100	9.6%
43	Floyd	KY 1428	10.2	10.6%	8	2610	10.1%
45	Warren	CS 1577	0.3	9.6%	16	13000	9.3%
47	Carter	I 64	171.6	10.7%	1	15900	9.9%
48	Henry	I 71	36.0	9.6%	1	26500	9.0%
49	Kenton	KY 371	3.0	9.3%	17	33200	9.0%
50	Hardin	I 65	88.4	11.3%	1	35000	10.1%
51	Lyon	I 24	36.7	10.8%	1	25200	9.6%
52	Lewis	KY 9	15.8	10.0%	2	5900	9.1%
53	Woodford	BG 9002	69.7	10.9%	2	17600	10.1%
54	Nelson	BG 9002	36.3	12.2%	2	10000	10.9%
55	Owen	US 127	2.9	12.5%	6	3200	11.4%
56	Floyd	KY114	9.0	10.2%	2	11800	9.6%
58	Henderson	US 41	19.2	10.1%	14	38900	9.4%
59	Warren	I 65	36.5	18.4%	1	50000	16.4%
60	Woodford	US 60	1.0	11.9%	2	15100	11.4%
62	Boone	I 275	4.8	10.7%	11	46900	9.9%
63	Boone	I 75	176.1	10.0%	1	101000	9.1%
65	Jessamine	US 27	1.6	10.8%	2	19600	9.7%
66	Boyle	US 127 B	1.5	11.0%	14	23900	10.3%
70	Pike	US 119	0.2	13.2%	2	11000	11.0%
71	Barren	CU 9008	2.3	10.7%	2	7400	9.7%
72	Bullitt	I 65	108.3	5.9%	1	51100	5.3%
73	Owsley	KY 11	13.0	11.5%	7	4510	10.7%
74	Fayette	I 64	72.6	10.8%	11	30400	9.7%
75	Fayette	KY 4	3.4	10.7%	12	55500	10.5%
76	Laurel	DB 9006	10.1	13.3%	2	7740	9.8%
77	Lawrence	US 23	5.6	9.9%	2	9180	9.2%
80	Jefferson	US 31E	7.9	9.1%	14	28300	8.8%
84	Jefferson	KY 61	0.0	9.3%	14	24000	8.9%
90	Fayette	I 75	100.5	10.2%	11	61500	9.4%
91	Simpson	I 65	4.0	10.2%	1	40300	9.1%
92	Jefferson	I 64	2.6	9.8%	11	70200	9.6%
93	Kenton	I 75	189.0	9.1%	11	137000	8.7%
94	Jefferson	I 264	15.8	10.4%	11	146000	10.0%
96	Campbell	I 471	0.6	10.5%	11	90800	10.2%
97	Campbell	I 275	76.0	10.5%	11	72200	10.1%
98	Jefferson	I 265	16.1	10.6%	11	67800	10.3%
99	Jefferson	I 65	133.4	9.4%	11	122000	8.7%

TABLE 3B

2003 Index Station Locations and ADTs

I. Stn. No.	County	Route	Milepoint	2003 ADT
I10	Jefferson	I 71	7.015	58,400
I11	Oldham	I 71	17.994	50,900
I12	Gallatin	I 71	65.832	31,000
I20	McCracken	I 24	1.476	27,200
I21	McCracken	I 24	8.711	37,900
I22	Lyon	I 24	43.148	16,100
I23	Christian	I 24	79.195	15,600
I24	Christian	I 24	91.079	30,200
I31	Boone	I 275	1.788	82,900
I32	Kenton	I 275	79.280	99,688
I33	Campbell	I 471	4.288	88,078
I34	Campbell	I 471	4.867	112,000
I40	Jefferson	I 64	6.027	94,700
I41	Jefferson	I 64	15.984	111,000
I42	Fayette	I 64	84.263	35,700
I43	Montgomery	I 64	106.941	23,800
I44	Rowan	I 64	135.102	18,500
I45	Boyd	I 64	191.116	27,400
I50	Warren	I 65	25.178	46,500
I51	Warren	I 65	40.201	42,300
I52	Hart	I 65	67.279	31,340
I53	Jefferson	I 65	124.080	90,300
I54	Jefferson	I 65	127.488	135,000
I55	Jefferson	I 65	131.864	137,095
I70	Whitley	I 75	26.303	34,900
I71	Rockcastle	I 75	67.708	35,954
I72	Madison	I 75	82.593	44,880
I73	Fayette	I 75	110.466	68,600
I74	Fayette	I 75	116.593	74,400
I75	Scott	I 75	132.834	33,300
I76	Kenton	I 75	167.851	51,000
I79	Kenton	I 75	191.500	148,614
I80	Jefferson	I 264	2.099	47,100
I81	Jefferson	I 264	8.357	82,200
I82	Jefferson	I 264	13.166	181,694
I83	Jefferson	I 264	21.111	73,300
I84	Jefferson	I 265	10.994	91,400
I85	Jefferson	I 265	19.401	62,600
I86	Jefferson	I 265	26.169	68,600
I87	Jefferson	I 265	33.338	54,400

TABLE 4A

Functional Class K-Factors And D-Factors For 2003

FC #	FC Description	K-Factors	Off Peak Direction	Peak Direction
1	Rural Interstate	10.4	43.0%	57.0%
2	Rural Principal Arterial	10.6	40.0%	60.0%
6	Rural Minor Arterial	11.2	43.0%	57.0%
7	Rural Major Collector	11.5	36.0%	64.0%
8	Rural Minor Collector	11	43.0%	57.0%
11	Urban Interstate	10	44.0%	56.0%
12	Urban Other Freeway	10.6	42.0%	58.0%
14	Urban Principal Arterial	10.1	44.0%	56.0%
16	Urban Minor Arterial	10	44.0%	56.0%
17	Urban Collector	12	42.0%	58.0%
	Rural Recreational		42.50%	57.50%

Notes

1. Calculated from data collected at automatic traffic recorders (ATRs) over 1994-2003 period.
2. K-factor is based on the 30th highest hour of year.
3. Directional factors are based on an average of the 10th through 50th highest hours in the year.

TABLE 4B

2003 - 2023 Functional Class Average Growth Rate Multipliers

FC #	FC Description	20-year Multiplier	Growth Rate
1	Rural Interstate	1.93	3.35%
2	Rural Principal Arterial	1.91	3.30%
6	Rural Minor Arterial	1.70	2.70%
7	Rural Major Collector	1.50	2.05%
8	Rural Minor Collector	1.32	1.40%
9	Rural Local	1.32	1.40%
11	Urban Interstate	1.81	3.00%
12	Urban Other Freeway	1.93	3.35%
14	Urban Principal Arterial	1.43	1.80%
16	Urban Minor Arterial	1.37	1.60%
17	Urban Collector	1.26	1.15%
19	Urban Local	1.26	1.15%

TABLE 4C
Modified Aggegated 2003 ESALs - Three-year Averages with Smoothed Growth Rates

Agg. class	FCs	ADT	T%	GR	A/T	GR	ESALs/A	GR	A/CT	GR	ESALs/CA	GR
I	1	31147	32.749	1.500	4.538	0.31	0.233	1.135	4.637	0.000	1.870	0.000
II	2,6	7895	16.810	1.500	3.570	0.568	0.22	1.500	4.996	0.000	3.507	0.000
III	7,8,9	2250	11.881	1.500	2.914	0.089	0.254	1.500	4.410	0.000	2.796	0.000
IV	11	44110	16.197	1.500	4.151	0.965	0.233	1.500				
V	12,14	24900	9.639	1.500	3.436	1.5	0.218	1.500	4.222	0.000	3.617	0.000
VI	16,17,19	9406	7.895	1.500	2.998	1.075	0.152	1.500				

Notes:
1. Coal parameter growth rates had too little data and are not given.
2. ESALs/A values for Aggregate Classes II, V, and VI were retained from last year's rates due to WIM data concerns.
3. ESALs/A value for Aggregate Class IV was equated to rural interstate ESAL/A due to WIM data concern.
4. Source of data: Kentucky Transportation Center.

TABLE 4D
Functional Classes/Aggregate Classes

FC #	FC Description	Aggregate Class #
1	Rural Interstate	I
2	Rural Principal Arterial	II
6	Rural Minor Arterial	II
7	Rural Major Collector	III
8	Rural Minor Collector	III
9	Rural Local	III
11	Urban Interstate	IV
12	Urban Other Freeway & Expressways	V
14	Urban Other Principal Arterials	V
16	Urban Minor Arterials	VI
17	Urban Collectors	VI
19	Urban Local	VI

Note: Aggregate classes are used for weigh-in-motion data aggregation purposes.

TABLE 4E
2003 Travel Activity by Vehicle Type

Functional System	Motorcycles	Passenger Cars	Other 2 Axle, 4 Tire	Busses	Single-Unit Trucks	Combination Trucks	All Vehicles	Heavy Vehicles
Rural								
Interstate	0.2	55.9	15.7	0.8	3.5	23.9	100.0	28.2
Other arterial	0.9	64.4	18.5	0.9	6.3	9.0	100.0	16.2
Other rural	0.6	69.1	19.4	1.0	6.2	3.7	100.0	10.9
Urban								
Interstate	0.2	73.5	11.0	0.7	2.0	12.6	100.0	15.3
Other arterial	0.3	72.9	18.3	0.6	3.7	4.2	100.0	8.5
Other urban	0.5	70.3	22.3	0.6	4.5	1.8	100.0	6.9

NOTE: Data are in percentages to the nearest tenth.

