

# KENTUCKY

## LONG-RANGE STATEWIDE TRANSPORTATION PLAN 2006

"TO PROVIDE A SAFE, SECURE, AND RELIABLE HIGHWAY SYSTEM  
THAT ENSURES THE EFFICIENT MOBILITY OF PEOPLE AND GOODS,  
THEREBY ENHANCING BOTH THE QUALITY OF LIFE AND THE ECONOMIC VITALITY OF  
THE COMMONWEALTH."

ERNIE FLETCHER  
GOVERNOR  
COMMONWEALTH OF KENTUCKY



BILL NIGHBERT  
SECRETARY  
KENTUCKY TRANSPORTATION CABINET



April 2, 2007

Dear Citizens of Kentucky:

The Kentucky Transportation Cabinet (KYTC) is pleased to present the Commonwealth of Kentucky's Long-Range Statewide Transportation Plan (STP). The STP is a long-range planning document which identifies goals, policies, needs and analyses tools to provide the basis and direction for meeting our vision for Kentucky's transportation system over the next twenty-five years.

The STP is the means by which KYTC defines its philosophical approach to meeting our state's unique transportation challenges. In preparation for this Plan, KYTC elected to solicit input from its customers to ascertain the most prominent needs for our transportation system, both through our annual survey and evaluation of customer satisfaction and through a specific "visioning" process. Through this "visioning" process, KYTC solicited input from stakeholders with backgrounds and interests ranging from economic development to the various transportation modes to help us develop a long-range transportation vision.

This Plan also reflects the goals and objectives developed by the transportation committees of the fifteen Area Development Districts and nine Metropolitan Planning Organizations throughout the Commonwealth. These committees are comprised of citizens, local and regional transportation users and providers, and elected officials who analyze the transportation needs of their respective regions throughout the year.

As a result of this process, we found that Kentuckians consider safety, reliability (system preservation), and economic opportunity to be the top priorities for Kentucky's Transportation System over the next twenty-five years. A review of our existing transportation system and analyses of our resources and transportation data have also reflected these to be the greatest needs for our Commonwealth.



Citizens of Kentucky

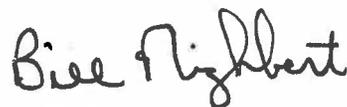
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April 2, 2007

As required by Kentucky's Public Involvement Process, the Draft STP was provided for public review and comment for a thirty day period which began October 16, 2006, and extended through November 14, 2006. Documentation of our public involvement process is provided in a separate document and is available upon request.

The STP is of critical importance in that it sets the direction for the utilization of Kentucky's limited transportation resources and the type of expenditures that we should make to meet our most critical transportation needs. Because this is so important to the future of the Commonwealth, we thank you for your comments and input to our Statewide Transportation Planning Process. Our desire is to reflect the needs of the Commonwealth accurately and responsibly, with full opportunity for citizen input.

Sincerely,

A handwritten signature in black ink that reads "Bill Nighbert". The signature is written in a cursive style with a large, prominent "B" and "N".

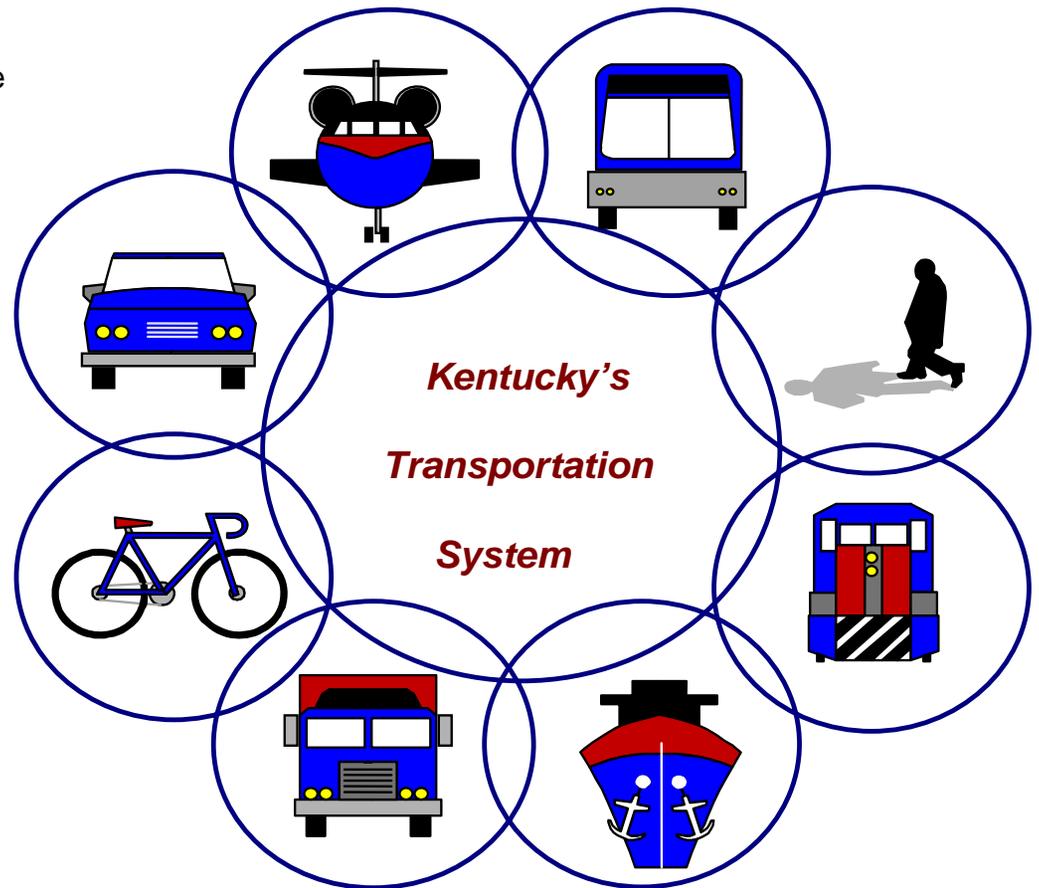
Bill Nighbert  
Secretary



# LONG-RANGE STATEWIDE TRANSPORTATION PLAN 2006

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## Introduction

Kentucky has long been world-renowned for its beautiful horse farms and stunning natural scenery. In addition, Kentucky's location in the center of the eastern United States bordered by seven states, several major waterways (Ohio, Big Sandy, Mississippi), and within 500 miles of most major industrial centers in the central and eastern United States has made Kentucky a true "crossroads" state. Kentucky is served by nine interstates and is located along the nation's major highway, rail, inland water and air transportation routes. Many have discovered that Kentucky offers the ideal location for industry, business, tourism, and major transportation hubs.

While Kentucky's geographic location presents wonderful opportunities and connectivity for industry, economic development, and tourism, its diverse geographic land area of over 39,000 square miles also brings a multitude of challenges for a transportation system serving one of the most diverse areas in the eastern United States. The Eastern Region is rugged and mountainous, covered with forests, dissected by streams, plagued by spring flooding and rockslides and in need of safe transportation systems to provide improved connection to the urban centers and interstate highways. The Western Region, bordered by the Ohio and Mississippi Rivers, is a rural, low plains area, subject to frequent flooding. While its beautiful lakes provide recreation and tourism opportunities, it needs improved connections to regional centers for increased economic opportunities. The Central Region boasts a combination of small mountains, rich horse farms, and urban areas presenting a mixture of economic and population growth, urban sprawl, air quality and congestion issues coupled with a desire to preserve the natural beauty of the region.



**Kentucky is a Crossroads**

By Air....

By Land....

By Rail....

By Water....

Kentucky's unique geographic challenges are then combined with the quickly changing transportation systems and demands of the 21<sup>st</sup> century: just-in-time deliveries, changing technologies, security concerns, congestion and safety issues, smart growth, coordinated land uses, limited funding challenges, and escalating costs. To meet the challenges of today and provide a safe and reliable transportation system for the next twenty-five years, state and regional transportation planning must be extremely comprehensive.

Our planning efforts must consider and integrate data-based systems, land-use planning, accurate identification of problems, thorough analyses, creative solutions and community involvement in a way that promotes optimum economic, social, and environmental health for both rural and urban communities. A safe and reliable transportation system is vital to

Kentucky's future economic growth, national competitiveness, and overall quality of life. To that end, Kentucky has chosen a new path in developing the 2006 Update of the *Long-Range Statewide Transportation Plan*.

The *2006 Long-Range Statewide Transportation Plan* is the third, multimodal, long-range plan produced by the Kentucky Transportation Cabinet. The first plan was developed in 1995 and the first update was completed in 1999. The 1995 and 1999 plans included both policy direction and specific projects for each transportation mode in two phases, a short-range element (one to six years) and a long-range element (generally fourteen to fifteen years beyond the short-range element).

Kentucky's statewide transportation planning process has continued to develop and evolve. This continued development includes enhancing the public input and participation process, refining the project purpose and need process, finding ways to further incorporate and address the SAFETEA-LU planning factors, and incorporating the state's economic development goals. As we develop and grow our planning process, we must also face the challenges of limited resources, applying improved technology to our transportation network, and meeting the demands of future transportation users.