TABLE 4F
2003 Truck % and Axle Factor Functional Class Averages

Functional Class			Truck %	Axle Factor
RURAL	1	Interstate	30.7	0.73
	2	Other Principal Arterial	17.8	0.87
	6	Minor Arterial	14.0	0.88
	7	Major Collector	12.4	0.93
	8	Minor Collector	10.3	0.95
	9	Local	8.6	0.97
URBAN	11	Interstate	15.1	0.86
	12	Other Freeways & Expressways	20.0	0.84
	14	Other Principal Arterial	6.9	0.94
	16	Minor Arterial	8.7	0.96
	17	Collector	7.5	0.97

TABLE 4G
2004 Monthly Volume Count Factors

Functional Class	Factor Period	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	All Week	1.19	1.13	1.02	0.99	0.97	0.92	0.92	0.93	1.00	0.98	1.00	1.07
1 Rural Interstate	Weekend	1.28	1.17	1.02	0.99	0.97	0.91	0.91	0.91	1.02	0.97	1.00	1.08
	Weekday	1.14	1.10	1.03	0.99	0.97	0.93	0.93	0.96	0.99	0.99	1.00	1.07
	All Week	1.19	1.12	1.03	0.96	0.94	0.94	0.95	0.94	0.98	0.97	1.02	1.11
2 Rural General	Weekend	1.22	1.12	1.03	0.97	0.93	0.94	0.96	0.92	1.00	0.97	1.00	1.10
	Weekday	1.18	1.11	1.03	0.96	0.96	0.95	0.95	0.95	0.97	0.98	1.04	1.11
	All Week	1.10	1.05	1.00	0.96	0.95	0.96	0.98	0.97	1.00	0.99	1.03	1.06
3 Urban General	Weekend	1.13	1.06	1.00	0.97	0.96	0.96	1.00	0.95	1.02	0.99	1.00	1.05
	Weekday	1.09	1.04	1.00	0.96	0.96	0.96	0.97	0.97	0.99	1.00	1.04	1.07
	All Week	1.43	1.34	1.14	0.96	0.85	0.78	0.75	0.80	0.97	1.06	1.23	1.43
4 Rural Recreation	Weekend	1.57	1.40	1.19	0.97	0.82	0.75	0.74	0.75	0.96	1.06	1.27	1.55
	Weekday	1.33	1.28	1.10	0.95	0.88	0.81	0.75	0.86	0.98	1.05	1.21	1.34
	All Week	1.09	1.06	1.01	0.98	0.98	0.97	0.96	0.95	1.00	0.98	1.02	1.06
5 Urban Interstate	Weekend	1.12	1.09	1.00	0.98	0.99	0.95	0.97	0.94	1.02	0.98	1.01	1.03
	Weekday	1.09	1.05	1.01	0.97	0.98	0.97	0.97	0.96	0.98	0.98	1.02	1.08

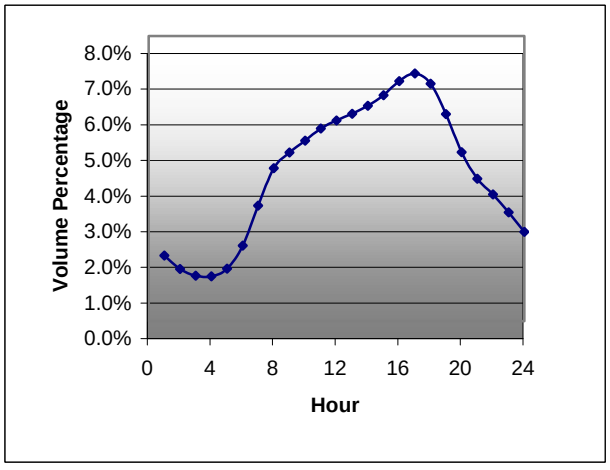
These factors were calculated using ATR (automatic traffic recorder) data spanning a three year period from 2001-2003.

TABLE 4H
Hourly Volume Percentage by Functional Class

FC 1: Rural Interstate

Hour	Percentage
12-1am	1.8%
1-2am	1.5%
2-3am	1.3%
3-4am	1.3%
4-5am	1.5%
5-6am	2.1%
6-7am	3.2%
7-8am	4.3%
8-9am	4.7%
9-10am	5.1%
10-11am	5.4%
11-12pm	5.6%
12-1pm	5.8%
1-2pm	6.0%
2-3pm	6.3%
3-4pm	6.7%
4-5pm	6.9%
5-6pm	6.7%
6-7pm	5.8%
7-8pm	4.7%
8-9pm	4.0%
9-10pm	3.6%
10-11pm	3.1%
11-12pm	2.5%

Source: ATRs 22, 23, 47, 48, 50, 51, 59, 63, 72, 91



FC 2: Rural Principal Arterial

Hour	Percentage
12-1am	0.9%
1-2am	0.6%
2-3am	0.5%
3-4am	0.6%
4-5am	1.0%
5-6am	2.2%
6-7am	4.6%
7-8am	6.1%
8-9am	5.6%
9-10am	5.2%
10-11am	5.3%
11-12pm	5.5%
12-1pm	5.8%
1-2pm	6.0%
2-3pm	6.4%
3-4pm	7.4%
4-5pm	8.1%
5-6pm	7.8%
6-7pm	6.1%
7-8pm	4.4%
8-9pm	3.4%
9-10pm	2.8%
10-11pm	2.1%
11-12pm	1.5%

Source: ATRs 12, 18, 20, 25, 26, 31, 32, 33, 35, 38, 40, 42, 52, 53, 54, 56, 60, 65, 70, 71, 76 & 77

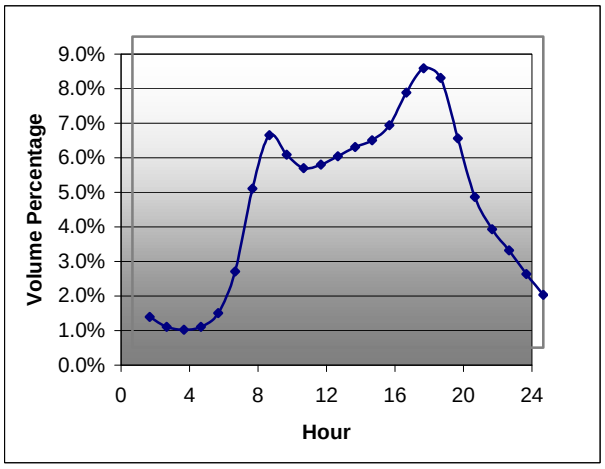
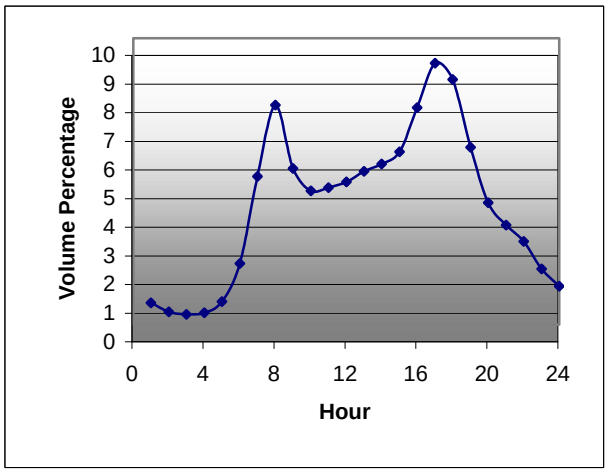


TABLE 4H
Hourly Volume Percentage by Functional Class

FC 6: Rural Minor Arterial

Hour	Percentage
12-1am	0.7%
1-2am	0.4%
2-3am	0.3%
3-4am	0.4%
4-5am	0.8%
5-6am	2.3%
6-7am	4.5%
7-8am	6.4%
8-9am	5.2%
9-10am	5.0%
10-11am	5.4%
11-12pm	5.6%
12-1pm	5.9%
1-2pm	6.1%
2-3pm	6.4%
3-4pm	7.7%
4-5pm	8.9%
5-6pm	8.2%
6-7pm	6.1%
7-8pm	4.4%
8-9pm	3.5%
9-10pm	2.7%
10-11pm	1.9%
11-12pm	1.3%

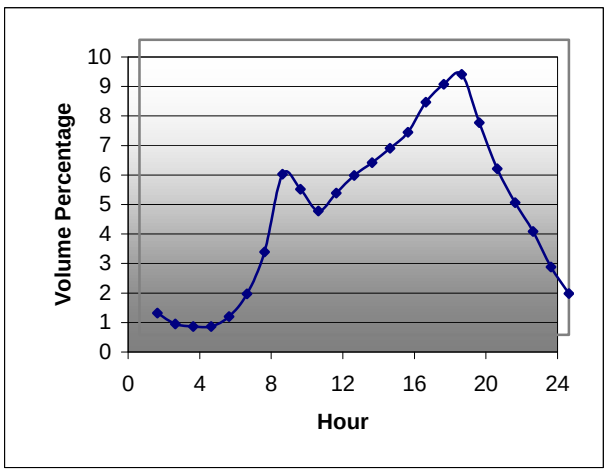
Source: ATRs 1, 15, 27, 29, 39, 41 & 55



FC 7: Rural Major Collector

Hour	Percentage
12-1am	0.6%
1-2am	0.4%
2-3am	0.3%
3-4am	0.4%
4-5am	0.7%
5-6am	1.8%
6-7am	3.3%
7-8am	5.4%
8-9am	5.3%
9-10am	5.5%
10-11am	5.9%
11-12pm	6.3%
12-1pm	6.5%
1-2pm	6.7%
2-3pm	7.2%
3-4pm	8.0%
4-5pm	8.2%
5-6pm	7.4%
6-7pm	6.0%
7-8pm	4.5%
8-9pm	3.6%
9-10pm	2.7%
10-11pm	1.9%
11-12pm	1.2%

Source: ATRs 6, 8, 10, 13, 16, 28, 30, 34, 36, 37 & 73



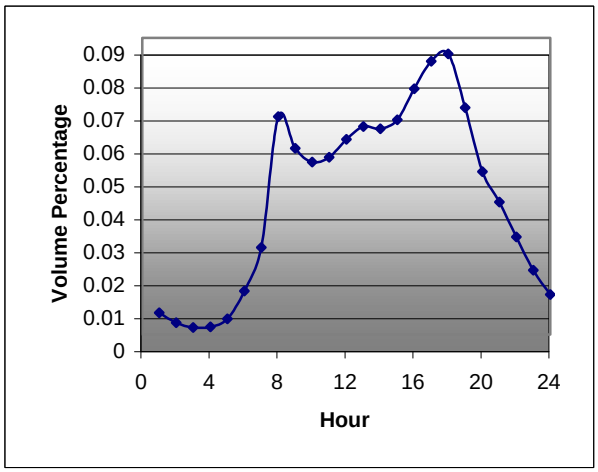
* Hourly volume percentages come from an average of 2003 weekday ATR data.