For the *2006 Long-Range Statewide Transportation Plan (STP)* Kentucky elected to solicit input from its customers (residents and business partners) to ascertain the most prominent needs for the Commonwealth of Kentucky over the next twenty-five years and produce a policy-based Statewide Transportation Plan. This Plan will establish long-range goals specifically developed to address those needs and set the direction for those challenges facing Kentucky's transportation system over the next twenty-five years. The STP goals will be addressed through Kentucky's planning process, utilizing specific analytical tools, and an extensive public involvement process to select projects which best meet the objectives of the *Kentucky Statewide Transportation Plan* and the needs of the Kentucky transportation network. Although the 2006 Plan is primarily a policy plan for Kentucky, this Plan also incorporates by reference the Long-Range Transportation Plans for the nine Metropolitan Planning Organizations which include both projects and policy, and are fiscally constrained.

The Cabinet cannot foresee all challenges which Kentucky's transportation system will encounter over the next twenty-five years. However, this Plan represents the Cabinet's policy, priorities, and direction for addressing, within our funding limitations, the major issues and obstacles the Cabinet may face through this time period. Kentucky's *Long-Range Statewide Transportation Plan* will be periodically reevaluated to address the changing needs of Kentucky and its citizens, and will be updated as needed.



## ***Vision, Mission and Goals***

The Kentucky Transportation Cabinet (KYTC) is charged with the task of providing a safe and environmentally sound transportation system as reflected in the Cabinet's Mission Statement below. As a state agency, we must satisfy our customers. For the Kentucky Transportation Cabinet, this translates into listening to their needs so that we can effectively meet their expectations. Following this course, we have learned our customers expect safer roads, smoother pavements, and improved traffic flow across the Commonwealth.

### **Cabinet's Vision**

*Working together to lead the Southeast in providing a transportation infrastructure and transportation services for the 21<sup>st</sup> century that deliver new economic opportunities for all Kentuckians.*

### **Cabinet's Mission**

*To provide a safe, efficient, environmentally sound and fiscally responsible transportation system that delivers economic opportunity and enhances the quality of life in Kentucky*

In preparation for the *Long-Range Statewide Transportation Plan*, the Kentucky Transportation Cabinet reviewed and considered several basic documents, guiding principles and a visioning process to assist in the development of the goals and objectives for this long-range plan and to set the direction for Kentucky's transportation system over the next twenty-five years. Those documents and findings are listed and detailed below.

- ⇒ **FEDERAL HIGHWAY ADMINISTRATION "MOVING AHEAD" REPORT** – *A report, prepared by the Federal Highway Administration (FHWA) in February 2001, found that the public has substantial dissatisfaction with travel delays due to heavy traffic and expects continuing efforts to improve highway safety and pavement conditions. This report recommends smarter road management and operation and asserts that building more highways is a lower public priority.*
- ⇒ **FEDERAL HIGHWAY ADMINISTRATION STRATEGIC GOALS** – *At the federal government level, the FHWA has embraced the public's desires to improve safety, upgrade pavement conditions, and improve traffic flow as critical elements of the national highway program strategy. FHWA has included these elements in its "Vital Few" strategic goals.*

- ⇒ **KENTUCKY TRANSPORTATION CABINET (KYTC) STRATEGIC PLAN** – In conjunction with the Cabinet’s Vision and Mission Statement, KYTC has adopted four major goals and a set of objectives by which the KYTC plans to meet these goals. The Strategic Plan identified the following four major goals:
- *Improve Mobility and Access*
  - *Deliver Economic Opportunities*
  - *Continually Improve Organizational Performance*
  - *Strengthen Customer and Stakeholder Relationships*
- ⇒ **TRANSPORTATION EQUITY ACT for the 21<sup>st</sup> CENTURY (TEA-21) PLANNING FACTORS** – Section 135(c) of the federal transportation reauthorization legislation required that each state carry out a transportation planning process that provides for consideration of projects and strategies that address seven planning factors as follow:
- ✓ *Support economic vitality*
  - ✓ *Increase safety and security for motorized and non-motorized users*
  - ✓ *Increase accessibility and mobility for people and freight*
  - ✓ *Protect and enhance the environment and improve the quality of life*
  - ✓ *Enhance the integration and connectivity of the transportation system, across and between modes for people and freight*
  - ✓ *Promote efficient system management and operation*
  - ✓ *Emphasize the preservation of the existing transportation system*
- ⇒ **SAFE, ACCOUNTABLE, FLEXIBLE AND EFFICIENT TRANSPORTATION EQUITY ACT: A LEGACY FOR USERS (SAFETEA-LU)** – The current federal transportation reauthorization act was passed in August 2005, and reaffirmed the planning factors from TEA-21 as stated above. However to place more emphasis on safety and security, SAFETEA-LU separated the second planning factor into two factors as shown below:
- *Increase the safety of the transportation system for motorized and nonmotorized users*
  - *Increase the security of the transportation system for motorized and nonmotorized users*

⇒ **REGIONAL GOALS AND OBJECTIVES** – Each of the fifteen Area Development Districts (ADDs) and the nine Metropolitan Planning Organizations (MPOs) in Kentucky maintains a Transportation Committee composed of locally elected officials, various transportation providers and users, public citizens, and KYTC Highway Department District Staffs. These committees meet at least bimonthly to identify transportation needs, analyze data, and develop projects. The transportation committees develop a vision for their specific region. Each ADD and MPO then develop broad direction-setting goals and objectives for their region’s transportation system, based on the long-range vision for their specific region and the vision and goals of the KYTC. The identification and prioritization of projects are then based on and measured against these goals. KYTC reviewed, considered, and incorporated these concepts into the goals of the Long-Range Statewide Transportation Plan.

Several similarities were apparent when reviewing the goals and objectives for all 24 regional planning organizations – to promote and encourage:

- ✓ **Safe** movement of people and goods
- ✓ **Access** and connections from communities to regional transportation networks
- ✓ **Economic** development and tourism
- ✓ **Utilization** of other modes - air, bikeway, pedestrian, public, rail, and water transportation
- ✓ **Opportunity** for public input

⇒ **VISIONING PROCESS (User/ Modal groups)** – In preparation for the development of the current Statewide Transportation Plan, the KYTC invited 25 stakeholders with backgrounds and interests ranging from economic development to the various transportation modes to provide input into the development of a twenty-five year vision of Kentucky’s transportation system. These participants, including public and private representatives, the regional planning agencies, several Kentucky State Government Agencies, FHWA, and several statewide transportation organizations representing all transportation modes met to brainstorm the most important areas of consideration for a long-range transportation vision. The group focused on identifying the values and goals for Kentucky’s transportation system and then considered how they related to the Cabinet’s strategic goals and the planning factors as set out by TEA-21 – the federal reauthorization legislation. The work of this focus group resulted in a set of priorities very similar to those already mentioned:

- ✓ Decrease congestion
- ✓ Improve safety
- ✓ Maintain the current system or the existing transportation infrastructure

As a result of the Cabinet's comprehensive effort noted above, the following goals have been developed to guide Kentucky's transportation system and project selection over the next twenty-five years and provide the policy direction for Kentucky's 2006 Update of the *Statewide Transportation Plan*.

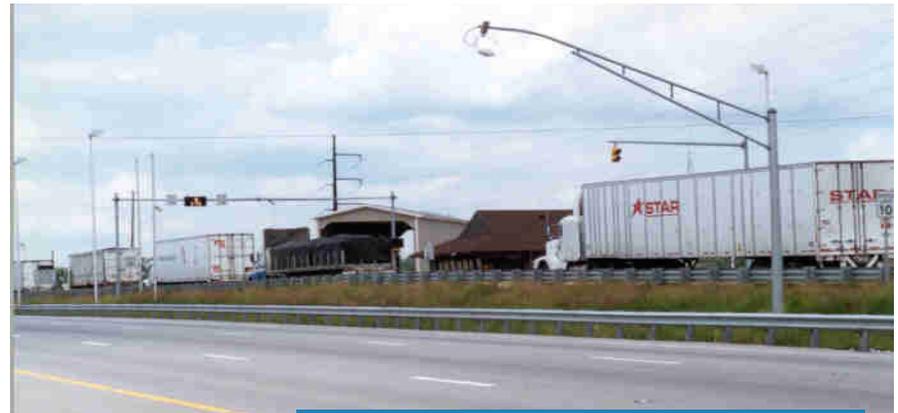
## Goals and Objectives of the *Kentucky Long-Range Statewide Transportation Plan*

### Safety and Security

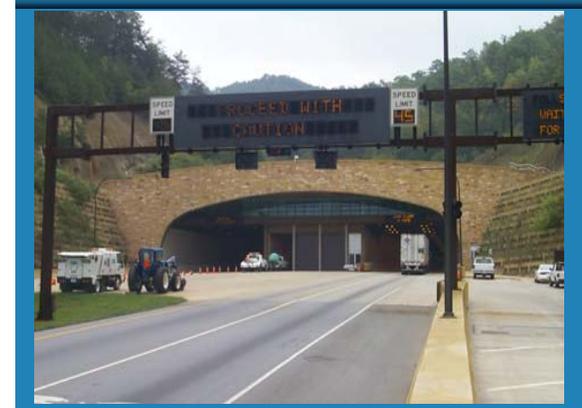
Improving safety and security remains the public's highest concern for Kentucky's transportation system. Coordination among all agencies is necessary to address the many factors related to improving safety and security. Some of those factors include: increasing the use of safety equipment, improving driver skills and driver awareness, improving road and pavement conditions, decreasing congestion through innovative traffic control methods, monitoring and addressing roadway conditions under inclement weather conditions, deployment of Intelligent Transportation Systems (ITS) to facilitate traffic flow, and increasing communication to the public. All of these factors also serve to increase the security of our transportation systems.