TABLE 4H
Hourly Volume Percentage by Functional Class

FC 8: Rural Minor Collector

Hour	Percentage
12-1am	0.7%
1-2am	0.4%
2-3am	0.2%
3-4am	0.2%
4-5am	0.5%
5-6am	1.3%
6-7am	2.6%
7-8am	6.6%
8-9am	5.6%
9-10am	5.2%
10-11am	5.4%
11-12pm	5.9%
12-1pm	6.3%
1-2pm	6.2%
2-3pm	6.5%
3-4pm	7.5%
4-5pm	8.3%
5-6pm	8.5%
6-7pm	6.9%
7-8pm	4.9%
8-9pm	4.0%
9-10pm	3.0%
10-11pm	2.0%
11-12pm	1.2%

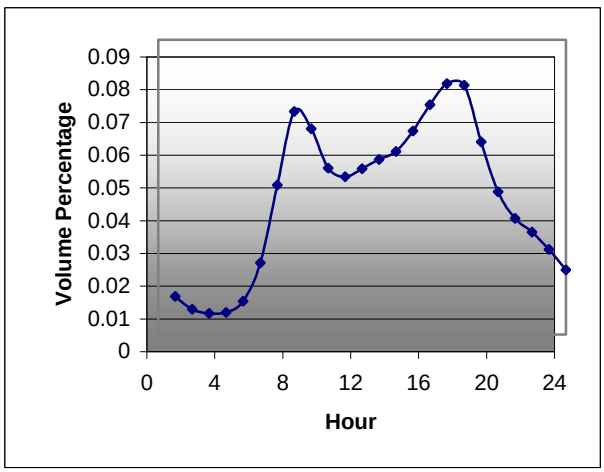
Source: ATRs 19, 43



FC 11: Urban Interstate

Hour	Percentage
12-1am	1.2%
1-2am	0.8%
2-3am	0.6%
3-4am	0.7%
4-5am	1.0%
5-6am	2.2%
6-7am	4.6%
7-8am	6.8%
8-9am	6.3%
9-10am	5.1%
10-11am	4.8%
11-12pm	5.1%
12-1pm	5.3%
1-2pm	5.6%
2-3pm	6.2%
3-4pm	7.0%
4-5pm	7.7%
5-6pm	7.6%
6-7pm	5.9%
7-8pm	4.4%
8-9pm	3.5%
9-10pm	3.1%
10-11pm	2.6%
11-12pm	2.0%

Source: ATRs 62, 74, 90, 92, 93, 94, 96, 97, 98, 99



* Hourly volume percentages come from an average of 2003 weekday ATR data.

TABLE 4H
Hourly Volume Percentage by Functional Class

FC 12: Urban - Other Freeways

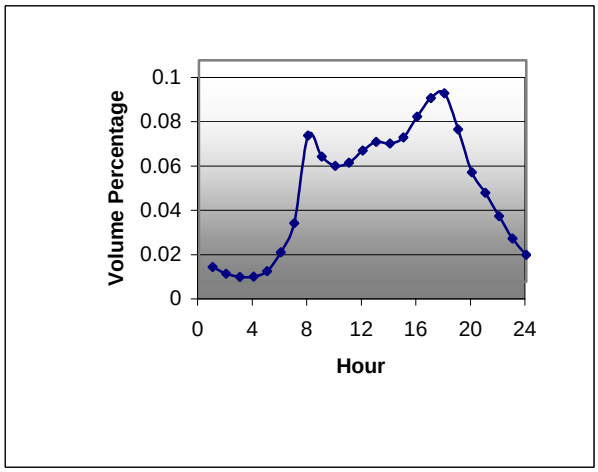
Hour	Percentage
12-1am	0.7%
1-2am	0.4%
2-3am	0.4%
3-4am	0.5%
4-5am	0.8%
5-6am	2.1%
6-7am	4.5%
7-8am	7.1%
8-9am	6.2%
9-10am	4.9%
10-11am	4.8%
11-12pm	5.4%
12-1pm	5.7%
1-2pm	5.7%
2-3pm	6.1%
3-4pm	7.3%
4-5pm	8.4%
5-6pm	8.5%
6-7pm	6.2%
7-8pm	4.4%
8-9pm	3.5%
9-10pm	2.9%
10-11pm	2.0%
11-12pm	1.4%

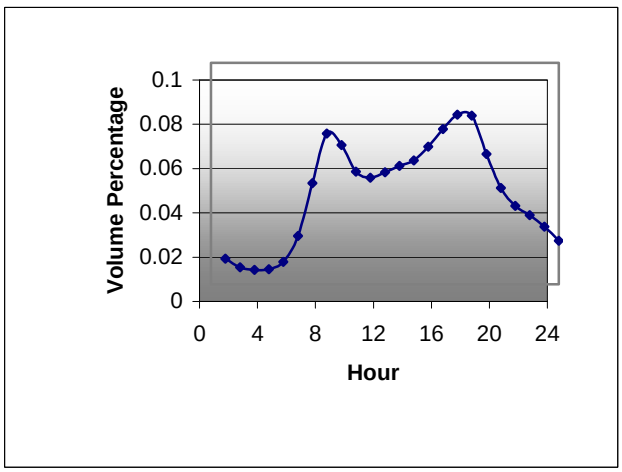
Source: ATRs 17 & 75

FC 14: Urban Principal Arterial

Hour	Percentage
12-1am	1.0%
1-2am	0.6%
2-3am	0.5%
3-4am	0.5%
4-5am	0.8%
5-6am	2.0%
6-7am	4.0%
7-8am	6.0%
8-9am	5.1%
9-10am	4.6%
10-11am	4.9%
11-12pm	5.8%
12-1pm	6.2%
1-2pm	6.1%
2-3pm	6.5%
3-4pm	7.3%
4-5pm	7.9%
5-6pm	7.7%
6-7pm	6.2%
7-8pm	4.8%
8-9pm	4.0%
9-10pm	3.3%
10-11pm	2.5%
11-12pm	1.8%

Source: ATR 7, 21, 58, 66, 80, 84





* Hourly volume percentages come from an average of 2003 weekday ATR data.

TABLE 4H
Hourly Volume Percentage by Functional Class

FC 16: Urban Minor Arterial

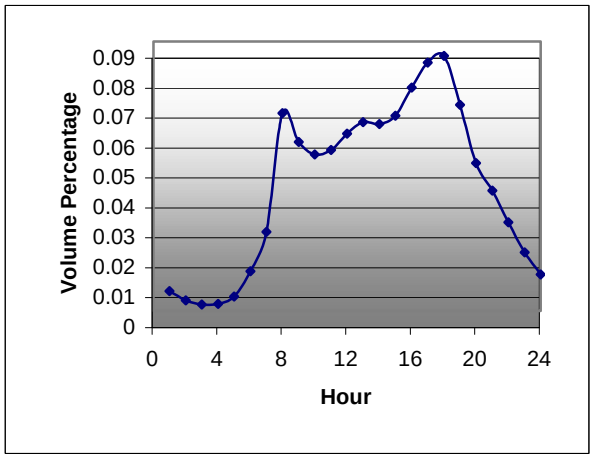
Hour	Percentage
12-1am	0.8%
1-2am	0.5%
2-3am	0.4%
3-4am	0.3%
4-5am	0.4%
5-6am	1.1%
6-7am	2.4%
7-8am	4.4%
8-9am	5.1%
9-10am	5.3%
10-11am	5.7%
11-12pm	6.4%
12-1pm	7.0%
1-2pm	7.0%
2-3pm	7.2%
3-4pm	7.8%
4-5pm	7.9%
5-6pm	7.3%
6-7pm	6.1%
7-8pm	5.0%
8-9pm	4.2%
9-10pm	3.4%
10-11pm	2.5%
11-12pm	1.7%

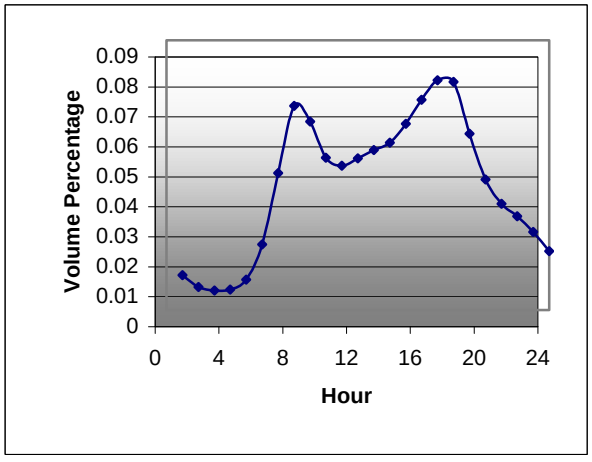
Source: ATRs 14, 24, 45

FC 17: Urban Collector

Hour	Percentage
12-1am	0.9%
1-2am	0.5%
2-3am	0.4%
3-4am	0.3%
4-5am	0.3%
5-6am	0.8%
6-7am	2.5%
7-8am	5.6%
8-9am	6.2%
9-10am	4.9%
10-11am	4.6%
11-12pm	5.4%
12-1pm	6.2%
1-2pm	6.2%
2-3pm	6.2%
3-4pm	6.9%
4-5pm	7.6%
5-6pm	8.4%
6-7pm	7.3%
7-8pm	5.8%
8-9pm	4.7%
9-10pm	3.7%
10-11pm	2.7%
11-12pm	1.8%

Source: ATRs 2, 3, 4 & 49





* Hourly volume percentages come from an average of 2003 weekday ATR data.