Crashes on Kentucky's roadways have increased from 127,653 in 1995 to 128,685 in 2005. Fatalities have also increased from 856 in 1995 to 985 in 2005, although the number of fatalities declined sharply in 2006 to 913. If this twenty-year trend continues, Kentucky can expect crashes to reach a level of about 150,000 and fatalities to reach a high of 1250 in the year 2025.

Therefore, Kentucky must focus on highway improvement priorities and develop more aggressive efforts to decrease the number of fatalities and injuries, minimize response times to crashes and other emergency situations, increase the safe traffic flow, protect the security and ensure the safety of Kentucky's transportation infrastructure.



### Hazmat Identification for Cumberland Gap Tunnel



## System Preservation

KYTC has invested billions of dollars in building and enhancing roads, bridges, airports, transit facilities and other elements of the transportation system. However, sufficient maintenance and improvements are required to keep these assets operating efficiently, extend their useful life, and delay the substantial cost of reconstructing or replacing them.



Since 2002, more of Kentucky's highway pavement is in "fair or poor" condition than is in "good" condition. Kentucky has not sustained a sufficient investment to maintain the 60% of "good" condition pavements that was preserved through the 1990s.

Around 1997 the percentage of roads having a "good" rating began to decrease. With the deterioration of our roadways and the continuing increase in the vehicle miles traveled, we have also seen a dramatic increase in the number of fatalities on Kentucky's roadways.

Kentucky must aggressively invest more funding and efforts in the maintenance and preservation of the transportation infrastructure to provide an acceptable level of service for present and future traffic volumes. Kentucky must increase its emphasis on preservation of all modal systems and encourage multimodal use and opportunities. The state must also identify, develop, and preserve a system of strategic transportation corridors as a focal point for improvement of the Kentucky transportation system with less focus on the expansion of the existing system, thus following long-range planning for the state system.



## Economic Opportunity and Mobility

Kentucky's economy prospered between the early 1990s and 2004 making considerable progress toward reducing poverty and increasing access to information technology during this period. Our poverty rate fell slightly from 19 percent in 1989 to 17.7 percent in 2004. The per capita personal income rose from \$18,514 in 1994 to \$27,151 in 2004, approximately \$8,600 per capita over the ten-year period, reflecting an average annual growth rate of 4.66 percent, compared to the national average annual growth rate of 4.63 percent. Manufacturing remains Kentucky's largest industrial sector with 19.8 percent of Kentucky's gross state product in 2004, although this sector has declined from 27.8 percent in 1997 as a percentage of Kentucky's economy.



Considering Kentucky's geographic location as a crossroads state, its natural features, human resources, and existing infrastructure, it is clear that an efficient, interconnected transportation system is key to its economic prosperity, and enabling the state to fully capitalize on the New Economy of the 21<sup>st</sup> Century. The state has taken many positive steps to help realize this full potential, but there are some challenges that must be overcome in order to increase its ability to compete in the national and global economies.

Kentucky's interstate highway and parkway systems, rail network, airports, and riverports provide the primary infrastructure for long-distance movement of goods from New Orleans to Florida, to the northeast and Canada, and from the eastern seaboard to the western United States and Mexico. Strategic investments to expand today's transportation system and improve access to and from riverports, airports, rail facilities, intermodal facilities, major freight distribution points, and military installations will only provide for increased freight movement and strengthen Kentucky's economy, creating more jobs for Kentucky's residents in the future.

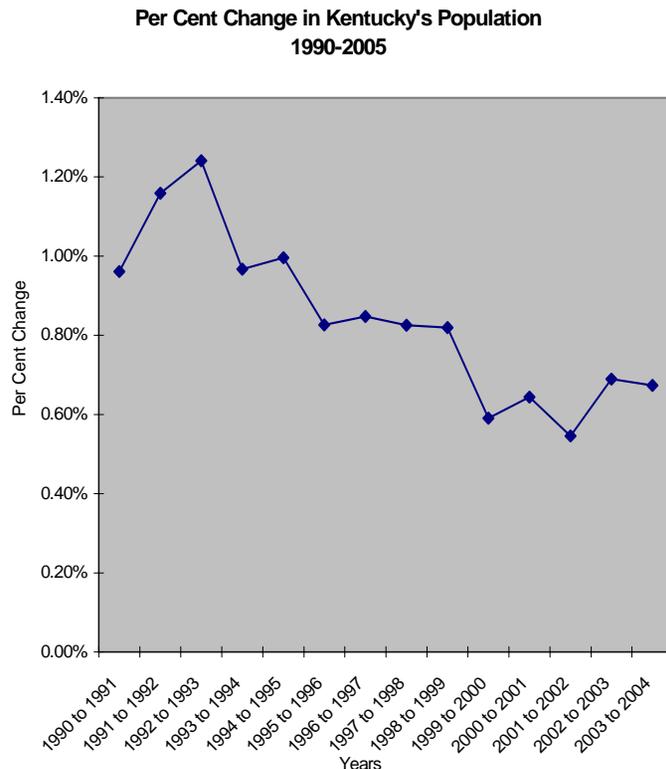
# Assessment of Current Conditions

“Who and what we are....”

## “Who we are”

### Population

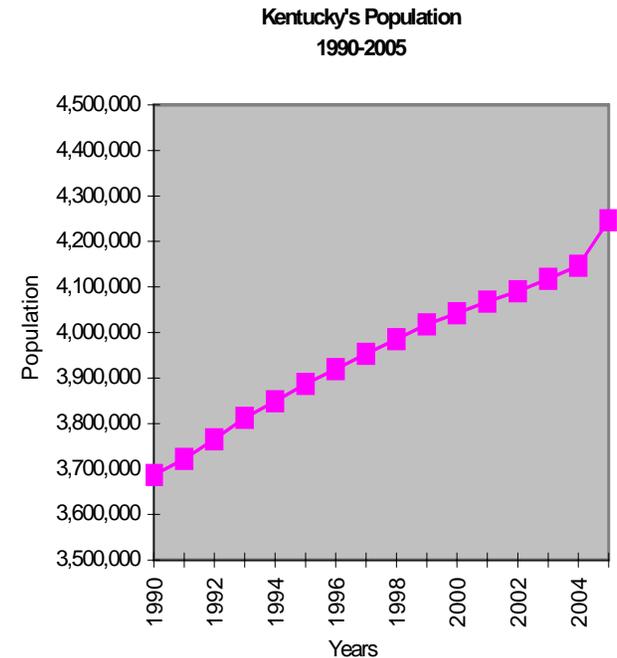
Kentucky’s 2005 population estimate of 4,173,405 reflects an average increase of 0.65 percent per year from the 2000 census. This average annual increase is down slightly from the 0.77 percent increase in the previous four years and down substantially from the 1.02 percent average annual increase seen through the 1990s (1990 – 1996). These figures reflect a pattern of Kentucky’s population increasing slightly each year, although at a much slower pace since 2000 than seen in the early 1990s.



Source: US Dept. of Commerce Bureau of the Census

Several Northern Kentucky counties continue to show significant increases. Boone, Grant, Gallatin and Spencer counties have all seen population increases of at least 42 percent from 1990 – 2000.

However, seven Kentucky rural counties located in eastern Kentucky along the Virginia State line (Pike, Leslie, Letcher and Harlan Counties) and Hickman, Fulton and Union counties in western Kentucky continued to experience decreases in population of at least five percent from 1990 to 2000.

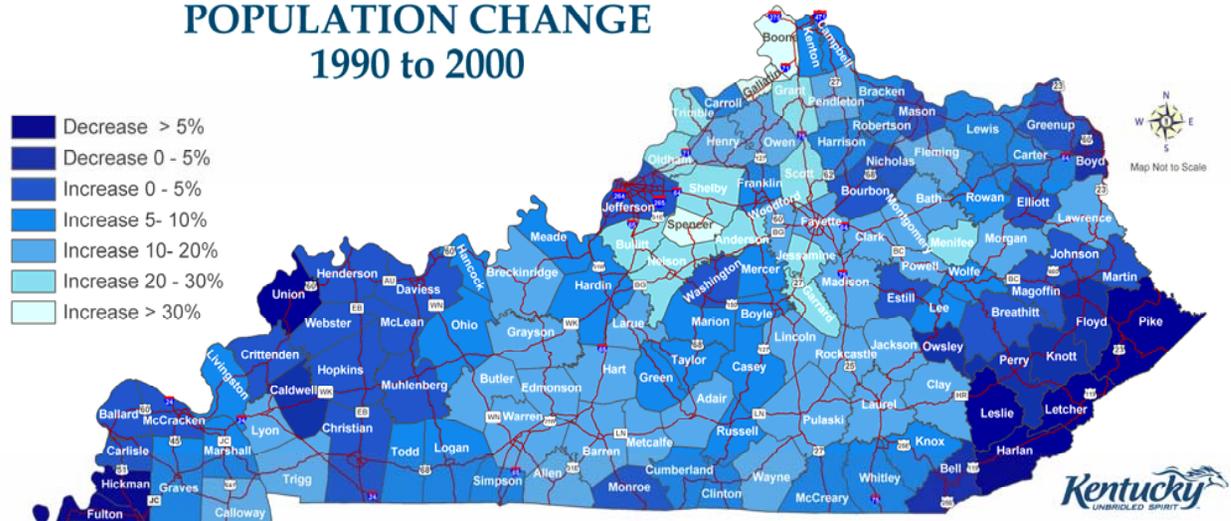


Source: US Dept of Commerce Bureau of the Census

Population projections for Kentucky show a projected increase of 17.92 percent over a twenty-five year period from 2005 through 2030, or an average annual increase of approximately 0.72 percent. The national average growth rate is predicted to be 1.31 percent per year through this same period.

More than one-fourth (26.7%) of the state's population lives in Kentucky's larger cities, with Kentucky's "top ten" cities ranging in population from 26,349 to 556,429.

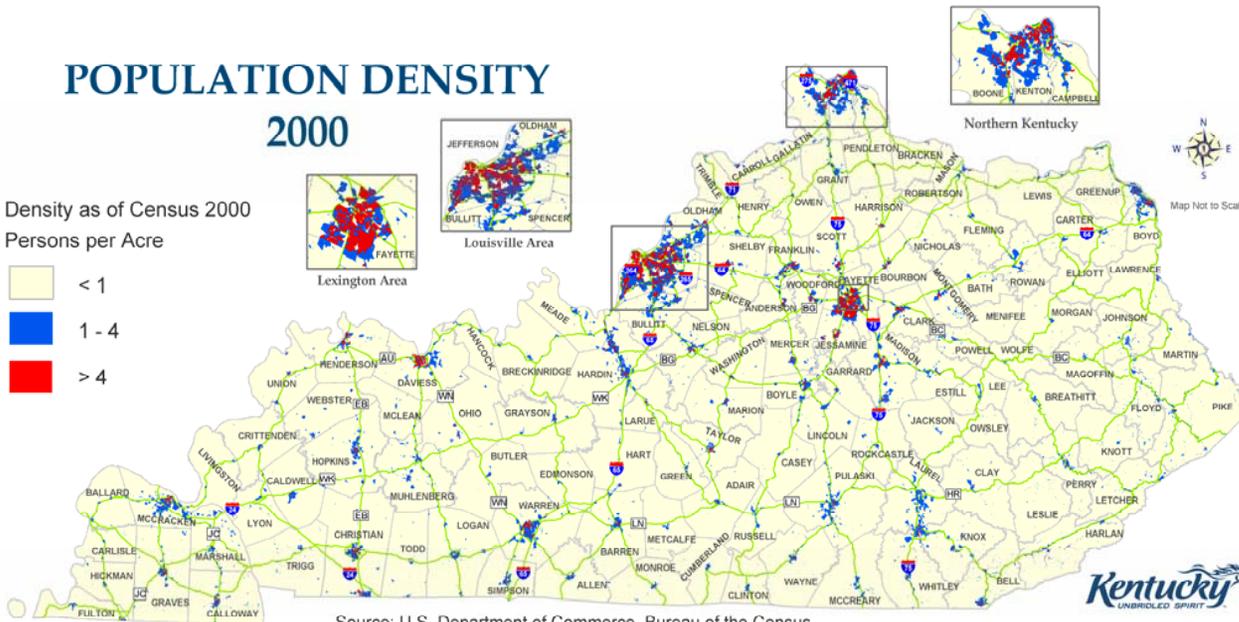
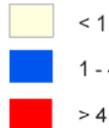
## POPULATION CHANGE 1990 to 2000



Source: U.S. Department of Commerce, Bureau of the Census

## POPULATION DENSITY 2000

Density as of Census 2000  
Persons per Acre



Source: U.S. Department of Commerce, Bureau of the Census

In January 2003, the City of Louisville and Jefferson County merged, resulting in a population of 556,429 for Kentucky's largest city.

However, unlike the nation as a whole, Kentucky remains a relatively rural state. Nationally, only one quarter of the population lives in rural areas. In Kentucky, over 44 percent of the population lives in the rural areas.

### Industry and Freight Movement

Until the 20<sup>th</sup> century, farming was the main source of income in Kentucky. As the 1990s began, manufacturing became Kentucky's dominant economic activity. Although Kentucky experienced some significant losses between 2003 and 2006, the manufacturing industry has remained the top industry in earnings. Following it are the fast-growing government sector and the wholesale and retail trade industry. The largest Kentucky employment sector is the trade, transportation and utilities sector.

The principal manufacturing employers in Kentucky continue to include transportation equipment, motor vehicle parts, food and machinery in that order for a civilian work force of almost two million people. United Parcel Service, Inc. expanded its freight hub in Louisville during 2005, making UPS the largest employer in the state, with the Ford Motor Company as the second largest employer, followed by the Toyota Motor Corporation, Humana, Inc., General Electric Company, and Delta Air Lines, Inc.



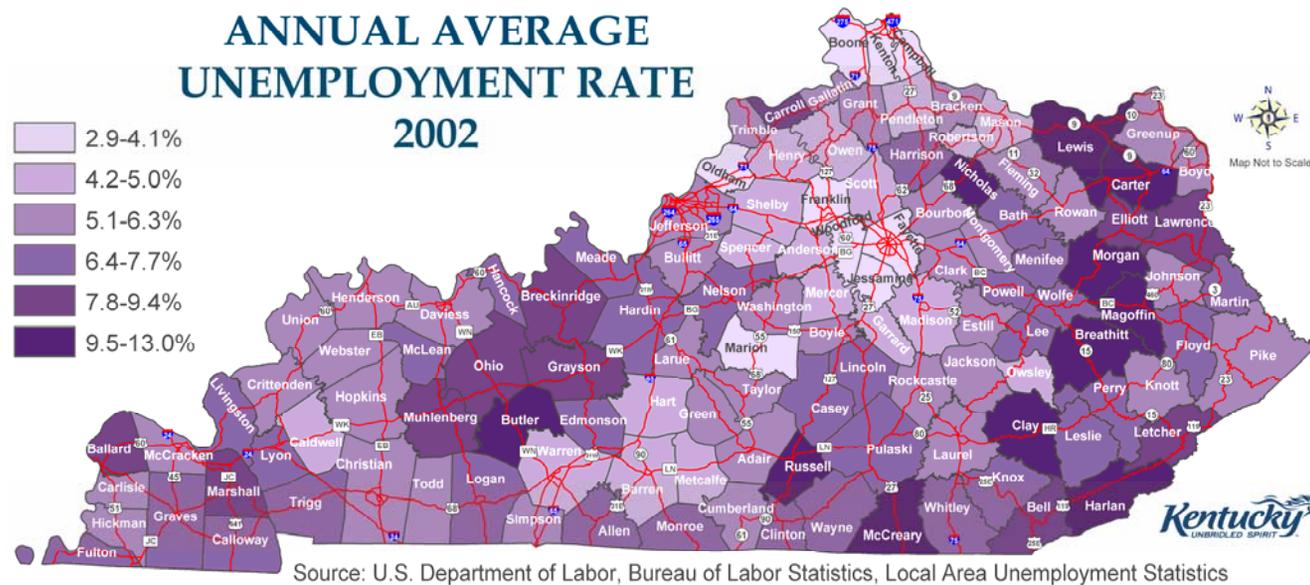
The top five commodity groups, in value, shipped to, from, and within Kentucky are transportation equipment, secondary traffic (freight flows to/from distribution centers or through intermodal facilities), mail/contract traffic (U.S. mail or other small packages), chemicals or allied products, and machinery. The top commodities shipped, in tonnage, were coal, nonmetallic minerals, secondary traffic, clay/concrete/glass/stone, and farm products.



The Commonwealth's geographically strategic position has enabled it to become a major participant in the automobile assembly and parts supply industry. Transportation equipment ranked as Kentucky's top export in 2005, representing approximately 37.9 percent of Kentucky's total exports. Kentucky led the nation in 2005 in turbojet and turbopropeller parts exports, followed by chemicals, machinery, and computer and electronic products.

North America, Western Europe, China, Taiwan, and Japan continued to be the major markets for Kentucky products in the global economy.

Kentucky’s unemployment rate was 6.1 percent in 2005, compared to the national rate of 5.1 percent in that same year. The counties in rural eastern Kentucky continue to consistently have the highest unemployment rates. While many Kentucky counties have unemployment rates which are equal to the national rate of 5.1 percent or within a half percent of the national rate, there are several rural Kentucky counties located primarily in eastern or southern Kentucky, along with a few rural counties just west of I-65, with unemployment rates of 10 to 14.4 percent, illustrating the lack of industry and access to the larger urban centers. However, central and northern Kentucky continues to thrive with extremely low unemployment rates of only four to five percent.