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
3,686,891	3,887,427	4,041,769	Middle	4,209,882	4,374,591	4,539,409	4,700,825	4,858,162	5,006,887
			Low	4,144,308	4,232,781	4,316,639	4,392,543	4,458,334	4,509,755
Kentucky			High	4,256,045	4,475,200	4,698,342	4,922,247	5,146,559	5,366,249
15,360	16,564	17,244	Middle	18,169	19,130	20,150	21,166	22,166	23,113
			Low	17,882	18,513	19,169	19,788	20,365	20,853
Adair			High	18,342	19,523	20,785	22,063	23,356	24,616
14,628	16,091	17,800	Middle	19,395	21,104	22,990	25,005	27,108	29,289
			Low	19,065	20,343	21,738	23,185	24,648	26,089
Allen			High	19,584	21,526	23,701	26,046	28,530	31,148
14,571	17,191	19,111	Middle	21,200	23,297	25,596	28,190	31,069	34,088
			Low	20,852	22,505	24,290	26,293	28,472	30,667
Anderson			High	21,396	23,758	26,375	29,350	32,673	36,219
7,902	8,053	8,286	Middle	8,520	8,719	8,902	9,068	9,221	9,352
			Low	8,381	8,416	8,435	8,435	8,422	8,378
Ballard			High	8,611	8,901	9,189	9,463	9,727	9,972
34,001	35,912	38,033	Middle	39,827	41,693	43,586	45,385	47,099	48,598
			Low	39,125	40,168	41,177	42,052	42,782	43,258
Barren			High	40,216	42,556	44,964	47,323	49,626	51,766
9,692	10,188	11,085	Middle	11,766	12,448	13,129	13,817	14,471	15,068
			Low	11,561	11,999	12,424	12,830	13,181	13,459
Bath			High	11,879	12,704	13,538	14,396	15,243	16,045
31,506	30,919	30,060	Middle	29,390	28,585	27,674	26,584	25,351	23,956
			Low	28,954	27,699	26,376	24,921	23,384	21,732
Bell			High	29,698	29,216	28,615	27,809	26,830	25,649
57,589	70,017	85,991	Middle	100,250	116,181	134,247	154,885	178,411	204,591
			Low	98,473	111,868	126,718	143,364	161,930	181,915
Boone			High	101,149	118,389	138,160	160,965	187,214	216,808
19,236	19,178	19,360	Middle	19,640	19,783	19,885	19,919	19,840	19,648
			Low	19,335	19,134	18,897	18,602	18,199	17,691
Bourbon			High	20,007	20,564	21,095	21,576	21,941	22,177
51,150	50,840	49,752	Middle	48,845	47,683	46,282	44,676	42,976	41,134
			Low	48,138	46,275	44,221	42,038	39,809	37,486
Boyd			High	49,359	48,733	47,831	46,693	45,421	43,973

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
25,641	26,770	27,697	Middle	28,497	29,300	30,119	30,927	31,716	32,441
			Low	28,020	28,274	28,522	28,735	28,888	28,959
Boyle			High	28,784	29,919	31,082	32,262	33,448	34,587
7,766	8,069	8,279	Middle	8,577	8,859	9,137	9,381	9,594	9,759
			Low	8,433	8,553	8,655	8,727	8,753	8,732
Bracken			High	8,661	9,047	9,435	9,793	10,122	10,411
15,703	15,699	16,100	Middle	16,306	16,419	16,429	16,310	16,045	15,660
			Low	16,065	15,914	15,662	15,302	14,811	14,220
Breathitt			High	16,472	16,771	16,972	17,041	16,947	16,736
16,312	16,922	18,648	Middle	19,811	21,021	22,252	23,400	24,462	25,417
			Low	19,478	20,277	21,054	21,728	22,290	22,722
Breckinridge			High	20,010	21,459	22,949	24,391	25,769	27,069
47,567	55,504	61,236	Middle	67,594	73,726	79,862	86,117	92,385	98,407
			Low	66,445	71,115	75,581	79,966	84,170	87,880
Bullitt			High	68,235	75,202	82,322	89,700	97,233	104,653
11,245	12,135	13,010	Middle	13,930	14,890	15,882	16,919	17,964	18,981
			Low	13,692	14,365	15,035	15,714	16,365	16,946
Butler			High	14,066	15,194	16,378	17,632	18,918	20,201
13,232	13,140	13,060	Middle	12,935	12,794	12,613	12,365	12,056	11,654
			Low	12,731	12,376	12,000	11,569	11,092	10,548
Caldwell			High	13,070	13,068	13,033	12,924	12,737	12,458
30,735	32,723	34,177	Middle	35,364	36,949	38,418	39,901	41,442	42,809
			Low	34,765	35,668	36,415	37,058	37,639	38,090
Calloway			High	35,727	37,711	39,627	41,619	43,740	45,700
83,866	87,742	88,616	Middle	90,555	92,315	93,828	94,962	95,643	95,862
			Low	89,133	89,285	89,172	88,664	87,685	86,228
Campbell			High	91,477	94,287	96,887	99,136	100,961	102,336
5,238	5,335	5,351	Middle	5,369	5,350	5,346	5,336	5,314	5,272
			Low	5,279	5,173	5,071	4,966	4,858	4,730
Carlisle			High	5,422	5,469	5,522	5,576	5,612	5,628
9,292	9,809	10,155	Middle	10,710	11,252	11,752	12,215	12,633	12,993
			Low	10,535	10,867	11,152	11,381	11,560	11,665
Carroll			High	10,817	11,485	12,126	12,736	13,314	13,845

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
24,340	25,837	26,889	Middle	28,130	29,282	30,366	31,319	32,131	32,802
			Low	27,683	28,314	28,846	29,227	29,450	29,512
Carter			High	28,408	29,892	31,341	32,674	33,895	34,989
14,211	14,678	15,447	Middle	16,011	16,525	17,015	17,428	17,781	18,008
			Low	15,746	15,956	16,133	16,230	16,262	16,176
Casey			High	16,168	16,875	17,565	18,193	18,762	19,217
68,941	72,420	72,265	Middle	75,089	78,504	82,583	87,148	91,860	96,624
			Low	74,060	76,270	79,125	82,323	85,375	88,319
Christian			High	75,859	80,199	85,266	90,981	97,052	103,355
29,496	31,014	33,144	Middle	34,964	36,699	38,360	39,932	41,418	42,744
			Low	34,407	35,479	36,427	37,253	37,939	38,412
Clark			High	35,307	37,459	39,577	41,640	43,649	45,539
21,746	23,595	24,556	Middle	25,082	25,471	25,737	25,789	25,645	25,366
			Low	24,712	24,695	24,543	24,189	23,655	22,989
Clay			High	25,337	26,021	26,586	26,934	27,080	27,089
9,135	9,354	9,634	Middle	9,844	9,995	10,108	10,153	10,124	10,016
			Low	9,684	9,654	9,581	9,454	9,258	8,984
Clinton			High	9,943	10,210	10,434	10,599	10,681	10,688
9,196	9,255	9,384	Middle	9,453	9,493	9,524	9,524	9,444	9,264
			Low	9,296	9,162	9,025	8,856	8,621	8,296
Crittenden			High	9,551	9,694	9,835	9,946	9,970	9,892
6,784	7,050	7,147	Middle	7,301	7,425	7,549	7,629	7,672	7,639
			Low	7,178	7,173	7,166	7,121	7,031	6,880
Cumberland			High	7,374	7,584	7,795	7,962	8,089	8,147
87,189	90,458	91,545	Middle	92,581	93,229	93,693	93,766	93,513	92,834
			Low	91,172	90,320	89,281	87,891	86,191	84,079
Daviess			High	93,531	95,251	96,800	97,962	98,802	99,204
10,357	10,818	11,644	Middle	12,234	12,789	13,328	13,808	14,230	14,617
			Low	12,028	12,340	12,611	12,816	12,948	13,037
Edmonson			High	12,357	13,055	13,746	14,397	14,993	15,560
6,455	6,629	6,748	Middle	6,873	6,988	7,047	7,058	6,992	6,867
			Low	6,765	6,759	6,703	6,598	6,425	6,198
Elliott			High	6,936	7,135	7,279	7,370	7,383	7,336