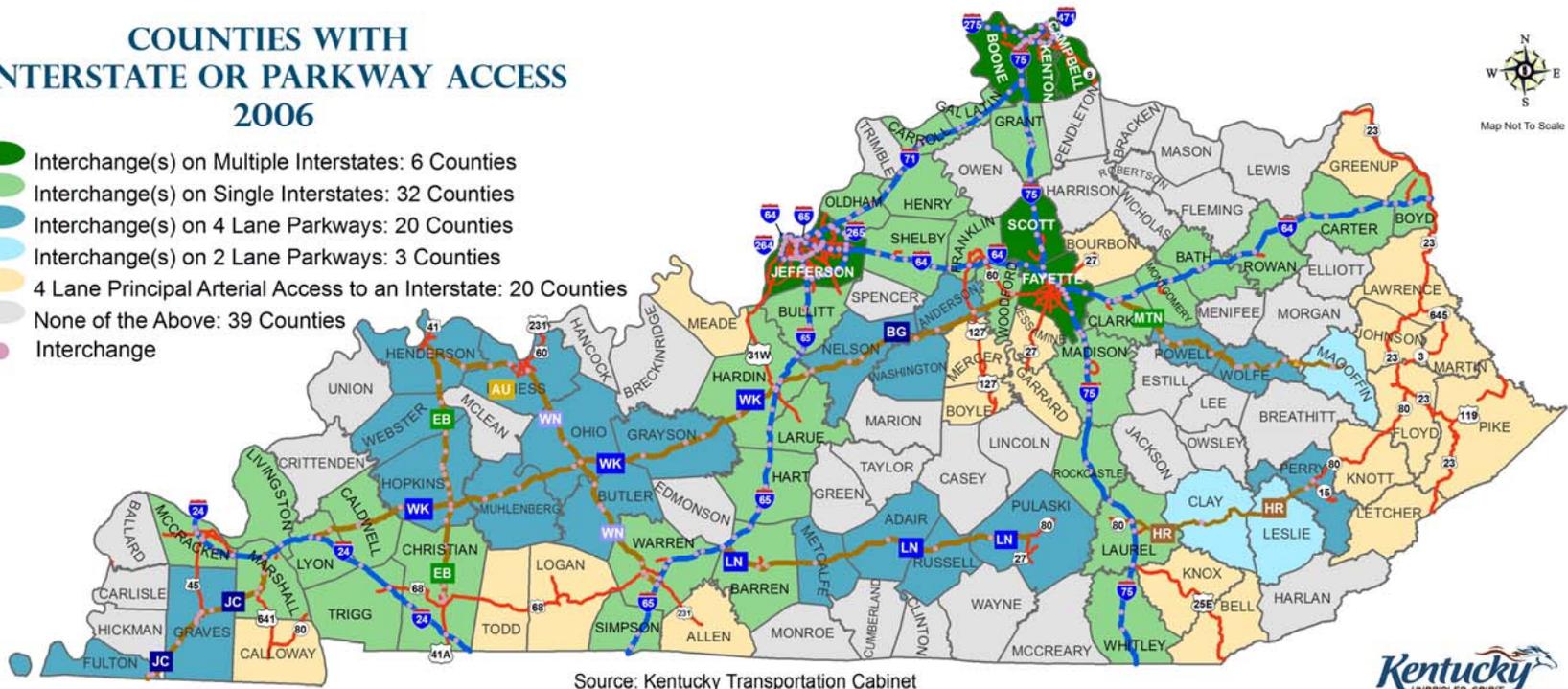


Approximately 70 counties in Kentucky have a minimum of 50 acres of industry-ready sites available for manufacturing and industry. “Industry-ready” means sites with utilities and roadways in place and ready for immediate construction or occupation of speculation sites. Kentucky also has a program for establishing Regional Industrial Parks in rural areas, which is a cooperative venture between several counties. To date, six regional parks have been created. It is hoped that providing better opportunities for economic growth in the rural areas of Kentucky will help encourage industry to locate in these more rural areas with higher unemployment.

A strong civilian work force combined with available industrial sites, a strategic highway network, and an intermodal transportation system providing good access, all combine to make Kentucky attractive to industries seeking new locations. Our location within 600 miles of two-thirds of the nation's population, and our ranking as the fourth most favorable state nationally for our low cost of doing business and the lowest overall cost of doing business east of the Mississippi River, make Kentucky an excellent choice for locating new business. Kentucky is in a perfect position, geographically, economically, and logistically to attract new and expanding business and industry.

### COUNTIES WITH INTERSTATE OR PARKWAY ACCESS 2006

- Interchange(s) on Multiple Interstates: 6 Counties
- Interchange(s) on Single Interstates: 32 Counties
- Interchange(s) on 4 Lane Parkways: 20 Counties
- Interchange(s) on 2 Lane Parkways: 3 Counties
- 4 Lane Principal Arterial Access to an Interstate: 20 Counties
- None of the Above: 39 Counties
- Interchange



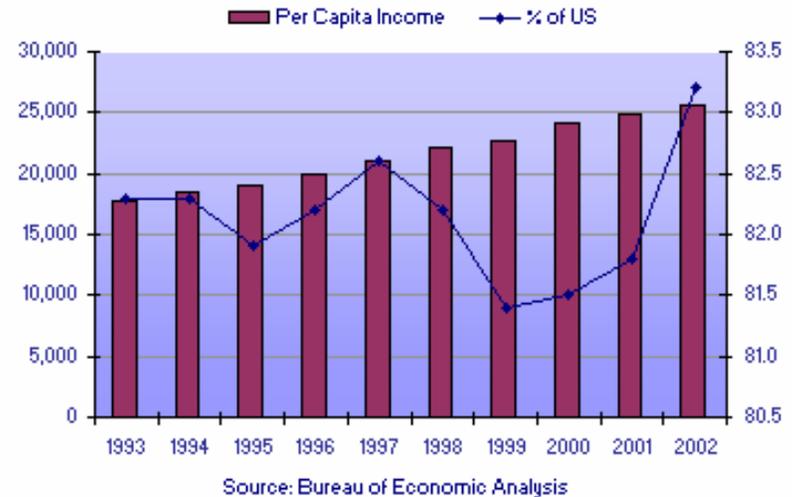
However, while Kentucky's major highway network does provide good access to the major population and economic centers in the state, Kentucky still has 39 counties that do not have an interstate or parkway located within their county, nor do they have four-lane arterial access to an interstate or parkway. To remain economically competitive, Kentucky will need to continue development of an effective transportation network providing good access for moving freight and people to and from these locations.

**Income**

Kentucky’s median household income in 2004 was \$35,269, almost 79 percent of the median household income of \$44,684 for the United States. In 2005 Kentucky had a per capita personal income of \$28,317, which was 82 percent of the U.S. per capita income of \$34,495, ranking Kentucky 43rd in the nation in 2005 as compared to 44<sup>th</sup> in 1990. However the growth rate for the ten-year period of 1995-2005 reflects a 4.1 percent increase for Kentucky, mirroring the average annual growth rate for the nation of 4.1 percent. The urban counties of Jefferson and Oldham (Louisville area), Fayette and Woodford (Lexington area), and rural Hickman County in Western Kentucky continue to have the highest per capita income in Kentucky and remain the only counties in Kentucky to exceed the national average. Fayette and Woodford Counties also contain many of the state’s horse farms, influencing the per capita rate.

The lowest incomes have historically been concentrated in the eastern Appalachian area, where seven counties did not reach half of the national per capita figure in 2002. Kentucky’s poverty rate was 17.7 percent in 2004, compared to the United States poverty rate of 12.7 percent for that same year. While Kentucky’s poverty rate grew substantially from 14.3 percent in 2002 to 17.7 percent in 2004, the rate was still down from the 19.0 percent rate in 1989. A three-year average poverty rate for Kentucky for the years of 2001-2003 was 13.7 percent, as compared to the United States average rate of 12.1 percent, ranking Kentucky with the 16<sup>th</sup> highest poverty rate in the nation over this period. The economic downturn that began in early 2000 has been spurred by a steady decline in manufacturing jobs. People have found other work, but their new jobs often pay much less than their previous manufacturing jobs.

**Kentucky Per Capita Income, Percent of US**



**Minorities and Underserved Areas**

Kentucky’s minority population in 2005 was 9.6 percent, up from 8.5 percent of the total state population in 1990. “Minorities” in this document have been defined in the same manner as the U.S. Census Bureau and the FHWA Order dated December 2, 1988, as including the following races: Black, Asian American, American Indian, Alaskan Native

and Hispanic. Kentucky is striving to reach the underserved populations of the Commonwealth through outreach methods to identify needs and by studying routes which would provide greater access and connectivity for the minority and low income areas of the state. Kentucky also considers the needs of the traditionally underserved populations, including minorities and low-income populations, when planning for the best route alternatives and options for Kentucky’s roadway projects.

There are several major economic incentive programs in Kentucky and opportunities for foreign trade zone operations that merit special consideration for future transportation improvements: the federal Empowerment Program, the Kentucky Enterprise Zone Program, and the Appalachian Development Highway System (ADHS). The Empowerment Zone initiative is a federal government program to enable the self-revitalization and growth of distressed urban and rural areas and includes Clinton and Jackson Counties, and part of Wayne County in Kentucky. Businesses that qualify and operate in the Empowerment Zone are eligible for federal support which include tax incentives and employer wage credit.



Source: Kentucky Cabinet for Economic Development

The Kentucky Enterprise Zone Program, created by the General Assembly in 1982, targets areas in the state which meet the following requirements: average unemployment rate is at least 1.5 times the national average for 18 months;

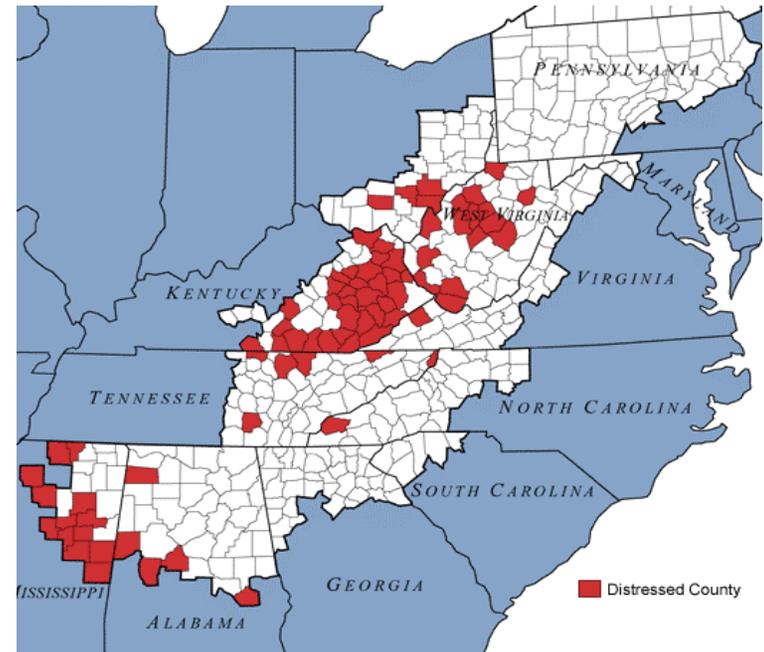
70 percent of its residents have incomes below 80 percent of the area’s median income; and experienced a population decline of ten percent or more between 1980 and 1990. The Enterprise Zone Program provides tax incentives to stimulate business and industrial growth in economically distressed areas. Some additional regulations are eased which encourage the development of the area for a period of up to 20 years after the date of designation. Kentucky has identified ten cities and communities as state enterprise zones since 1983. The state’s four largest cities have had areas designated as “enterprise zones” in the past – Louisville, Lexington, Owensboro, and Covington. The six designated zones at this time include: Knox County (Eastern Kentucky), Paducah and Hopkinsville (Western Kentucky), Campbell County (Northern Kentucky), Lexington (Central Kentucky), and Owensboro (Northwestern Kentucky).

In Kentucky, 49 of its 120 counties are located within the Appalachian Region, with 32 of those counties identified as “Distressed Counties” by the Appalachian Regional Commission for 2006. To be designated as a “distressed county”, the county must meet the following guidelines: 150 percent of the U.S. unemployment rate, 150 percent of the US poverty rate, and less than 67 percent of the US per capita market income.

Kentucky has 426.3 miles designated as the Appalachian Development Highway System (ADHS) which was designed to generate economic development in previously isolated areas, supplement the interstate system, connect Appalachia to the interstate system and provide access to areas within the region as well as to other markets in the nation.

Of the 426.3 miles eligible for ADHS funding, 387.91 miles have been completed, 14.2 miles are under construction and 24.19 miles are in the design phase. The Kentucky routes included in this system which are not complete at this time are US 119 in Pike County, US 460 in Pike County and US 119 in Letcher County. The estimated cost to complete these sections of the ADHS is approximately \$882 million.

The transportation system for tomorrow is based on the structure, conditions, and habits of the past. Considering that corporate executives list highway, major market and major airport accessibility as the top three site selection factors, it is obvious that transportation will be a major component in Kentucky’s future economic development.



## “What we are - Our Transportation System”

### Highways

Kentucky’s highway system is composed of over 78,000 miles of public roads and streets, including nine interstate highways and nine state parkways. The State maintains about 35 percent of the total highway system in Kentucky, over 27,500 miles or 60,781 lane miles. The Commonwealth of Kentucky also has over 13,500 bridges, of which approximately 9,000 are state-maintained.



<u>State Primary Road System</u>	<u>Miles</u>	<u>% Miles</u>	<u>% Traffic</u>
Interstates	762	2.8	31.2
Parkways	648	2.4	5.1
Primary Roads	3,567	13.0	11.1
State Secondary Roads	7,654	27.9	26.8
Rural Secondary Roads	12,844	46.8	8.5
Supplemental Roads	1,979	7.2	1.4

Note: Miles/percentages represent state-maintained roads only



Kentucky has 2,870 miles on the National Highway System. Kentucky’s interstates total 3,550 lane miles over which 31.2 percent of all traffic in Kentucky travels. Over 46.8 billion vehicle miles are traveled annually on Kentucky’s public highways with approximately 40.8 billion vehicle miles on the state-maintained system.

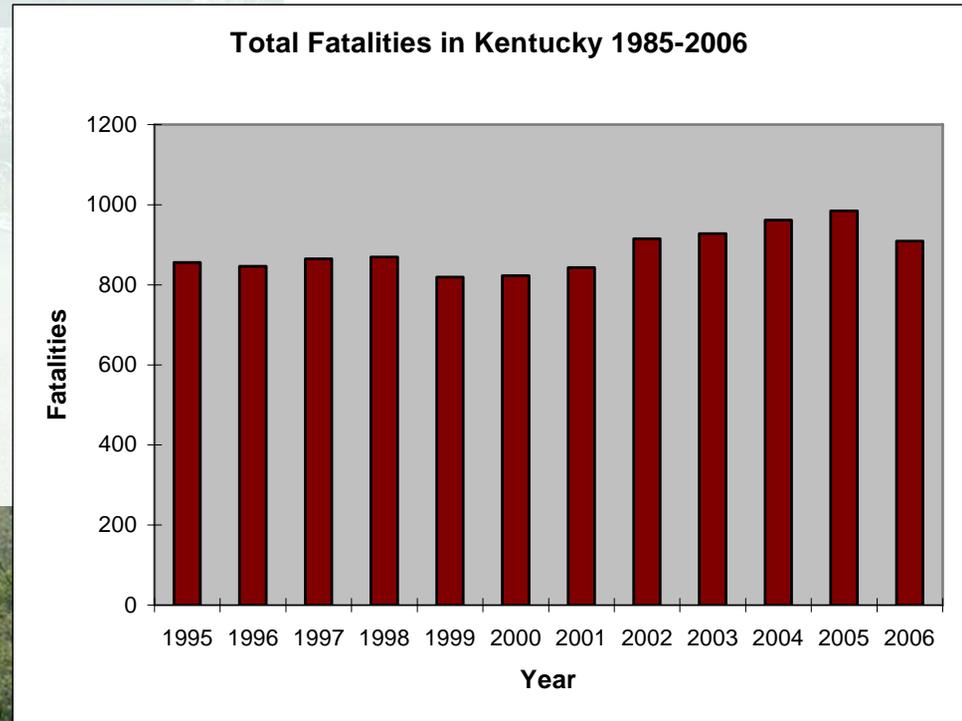
In addition, over 42,000 freight carriers are authorized to operate on Kentucky’s highways.



Safety

In 2004 there were 964 fatalities on the state's highways – one every 9 hours. In 2005 the number of fatalities on Kentucky's highways rose by 2.2 percent to 985. However that number fell to 909 in 2006.

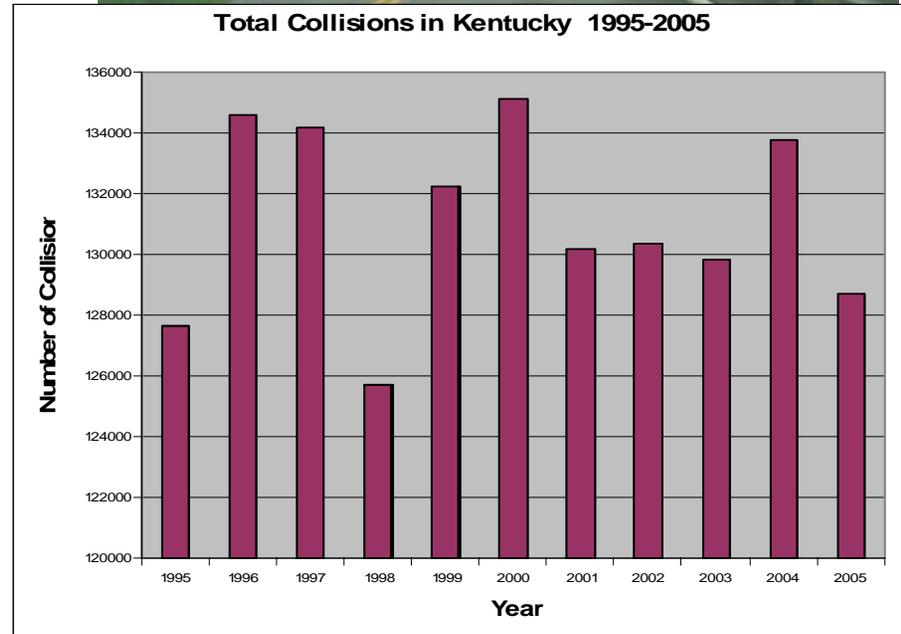
Kentucky has a large number of traffic crashes due in part to the fact that it has nearly 6,000 miles of state roadways with narrow lane widths or shoulders, or both, mostly in rural areas of the state. Sixty percent of Kentucky's major roads, excluding interstates, have a lane width of 10 feet or less – the third highest percentage in the nation, behind only Virginia and West Virginia.