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
14,614	15,338	15,307	Middle	15,632	15,882	16,079	16,188	16,219	16,127
Estill			Low	15,384	15,353	15,269	15,104	14,874	14,527
			High	15,788	16,221	16,602	16,903	17,121	17,212
225,366	245,579	260,512	Middle	277,340	294,294	311,262	327,341	342,877	358,122
Fayette			Low	273,529	285,996	298,151	308,925	318,378	327,033
			High	280,064	300,301	320,852	340,933	361,019	381,250
12,292	12,996	13,792	Middle	14,621	15,479	16,372	17,270	18,158	18,968
Fleming			Low	14,372	14,917	15,470	16,004	16,493	16,877
			High	14,764	15,795	16,887	18,002	19,127	20,198
43,586	43,558	42,441	Middle	42,032	41,367	40,402	39,067	37,430	35,509
Floyd			Low	41,462	40,223	38,727	36,929	34,891	32,628
			High	42,474	42,285	41,764	40,849	39,578	37,989
44,143	46,214	47,687	Middle	49,180	50,388	51,390	52,122	52,702	53,077
Franklin			Low	48,431	48,800	48,940	48,791	48,465	47,907
			High	49,677	51,447	53,037	54,377	55,585	56,602
8,271	7,611	7,752	Middle	7,588	7,444	7,309	7,159	6,984	6,788
Fulton			Low	7,472	7,220	6,975	6,729	6,460	6,181
			High	7,668	7,607	7,555	7,485	7,391	7,261
5,393	6,383	7,870	Middle	9,419	11,176	13,235	15,706	18,623	21,976
Gallatin			Low	9,277	10,820	12,590	14,683	17,122	19,854
			High	9,501	11,383	13,616	16,314	19,538	23,284
11,579	13,061	14,792	Middle	16,432	18,204	20,142	22,239	24,490	26,804
Garrard			Low	16,150	17,560	19,062	20,657	22,321	23,956
			High	16,581	18,556	20,740	23,132	25,722	28,432
15,737	19,187	22,384	Middle	25,939	29,826	34,231	39,257	45,052	51,651
Grant			Low	25,492	28,743	32,340	36,366	40,901	45,918
			High	26,180	30,407	35,254	40,834	47,327	54,810
33,550	35,387	37,028	Middle	38,610	40,291	42,119	44,019	45,975	47,830
Graves			Low	37,918	38,794	39,745	40,720	41,673	42,460
			High	38,994	41,130	43,454	45,905	48,461	50,961
21,050	22,726	24,053	Middle	25,612	27,189	28,721	30,190	31,581	32,841
Grayson			Low	25,173	26,221	27,167	28,027	28,761	29,327
			High	25,863	27,750	29,616	31,469	33,263	34,969

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
10,371	10,902	11,518	Middle	11,963	12,420	12,893	13,353	13,771	14,135
			Low	11,765	11,979	12,207	12,400	12,551	12,632
Green			High	12,083	12,672	13,301	13,915	14,507	15,049
36,742	37,203	36,891	Middle	36,391	35,578	34,499	33,271	31,941	30,491
			Low	35,803	34,381	32,739	31,008	29,239	27,390
Greenup			High	36,769	36,357	35,661	34,781	33,776	32,601
7,864	8,167	8,392	Middle	8,603	8,723	8,776	8,796	8,799	8,750
			Low	8,474	8,449	8,348	8,230	8,089	7,899
Hancock			High	8,693	8,914	9,064	9,194	9,295	9,349
89,240	91,520	94,174	Middle	98,176	101,790	105,165	108,051	110,236	111,676
			Low	96,654	98,573	100,187	101,268	101,612	101,235
Hardin			High	99,164	103,962	108,600	112,824	116,399	119,264
36,574	35,658	33,202	Middle	31,642	30,014	28,294	26,457	24,498	22,431
			Low	31,210	29,172	27,094	24,972	22,803	20,578
Harlan			High	31,991	30,699	29,284	27,711	25,969	24,061
16,248	16,953	17,983	Middle	18,896	19,831	20,752	21,622	22,404	23,074
			Low	18,589	19,151	19,685	20,141	20,498	20,707
Harrison			High	19,082	20,244	21,413	22,550	23,618	24,583
14,890	16,295	17,445	Middle	18,842	20,273	21,753	23,292	24,845	26,389
			Low	18,517	19,543	20,563	21,593	22,585	23,507
Hart			High	19,024	20,686	22,431	24,266	26,161	28,085
43,044	44,484	44,829	Middle	45,346	45,672	45,807	45,656	45,260	44,598
			Low	44,663	44,251	43,664	42,833	41,778	40,460
Henderson			High	45,810	46,652	47,312	47,677	47,787	47,616
12,823	14,189	15,060	Middle	16,257	17,477	18,704	19,968	21,255	22,499
			Low	15,989	16,867	17,718	18,556	19,366	20,096
Henry			High	16,414	17,828	19,288	20,810	22,381	23,949
5,566	5,368	5,262	Middle	5,086	4,916	4,765	4,599	4,415	4,191
			Low	5,013	4,763	4,530	4,307	4,063	3,792
Hickman			High	5,139	5,025	4,920	4,804	4,666	4,481
46,126	46,803	46,519	Middle	46,411	46,149	45,745	45,184	44,343	43,205
			Low	45,687	44,665	43,528	42,272	40,786	39,058
Hopkins			High	46,889	47,147	47,271	47,219	46,861	46,186

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
11,955	12,915	13,495	Middle	14,336	15,199	16,083	16,917	17,665	18,337
			Low	14,088	14,656	15,210	15,689	16,061	16,334
Jackson			High	14,475	15,513	16,596	17,639	18,615	19,532
665,123	682,143	693,604	Middle	706,546	717,095	726,164	733,639	739,350	742,424
			Low	696,369	695,355	692,589	688,036	681,337	671,553
Jefferson			High	717,707	741,078	763,328	784,289	803,943	821,140
30,508	34,947	39,041	Middle	42,955	46,919	50,944	55,099	59,310	63,563
			Low	42,182	45,147	48,054	50,933	53,700	56,329
Jessamine			High	43,365	47,863	52,518	57,380	62,423	67,611
23,248	23,881	23,445	Middle	23,508	23,429	23,222	22,819	22,244	21,483
			Low	23,161	22,716	22,149	21,420	20,541	19,514
Johnson			High	23,751	23,941	23,994	23,850	23,514	22,966
142,031	147,206	151,464	Middle	155,096	158,304	161,122	163,311	164,803	165,443
			Low	152,854	153,560	153,845	153,553	152,533	150,615
Kenton			High	156,669	161,697	166,393	170,507	173,975	176,634
17,906	18,207	17,649	Middle	17,647	17,545	17,334	16,951	16,416	15,760
			Low	17,383	17,002	16,528	15,896	15,134	14,278
Knott			High	17,829	17,924	17,907	17,715	17,355	16,856
29,676	31,041	31,795	Middle	32,723	33,535	34,216	34,725	35,039	35,111
			Low	32,193	32,393	32,450	32,333	32,031	31,494
Knox			High	33,056	34,250	35,336	36,268	37,006	37,507
11,679	12,669	13,373	Middle	14,148	14,957	15,828	16,723	17,657	18,560
			Low	13,896	14,409	14,946	15,477	16,015	16,486
Larue			High	14,289	15,267	16,331	17,437	18,602	19,766
43,438	47,982	52,715	Middle	57,109	61,497	65,880	70,185	74,451	78,520
			Low	56,117	59,259	62,250	65,054	67,664	69,919
Laurel			High	57,659	62,750	67,929	73,132	78,399	83,574
13,998	15,125	15,569	Middle	16,443	17,272	18,024	18,663	19,186	19,607
			Low	16,170	16,674	17,076	17,361	17,512	17,556
Lawrence			High	16,604	17,628	18,599	19,464	20,225	20,889
7,422	7,850	7,916	Middle	7,975	7,983	7,971	7,875	7,717	7,479
			Low	7,843	7,723	7,583	7,366	7,095	6,759
Lee			High	8,057	8,156	8,234	8,225	8,144	7,982

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
13,642	12,969	12,401	Middle	11,810	11,155	10,456	9,701	8,920	8,117
			Low	11,662	10,865	10,047	9,198	8,345	7,489
Leslie			High	11,939	11,415	10,824	10,160	9,457	8,705
27,000	26,405	25,277	Middle	24,582	23,736	22,735	21,524	20,177	18,700
			Low	24,256	23,094	21,808	20,358	18,817	17,191
Letcher			High	24,841	24,264	23,512	22,516	21,355	20,023
13,029	13,603	14,092	Middle	14,653	15,182	15,663	16,075	16,427	16,691
			Low	14,409	14,648	14,828	14,927	14,959	14,902
Lewis			High	14,801	15,502	16,171	16,775	17,333	17,807
20,045	21,737	23,361	Middle	24,916	26,412	27,951	29,555	31,145	32,629
			Low	24,485	25,456	26,426	27,416	28,348	29,114
Lincoln			High	25,158	26,956	28,833	30,805	32,815	34,742
9,062	9,478	9,804	Middle	10,137	10,420	10,663	10,892	11,062	11,138
			Low	9,969	10,066	10,119	10,153	10,121	10,007
Livingston			High	10,238	10,636	10,997	11,367	11,656	11,869
24,416	25,725	26,573	Middle	27,638	28,687	29,700	30,713	31,677	32,517
			Low	27,183	27,705	28,163	28,601	28,959	29,172
Logan			High	27,913	29,294	30,661	32,053	33,411	34,685
6,624	7,679	8,080	Middle	8,717	9,359	10,060	10,814	11,553	12,190
			Low	8,576	9,057	9,573	10,119	10,623	10,998
Lyon			High	8,797	9,539	10,360	11,242	12,132	12,927
62,879	65,231	65,514	Middle	66,302	66,910	67,344	67,603	67,591	67,230
			Low	65,220	64,681	63,997	63,177	62,123	60,733
McCracken			High	66,977	68,333	69,547	70,585	71,350	71,760
15,603	16,723	17,080	Middle	17,980	18,782	19,533	20,199	20,752	21,173
			Low	17,696	18,175	18,575	18,866	19,035	19,065
McCreary			High	18,159	19,184	20,168	21,084	21,905	22,601
9,628	9,609	9,938	Middle	10,116	10,256	10,361	10,414	10,461	10,469
			Low	9,952	9,898	9,810	9,687	9,545	9,370
McLean			High	10,222	10,476	10,697	10,878	11,047	11,182
57,508	63,906	70,872	Middle	77,332	84,689	92,786	101,149	109,363	117,864
			Low	76,061	81,838	88,103	94,250	99,859	105,583
Madison			High	78,080	86,386	95,602	105,320	115,157	125,467

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
13,077	13,314	13,332	Middle	13,464	13,519	13,449	13,277	13,016	12,642
			Low	13,275	13,120	12,857	12,501	12,066	11,541
Magoffin			High	13,603	13,815	13,906	13,878	13,762	13,523
16,499	17,283	18,212	Middle	18,989	19,682	20,338	20,961	21,474	21,876
			Low	18,690	19,046	19,351	19,610	19,752	19,772
Marion			High	19,178	20,097	20,991	21,869	22,647	23,333
27,205	29,114	30,125	Middle	31,113	32,123	33,167	34,194	35,062	35,713
			Low	30,564	30,942	31,325	31,669	31,839	31,779
Marshall			High	31,424	32,786	34,213	35,643	36,931	38,024
12,526	13,131	12,578	Middle	12,630	12,563	12,355	12,047	11,664	11,211
			Low	12,437	12,170	11,769	11,288	10,753	10,158
Martin			High	12,760	12,839	12,775	12,597	12,343	12,002
16,666	17,060	16,800	Middle	16,875	16,842	16,748	16,568	16,302	15,937
			Low	16,611	16,298	15,939	15,507	15,003	14,417
Mason			High	17,050	17,208	17,301	17,309	17,222	17,029
24,170	25,234	26,349	Middle	27,403	28,369	29,171	29,749	30,064	30,117
			Low	26,958	27,420	27,711	27,787	27,605	27,178
Meade			High	27,678	28,973	30,116	31,054	31,722	32,134
5,092	5,657	6,556	Middle	7,367	8,221	9,133	10,035	10,933	11,821
			Low	7,245	7,945	8,670	9,348	9,994	10,598
Menifee			High	7,433	8,383	9,406	10,444	11,498	12,553
19,148	20,060	20,817	Middle	21,523	22,087	22,544	23,000	23,455	23,830
			Low	21,167	21,334	21,383	21,432	21,469	21,411
Mercer			High	21,734	22,549	23,270	24,005	24,751	25,420
8,963	9,556	10,037	Middle	10,594	11,128	11,661	12,215	12,769	13,252
			Low	10,441	10,785	11,119	11,455	11,777	12,022
Metcalfe			High	10,703	11,359	12,029	12,735	13,453	14,119
11,401	11,855	11,756	Middle	11,950	12,087	12,185	12,249	12,258	12,190
			Low	11,760	11,700	11,604	11,477	11,300	11,055
Monroe			High	12,069	12,347	12,584	12,789	12,944	13,015
19,561	20,698	22,554	Middle	24,163	25,691	27,112	28,489	29,941	31,408
			Low	23,761	24,804	25,708	26,536	27,376	28,172
Montgomery			High	24,396	26,215	27,963	29,704	31,543	33,448

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
11,648	13,496	13,948	Middle	14,520	15,069	15,598	16,059	16,441	16,775
			Low	14,295	14,583	14,837	15,019	15,095	15,106
Morgan			High	14,664	15,382	16,090	16,742	17,320	17,866
31,318	31,560	31,839	Middle	31,869	31,795	31,553	31,112	30,463	29,580
			Low	31,353	30,726	29,948	29,017	27,910	26,622
Muhlenberg			High	32,202	32,481	32,590	32,500	32,176	31,597
29,710	33,373	37,477	Middle	41,142	44,905	48,859	52,956	57,145	61,206
			Low	40,417	43,249	46,145	49,070	51,944	54,550
Nelson			High	41,535	45,809	50,367	55,167	60,155	65,112
6,725	6,845	6,813	Middle	6,828	6,817	6,768	6,684	6,579	6,468
			Low	6,729	6,610	6,453	6,267	6,068	5,862
Nicholas			High	6,896	6,963	6,993	6,980	6,951	6,908
21,105	21,836	22,916	Middle	23,811	24,701	25,527	26,232	26,801	27,226
			Low	23,405	23,830	24,172	24,387	24,451	24,362
Ohio			High	24,053	25,221	26,354	27,375	28,269	29,031
33,263	40,611	46,178	Middle	52,448	58,666	65,238	72,416	80,334	88,683
			Low	51,637	56,766	62,028	67,684	73,859	80,171
Oldham			High	52,919	59,795	67,177	75,343	84,432	94,139
9,035	9,638	10,547	Middle	11,308	12,111	12,951	13,801	14,664	15,509
			Low	11,128	11,705	12,294	12,871	13,433	13,950
Owen			High	11,417	12,355	13,350	14,381	15,437	16,497
5,036	5,099	4,858	Middle	4,803	4,703	4,605	4,482	4,337	4,156
			Low	4,731	4,557	4,388	4,205	3,997	3,770
Owsley			High	4,850	4,808	4,760	4,686	4,584	4,446
12,036	13,452	14,390	Middle	15,690	17,010	18,441	19,915	21,344	22,685
			Low	15,433	16,433	17,489	18,550	19,520	20,360
Pendleton			High	15,839	17,354	19,016	20,747	22,473	24,141
30,283	30,648	29,390	Middle	28,969	28,337	27,498	26,452	25,248	23,840
			Low	28,560	27,509	26,282	24,902	23,407	21,759
Perry			High	29,275	28,969	28,438	27,675	26,718	25,525
72,583	72,346	68,736	Middle	66,864	64,391	61,368	58,035	54,544	50,823
			Low	66,029	62,725	58,976	55,030	51,030	46,869
Pike			High	67,575	65,829	63,467	60,716	57,739	54,429

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
11,686	12,094	13,237	Middle	14,036	14,805	15,513	16,146	16,687	17,159
			Low	13,812	14,306	14,721	15,045	15,275	15,408
Powell			High	14,174	15,117	16,007	16,839	17,601	18,296
49,489	53,715	56,217	Middle	59,092	61,802	64,363	66,791	69,000	70,863
			Low	58,044	59,539	60,812	61,899	62,716	63,143
Pulaski			High	59,673	63,074	66,395	69,631	72,699	75,467
2,124	2,216	2,266	Middle	2,299	2,317	2,326	2,326	2,321	2,293
			Low	2,265	2,248	2,210	2,179	2,134	2,073
Robertson			High	2,324	2,371	2,401	2,428	2,452	2,446
14,803	15,664	16,582	Middle	17,433	18,252	19,041	19,755	20,399	20,890
			Low	17,142	17,611	18,027	18,353	18,593	18,672
Rockcastle			High	17,603	18,627	19,643	20,593	21,490	22,246
20,353	21,370	22,094	Middle	22,704	23,779	24,710	25,297	25,731	26,113
			Low	22,348	23,025	23,516	23,593	23,485	23,379
Rowan			High	22,941	24,281	25,503	26,430	27,231	27,975
14,716	16,003	16,315	Middle	16,986	17,620	18,227	18,772	19,180	19,408
			Low	16,684	16,975	17,221	17,389	17,418	17,274
Russell			High	17,156	17,986	18,811	19,577	20,219	20,678
23,867	27,634	33,061	Middle	37,926	43,174	48,940	55,313	62,482	70,525
			Low	37,267	41,587	46,206	51,183	56,646	62,592
Scott			High	38,273	44,009	50,380	57,504	65,608	74,798
24,824	28,648	33,337	Middle	37,359	41,547	46,103	51,003	56,274	61,826
			Low	36,738	40,107	43,683	47,434	51,361	55,335
Shelby			High	37,707	42,356	47,470	53,046	59,118	65,605
15,145	15,863	16,405	Middle	16,939	17,419	17,931	18,460	18,967	19,385
			Low	16,652	16,815	16,985	17,167	17,310	17,350
Simpson			High	17,110	17,791	18,511	19,270	20,017	20,686
6,801	8,429	11,766	Middle	14,846	18,498	22,911	28,302	35,035	43,204
			Low	14,612	17,893	21,770	26,427	32,162	38,957
Spencer			High	14,966	18,826	23,528	29,327	36,636	45,598
21,146	22,614	22,927	Middle	23,590	24,154	24,651	25,067	25,384	25,594
			Low	23,210	23,358	23,420	23,395	23,271	23,039
Taylor			High	23,828	24,667	25,444	26,160	26,787	27,305