Source: KYTC Division of Traffic Operations

More than half (58 percent) of Kentucky's traffic fatalities in 2005 occurred on rural roads. Over 40 percent of highway fatalities resulted from collisions with fixed objects along narrow roadways. Kentucky can significantly reduce these numbers by working to widen these narrow roads and shoulders

The KYTC, however, is taking a proactive approach through “safety conscious planning” efforts to integrate safety issues into every phase of transportation planning and the development of projects to address our needs. In addition, Kentucky has established the Governor’s Committee on Highway Safety to address Kentucky’s safety needs. Through the efforts of this statewide committee and KYTC’s Department of Transportation Safety, the first strategic highway safety plan, *Kentucky’s Roadmap to Safer Highways* was developed in 2006. This plan serves as a guide for increasing coordination, communication and cooperation among state, federal and local agencies, non-profit organizations and other highway safety advocates.



Source: KYTC Division of Traffic Operations

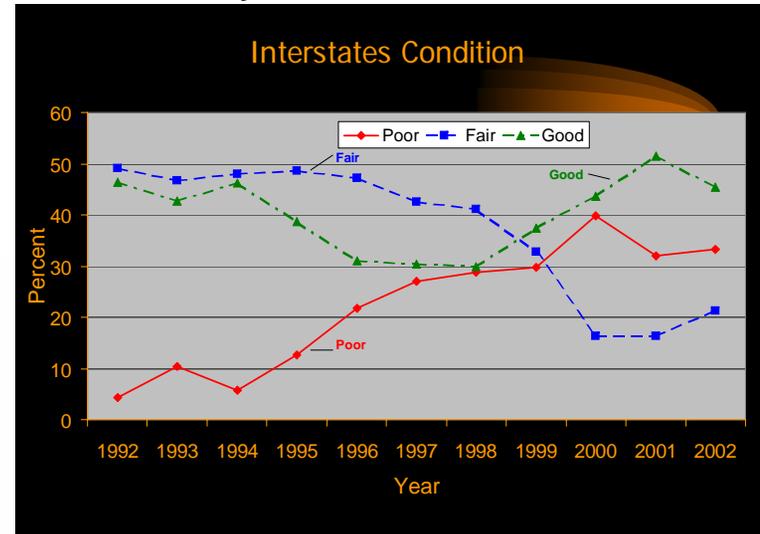
The plan sets out strategies to achieve a goal of reducing annual highway fatalities to no more than 700 by the end of 2008 and includes the following emphasis areas: impaired driving, young drivers, occupant protection, incident management, commercial vehicle safety traffic records, and legislative issues.

Pavement:

Pavements in Kentucky are deteriorating due to KYTC’s inability to sustain a funding level sufficient to maintain its pavements. Thirty-three percent of Kentucky’s interstate highway pavements and 47 percent of parkway pavements are in poor condition and need repair. Ten years ago, about ten percent of interstate pavements and less than five percent of parkway pavements were rated poor. For all other Kentucky highway systems, the ride quality had improved through 1991, and then remained essentially unchanged through 1997. After 1997, rideability for these systems began to decrease. Driving on bad roads costs Kentucky residents an average of \$198 per person per year in additional operating and repair costs. Poor pavements also increase congestion and decrease safety on our roads.

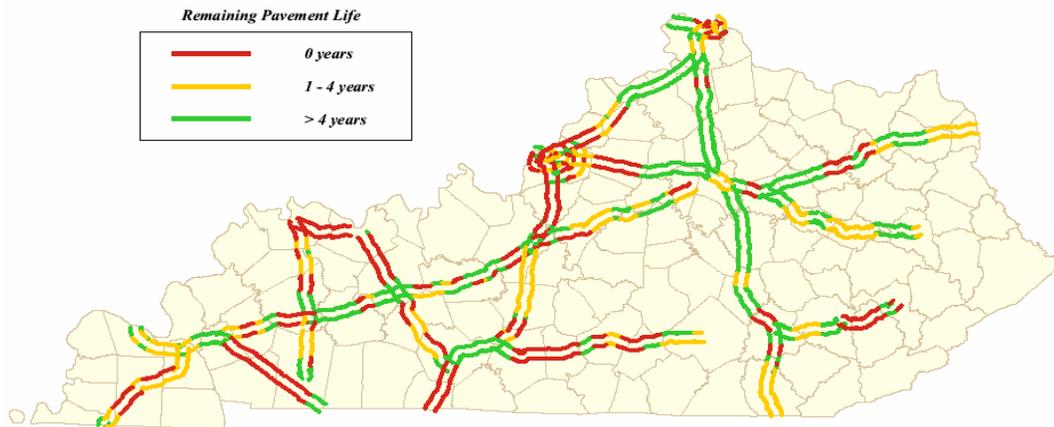
This graph shows that the percentage of interstates with pavement in “good” condition had increased steadily from around 1997 through 2001, after which the percentage began to decline. However the percentage of interstates with pavement in “poor” condition has increased fairly consistently since 1992.

**Kentucky Interstate Pavement Condition**



Source: KYTC Division of Operations

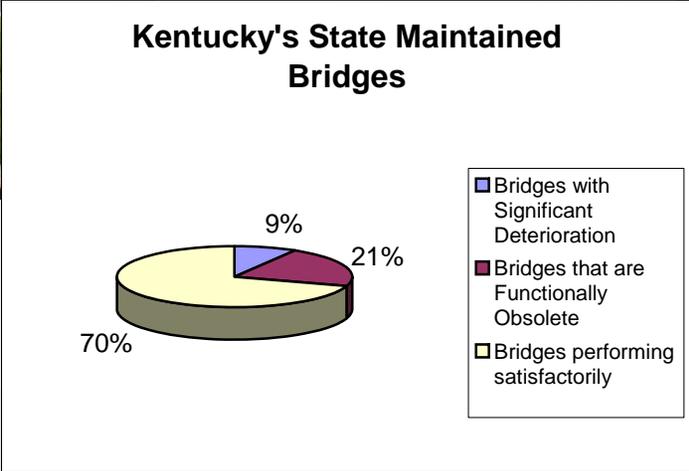
**Pavement Conditions  
Kentucky Interstates and Parkways**



This map illustrates the number of interstates and parkways whose remaining pavement life is less than four years and the large number of segments where the pavement condition has deteriorated to the point of no remaining pavement life at all.

Bridges:

Like many states, a large number of the bridges in Kentucky were constructed during the interstate construction boom of the 1950s and 1960s. With a typical life span of 50 years for a bridge, many of these bridges are reaching the end of their estimated life. Data shows that nearly one-third of all bridges in Kentucky need repair or replacement. Almost 30 percent (1,200) of these bridges show “significant” deterioration and are either closed or have posted reduced weight limits.



KYTC maintains approximately 9,000 of the 13,500 bridges in the state.

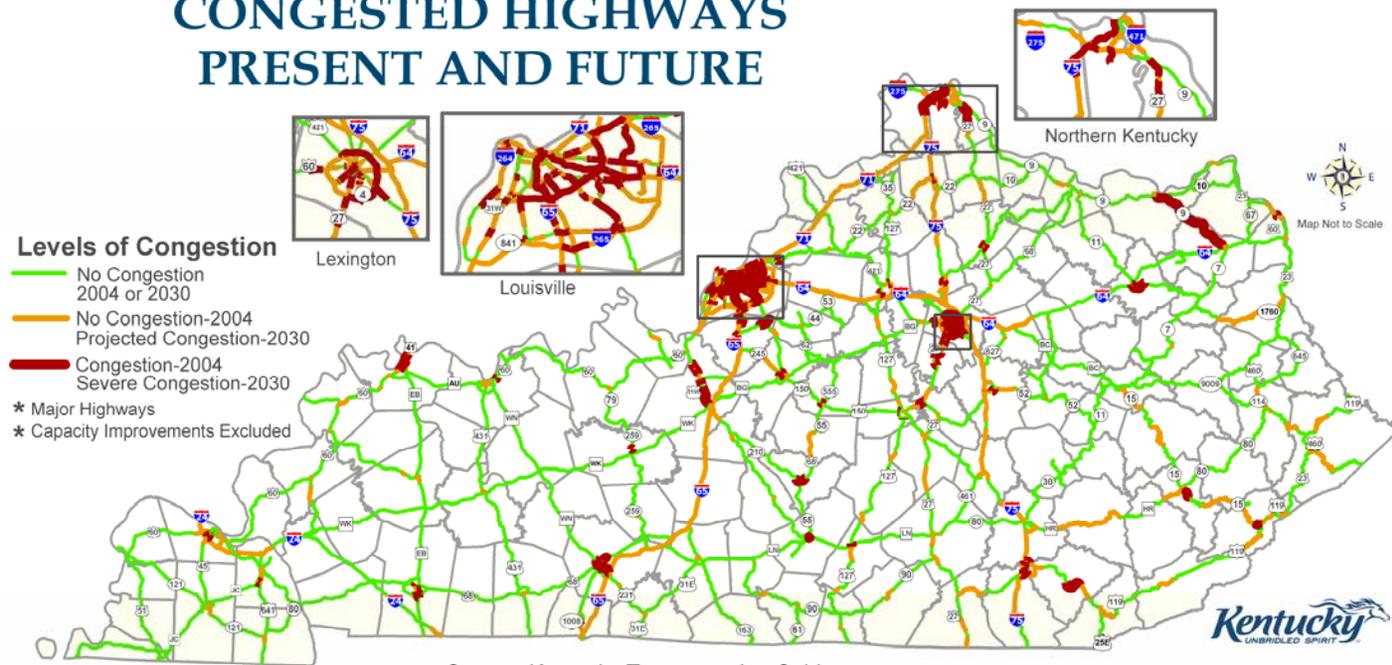


According to the KYTC inventory data and as shown in the pie chart, about 70 percent of the state-maintained bridges are performing the function they were designed to fulfill. However 21 percent of the state-maintained bridges are functionally obsolete and nine percent of the state-maintained bridges have significant deterioration.