TABLE 5

Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030

1990	1995	2000		2005	2010	2015	2020	2025	2030
10,940	11,477	11,971	Middle	12,516	13,025	13,561	14,119	14,632	15,102
			Low	12,314	12,590	12,867	13,152	13,378	13,544
Todd			High	12,637	13,299	13,999	14,732	15,434	16,114
10,361	11,355	12,597	Middle	13,683	14,761	15,886	17,084	18,350	19,622
			Low	13,460	14,258	15,062	15,904	16,772	17,604
Trigg			High	13,809	15,052	16,371	17,789	19,302	20,849
6,090	7,009	8,125	Middle	9,167	10,284	11,521	12,906	14,453	16,106
			Low	9,012	9,934	10,921	12,012	13,206	14,432
Trimble			High	9,251	10,480	11,861	13,423	15,180	17,085
16,557	16,045	15,637	Middle	15,205	14,735	14,297	13,745	13,096	12,381
			Low	14,974	14,273	13,622	12,859	12,037	11,181
Union			High	15,370	15,062	14,780	14,383	13,875	13,275
77,720	86,301	92,522	Middle	99,662	107,045	114,918	122,957	130,879	138,904
			Low	98,035	103,465	109,153	114,655	119,712	124,670
Warren			High	100,635	109,223	118,463	128,091	137,852	147,894
10,441	10,573	10,916	Middle	11,024	11,091	11,129	11,135	11,061	10,910
			Low	10,843	10,716	10,559	10,371	10,123	9,803
Washington			High	11,136	11,329	11,493	11,619	11,676	11,648
17,468	18,646	19,923	Middle	20,951	21,938	22,903	23,797	24,585	25,240
			Low	20,579	21,131	21,634	22,041	22,328	22,465
Wayne			High	21,159	22,396	23,629	24,816	25,918	26,896
13,955	13,858	14,120	Middle	14,258	14,384	14,434	14,405	14,286	14,094
			Low	14,027	13,888	13,690	13,416	13,070	12,665
Webster			High	14,409	14,694	14,913	15,042	15,083	15,057
33,326	34,872	35,865	Middle	37,081	38,200	39,242	40,111	40,797	41,263
			Low	36,464	36,879	37,192	37,315	37,244	36,959
Whitley			High	37,458	39,009	40,522	41,882	43,081	44,056
6,503	6,909	7,065	Middle	7,334	7,576	7,778	7,948	8,071	8,145
			Low	7,232	7,347	7,423	7,462	7,451	7,396
Wolfe			High	7,412	7,740	8,030	8,301	8,521	8,702
19,955	21,744	23,208	Middle	24,569	25,764	26,911	28,023	29,054	29,902
			Low	24,146	24,852	25,464	26,019	26,470	26,717
Woodford			High	24,810	26,297	27,763	29,228	30,620	31,852

TABLE 6

Socioeconomic Data and Travel Data Sources

Data Source	Update Cycle	Last Update	Data Parameters	Data Provider	Web Address
National Personal Trans. Survey (NPTS)	5 years	2000	Travel by trip purpose and mode, social/economic trip characterstics, vehicle ownership, others	FHWA/BTS	www.bts.gov/ntda/npts/
American Travel Survey (ATS)	5 years	1995	Long range (75 miles or greater) trip data	FHWA/BTS	www.bts.gov/programs/ats/
Census Trans. Planning Package (CTTP)	10 years	2000	Housing units, households, person, and workers in Census areas. Journey to Work.	Census/BTS	Available on CD Rom
Origin-destination (O-D) Surveys	On Demand	NA	TAZ trip exchanges	Private Sector	
Household Surveys *	On Demand	NA	TAZ tripmaking	Private Sector	
TRIS Online	Continuous	2000	448,000 books, articles, and journals	FHWA/BTS	http://199.79.179.82/sundev/search.cfm
TransBorder Surface Freight Data	Monthly	Dec., 1999	North American trade flows by commodity type	FHWA/BTS	www.bts.gov/transborder/
TRANSEARCH	Continuous	2004	Freight and freightage shipments in US by county	Reebie Associates	www.reebie.com
Kentucky State Data Center	Continuous	2002	Demographics	University of Louisville	http://ksdc.louisville.edu/
Kentucky Economic Development Information System	Continuous	2002	Demographics, workforce, business,etc.	KY Cabinet for Economics Development	http://www.thinkkentucky.com/edis/

* Kentucky MPOs that have performed household surveys recently are Cincinnati (OKI), Louisville (KIPDA) and Evansville (EUTS).

TABLE 7
Vehicle Miles Traveled and Milage Totals

Year	**Rural DVMT** (x1,000)						**Urban DVMT** (x1,000)						**Total DVMT**
	INTER.	PR.ART	MN.ART	MJ.COL	MN.COL	LOCAL	INTER.	EXPR.	PR.ART	MN.ART	COLL.	LOCAL	
	1	2	6	7	8	9	11	12	14	16	17	19	
1993	13,152	13,680	5,994	13,821	6,265	8,222	12,551	1,966	11,320	11,278	4,467	4,732	107,448
1994	13,286	13,554	6,085	14,102	6,307	8,332	13,109	1,905	11,294	11,190	4,806	4,965	108,935
1995	13,939	14,528	6,134	14,218	6,439	8,552	13,689	2,002	11,513	10,906	4,827	5,042	111,788
1996	14,342	15,023	6,382	14,600	6,560	8,713	14,405	2,078	11,851	11,165	5,064	5,233	115,416
1997	15,257	15,915	6,493	14,756	6,782	8,968	14,671	2,144	12,087	11,358	5,216	5,381	119,029
1998	16,181	16,541	6,685	15,102	6,869	9,131	15,385	2,242	12,451	11,567	5,271	5,475	122,900
1999	16,841	17,614	6,956	15,635	7,023	9,373	15,966	2,374	12,666	11,955	5,291	5,574	127,268
2000	16,746	17,217	7,108	15,813	7,094	9,539	16,164	2,297	13,062	12,180	5,370	5,687	128,278
2001	16,674	17,152	7,306	16,035	6,977	9,408	16,069	2,251	12,978	11,967	4,930	5,370	127,116
2002	17,222	17,508	7,358	16,164	6,844	9,202	16,717	2,266	13,045	11,781	4,829	5,470	128,405
2003	17,711	18,656	8,002	13,706	6,562	9,328	16,407	2,073	15,250	10,396	4,483	5,722	128,295

Year	**Rural Miles**						**Urban Miles**						**Total Mileage**
	INTER.	PR.ART	MN.ART	MJ.COL	MN.COL	LOCAL	INTER.	EXPR.	PR.ART	MN.ART	COLL.	LOCAL	
	1	2	6	7	8	9	11	12	14	16	17	19	
1993	540	1,926	1,598	6,988	9,488	43,590	223	91	622	1,177	1,144	7,940	75,327
1994	536	1,946	1,600	7,019	9,532	44,031	228	91	627	1,189	1,151	8,020	75,970
1995	536	2,012	1,612	6,961	9,499	44,475	228	91	635	1,164	1,152	8,101	76,466
1996	536	2,011	1,626	6,971	9,492	44,925	228	91	637	1,169	1,155	8,183	77,024
1997	536	2,043	1,608	6,970	9,495	45,378	228	91	641	1,165	1,153	8,266	77,574
1998	536	2,046	1,612	6,986	9,485	45,837	228	91	654	1,165	1,154	8,349	78,143
1999	536	2,053	1,607	6,992	9,511	46,300	226	91	650	1,181	1,144	8,433	78,724
2000	533	2,045	1,604	6,994	9,497	46,768	229	90	658	1,185	1,145	8,519	79,266
2001	533	2,049	1,634	6,968	9,489	46,453	229	90	657	1,187	1,146	8,501	78,937
2002	533	2,052	1,633	6,968	9,476	45,821	229	87	661	1,154	1,120	8,638	78,373
2003	553	2,310	1,740	6,132	8,914	45,380	210	65	775	1,025	994	8,913	77,010

Table 8
SMALL URBAN AREA-TRAFFIC MODEL STATUS AND POPULATION

Small Urban Area	County	First Study Year	Last Study Year	Last S-E Data	Last Traffic Model	Last Study Area Pop	1990 Census Pop	2000 Census Pop	% Diff Pop	Air Quality Concern
Bardstown	Nelson	NA	1980	1997	1993	11,220	6,801	10,374	52.54%	No
Berea	Madison	NA	2003	1998	2003	9,210	9,126	9,851	7.94%	No
Campbellsville	Taylor	1969	1988	1999	1988	13,058	9,577	10,498	9.62%	No
Central City	Muhlenburg	NA	NA	NA	NA	NA	4,979	5,893	18.36%	No
Corbin	Whitley	NA	1971	1997	1991	9,782	7,419	7,742	4.35%	No
Cynthiana	Harrison	1970	1990	1988	1990	7,687	6,497	6,258	-3.68%	No
Danville	Boyle	1973	1973	1998	1990	13,327	12,420	15,477	24.61%	No
Dry Ridge/Williamstown	Grant	NA	NA	1988	NA	6,287	4,624	5,222	12.93%	No
Frankfort	Franklin	NA	2000	2000	2000	35,473	25,968	27,741	6.83%	No
Franklin	Simpson	1970	1970	1999	1991	9,237	7,607	7,996	5.11%	No
Georgetown	Scott	1979	1987	1996	2001	13,353	11,414	18,080	58.40%	Yes
Glasgow	Barren	1970	1988	1999	1988	15,237	12,351	13,019	5.41%	No
Harrodsburg	Mercer	1970	1970	1999	1989	10,100	7,335	8,014	9.26%	No
Hopkinsville	Christian	1973	1998	1999	1996	33,167	29,809	30,089	0.94%	No
Lawrenceburg	Anderson	NA	NA	1999	1991	7,221	5,911	9,014	52.50%	No
Lebanon	Marion	NA	NA	1996	NA	NA	5,695	5,718	0.40%	No
Leitchfield	Grayson	NA	1979	2000	NA	NA	4,965	6,139	23.65%	No
London	Laurel	NA	2001	1999	2001	NA	5,757	5,692	-1.13%	No
Madisonville	Hopkins	1970	2002	2000	2002	22,481	16,200	19,307	19.18%	No
Mayfield	Graves	1978	1999	2000	2000	10,981	9,935	10,349	4.17%	No
Maysville	Mason	NA	2003	1998	2003	9,658	7,169	8,993	25.44%	No
Middlesboro	Bell	NA	1987	1987	1987	13,636	11,328	10,384	-8.33%	Yes
Monticello	Wayne	NA	NA	1999	1992	6,241	5,357	5,981	11.65%	No
Morehead	Rowan	NA	1979	1995	1979	12,230	8,357	5,914	-29.23%	No
Mt. Sterling	Montgomery	NA	1970	1999	1990	8,705	5,362	5,876	9.59%	No
Murray	Calloway	1968	1995	1988	1990	14,700	14,439	14,950	3.54%	No
Paducah	McCracken	1973	2002	1999	2002	50,444	27,256	26,307	-3.48%	No
Paris	Bourbon	NA	NA	1999	1991	11,195	8,730	9,183	5.19%	No
Pikeville	Pike	NA	1999	1999	1999	NA	6,324	6,295	-0.46%	No
Princeton	Caldwell	NA	1999	1996	1990	7,573	6,940	6,536	-5.82%	No
Richmond	Madison	1978	2003	2000	2003	23,477	21,155	27,152	28.35%	No
Russellville	Logan	1980	1999	1998	1999	9,004	7,454	7,149	-4.09%	No
Shelbyville	Shelby	NA	1988	1987	1988	11,019	6,238	10,085	61.67%	No
Somerset/Ferguson	Pulaski	1969	1977	1999	1993	23,050	11,667	12,233	4.85%	No
Versailles	Woodford	NA	1999	2000	1990	11,850	7,269	7,511	3.33%	No
Williamsburg	Whitley	NA	NA	1989	NA	8,180	5,493	5,143	-6.37%	No
Winchester	Clark	NA	1971	1999	1989	19,838	15,799	16,724	5.85%	No

TABLE 9
County Level Transportation Models

County	Last Study Year	Last S-E Data	Last Traffic Model	Last Study Area Pop	1990 Census Pop	2000 Census Pop	% Diff Pop	Air Quality Concern
Graves	2000	2000	2000	30,732	27,205	30,125	10.7	Yes
Marshall	1999	1999	1999	36,257	33,550	37,028	10.4	Yes
Scott	2000	2000	2000	33,061	23,867	33,061	38.5	Yes
Simpson	2002	2002	2002	16,706	15,145	16,405	8.3	Yes
Garrard	2003	2000	2003	14,792	11,579	14,792	27.7	No

TABLE 10

Kentucky Statewide Traffic Model Summary

KYSTM History

1971: First model, designed by Alan M. Voorhees & Associates
1991: Model Update by Wilbur Smith Associates (WSA)
1997: Model Update by WSA
1999: Model Update by WSA
2001: I-66 Corridor Calibration by WSA
2002: Combined Zones for Census/TAZ Disaggregation by WSA
2003: Network Update by WSA
2004: TransCAD Update

Applications

- Corridor studies
- New routes
- System questions

Current Model Specifications from 1999 Model Update

This update basically created a completely new model although the 1991 network and TAZs were used.
- Number of zones=1,530 (includes 823 Kentucky zones)
- Number of links=28,282
- Trip purposes: HBW, Truck, Tourist, External, Other Person (Combined NHB/HBO)
- Software: MinUTP
- Current year: 1999: Future year: 2030
- Assignment methodology: AON
- Calibration: 10 screenlines, final ground adjustment program
- Network development: use existing 1991 Kentucky network plus National Highway Planning Network outside of Kentucky
- Data collection: no new data collected

Recent Updates

2001 I-66 Corridor Calibration

This contract converted KySTM link-based external truck trips to trip table format, updated KySTM network and trip matrices to reflect existing plus committed I-66 conditions, and updated networks/matrices to include I-66 network implementation.

2002 Combined Zone

This contract revised existing KySTM TAZs.

2003 Network

This work creates a true GIS network in Trans CAD with a macro network covering the entire USA and micro network just outside of Kentucky.

2004 Major KySTM Update

Major update in 2003-2004 includes:
- Updated truck travel submodels using the latest Transearch data.
- Updated long distance submodels using an ATS-based long distance person travel model.
- Updated trip generation/trip distribution using new journey-to-work and NPTS data.
- Development of GISDK procedures.

TABLE 11

Urbanized Area Model Status and Population

Urbanized Area	Previous Study Year	Current Study Year	Base Model Year	Future Model Year	Model Counties	Base Year Model Population	Future Year Model Population	% Diff Pop	Urbanized Counties	1990 Urbanized Census Pop	2000 Urbanized Census Pop	% Diff Pop	Air Quality Concern
OKI	1998	2002	1995	2030	Butler (OH), Clermont (OH), Hamilton (OH), Warren (OH), Boone (KY), Campbell (KY), Kenton (KY), Dearborn (IN)	1,837,250	2,331,300	26.89%	Butler (OH), Clermont (OH), Hamilton (OH), Warren (OH), Boone (KY), Campbell (KY), Kenton (KY), Dearborn (IN)				yes
KIPDA	1996	2001	1998	2025	Bullitt (KY), Clark (IN), Floyd (IN), Jefferson (KY), Oldham (KY)	928,845	1,145,285	23.30%	Bullitt(KY)*, Clark (IN)*, Floyd (IN)*, Jefferson (KY)*, Oldham (KY)*	754,956	863,582	14.39%	yes
Lexington	1998	2001	2000	2025	Fayette, Jessamine	269,302	324,227	20.40%	Fayette, Jessamine*	220,701	250,994	13.73%	yes
Ashland	1995	2000	1998	2020	Boyd*, Greenup*	67,742	72,499	7.02%	Boyd*, Greenup*	56,122	56,446	0.58%	yes
Henderson	1997	2001	2000	2025	Henderson*	44,829			Henderson*	26,517	26,593	0.29%	no
Owensboro	1997	2002	1999	2025	Daviess	91,443	97,699	6.84%	Daviess	53,549	54,067	0.97%	yes
Bowling Green	1983	2000	1999/2000	2030	Warren	92,522	142,185	53.68%	Warren	40,641	58,314	43.49%	no
Radcliff/Etown	1993		2003	2030	Hardin, Meade*				Hardin, Meade*		64,504		no

* partial counties

TABLE 12

Average Speeds for Nonattainment Areas *

HPMS Functional Class			HERS (UK) Daily Speed Model Average Speeds 2002 HPMS Data SW Urbanized	HERS (UK) Daily Speed Model Average Speeds 2002 HPMS Data SW Mountainous	HERS (UK) Daily Speed Model Average Speeds 2002 HPMS Data SW Other	Owensboro Model 2001 Daviess Co.	Ashland Model 2002 Boyd/Greenup	Marshall Co. Model 2001	Scott Co. Model 2001	Ohio STTS May 2001	OKI Model 2001	Lexington Model 2004	Average Daily Speeds For Use With MOBILE6.2
A	B	C	D	E	F	G	H	I	J	K	L	M	N
01	R	Interstate	70.0	68.5	69.2	NA	64.9	64.4	61.6	64.0	67.7	NA	69.0
02		Principle Arterial	59.1	52.4	56.6	50.4	40.6	55.4	55.0	54.0	45.1	NA	57.0
06		Minor Arterial	47.0	39.7	46.5	40.2	36.9	54.1	54.2	54.0	38.9	NA	47.0
07		Major Collector	46.8	38.9	46.2	33.8	35.9	50.0	50.1	44.0	37.5	NA	46.0
08		Minor Collector	NA	NA	NA	32.9	NA	37.6	54.5	44.0	28.3	NA	41.0
09		Local	NA	NA	NA	32.9	35.3	35.0	38.6	30.0	28.1	NA	35.0
11	U	Interstate	58.6	71.6	70.6	NA	55.0	NA	NA	63.0	66.3	49.0	71.0
12	R	Freeway	61.0	NA	65.4	54.5	NA	NA	NA	63.0	56.5	50.5	65.0
14	B	Principle Arterial	21.1	36.2	30.5	31.2	31.8	NA	50.6	40.0	33.0	28.0	31.0
16	A	Minor Arterial	20.3	26.3	27.9	39.3	29.7	NA	41.5	40.0	32.5	20.6	28.0
17	N	Collector	29.4	32.2	33.1	30.7	29.5	NA	45.0	40.0	28.4	21.1	33.0
19		Local	NA	NA	NA	14.1	10.0	NA	34.7	12.0	26.7	21.1	23.0

* not including OKI and KIPDA

NOTES:

1) Columns D-F contain speeds that were calculated by Mei Chen/UK in September, 2004 using Kentucky 2002 HPMS data, NCHRP 387 BPR equations and FHWA's Highway Economic Requirements System (HERS) equstions.
"SW-Urbanized" consists of Boone, Campbell, Kenton, Jefferson and Fayette.
"SW-Mountainous" consists of twenty-five southeastern Kentucky counties.
"SW-Other" consists of everything that is not either SW-Urbanized or SW-Mountainous
The hourly speed model is still under development

2) Column N contains the selected speeds for use in MOBILE6.2. These speeds were taken from the HERS daily speed model for "SW-Other" - column I. Since there was no state sample for functional classes 8 and 9, these were estimated as: Functional class 08 speed is 10% less than functional class 07 and functional class 09 speed is 25% less than functional class 07 speed. These %s were arrived at by analysizing the Christian County "Driven" data. All speeds were rounded to the nearest whole number.