Congestion

Traffic congestion in Kentucky is also on the rise. Vehicle miles traveled increased 18.26 percent over the ten-year period from 1993 to 2003. The average commute in Kentucky took 23.5 minutes in 2000, up from 20.7 minutes in 1990. The 2000 U.S. Census showed that over 28.9 percent of Kentucky’s workers, who work outside of the home, traveled 30 minutes or more to work daily.

## CONGESTED HIGHWAYS PRESENT AND FUTURE



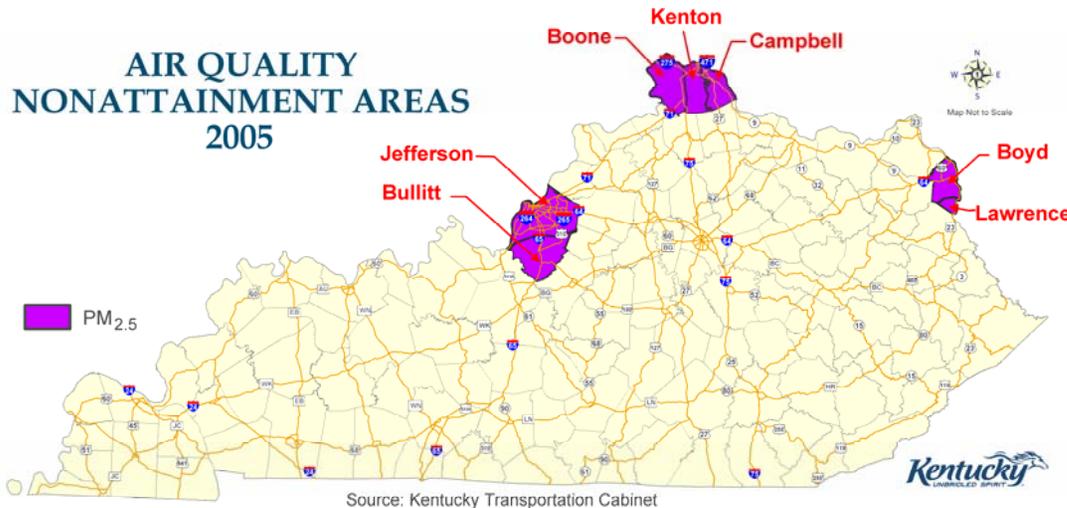
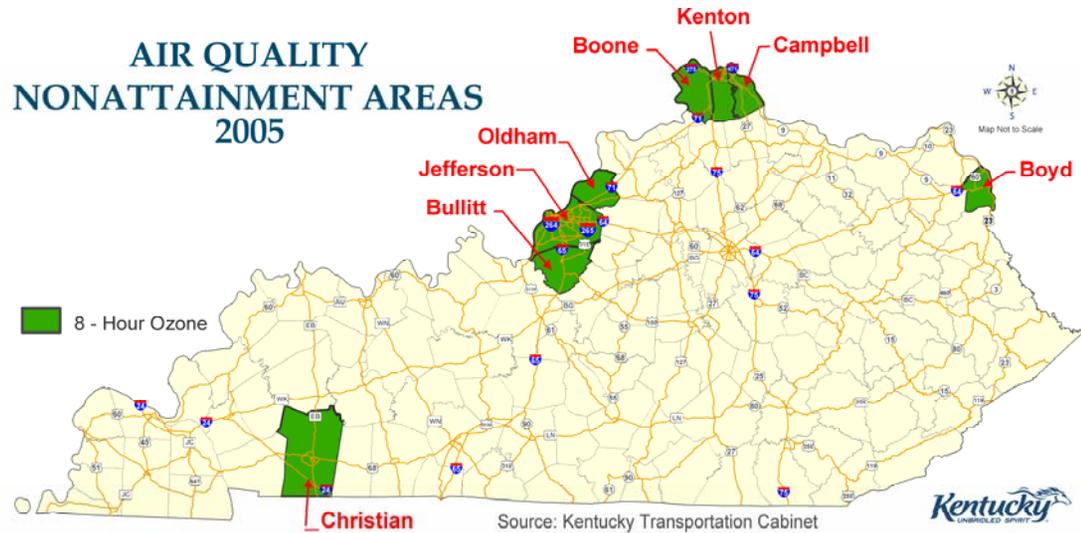
Source: Kentucky Transportation Cabinet

Congestion costs drivers millions of dollars in delays and operating costs and also increases the likelihood of traffic accidents. If traffic continues to increase at the current rate, projections show that most of Kentucky’s interstate system and other major highways in the urban areas will become severely congested over the next twenty-five years, increasing delays, decreasing safety, and possibly affecting the air quality in the urban areas.

Air Quality

Although Kentucky is largely a rural state, air quality is still a major concern. The Kentucky counties which are classified as “nonattainment” or “nonattainment with a maintenance plan” for air quality according to the National Ambient Air Quality Standards (NAAQS) are shown on these maps. The remainder of the commonwealth is in attainment for present air quality standards.

Kentucky has three urban areas which do not meet the minimum standards for the 8-hour ozone standard or the fine particulate matter (PM2.5) standard: Ashland (Boyd), Northern Kentucky (Boone, Kenton and Campbell), and Louisville (Bullitt, Jefferson and Oldham). In addition, Christian County in southwestern Kentucky has been classified as nonattainment for the 8-hour ozone standard, but has recently been redesignated as attainment with a maintenance plan.



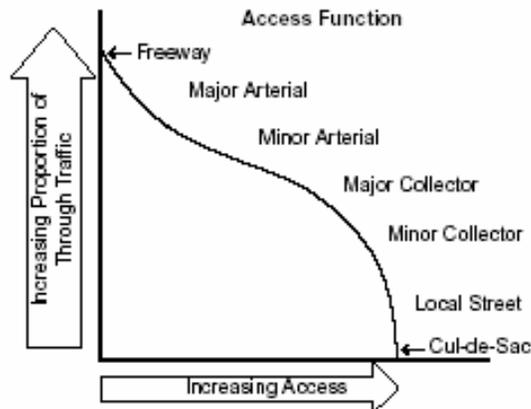
Kentucky is particularly concerned about the air quality in the Northern Kentucky counties and the Jefferson/Bullitt County area where congestion on major interstates is projected to become severe over the next twenty-five years.

These areas are required to comply with transportation conformity regulations for a minimum ten-year period, but are also eligible for Congestion Mitigation and Air Quality Improvement funds (CMAQ).

Access Management

Kentucky recognizes that there is a growing awareness that capital improvements alone are not enough to solve traffic congestion and safety problems. As a result, Kentucky continues to look for better, more efficient ways to build and manage the existing highway system to achieve maximum performance. Access management is one of the most effective strategies to preserve the safety and efficiency of Kentucky’s roadways.

Kentucky is working to form an access management program that includes roadway design applications, permitting standards and procedures to best provide vehicular access to land development. These measures will allow for the systematic control of the location, spacing, design and operation of driveways, traffic signals, median treatments, median openings, interchanges, and street connections to a roadway.

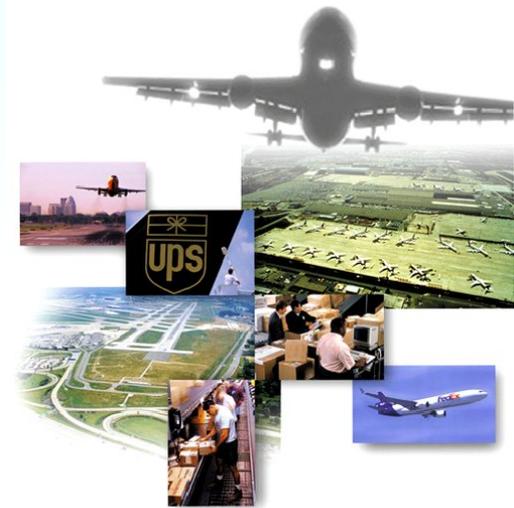


In the access management program, roadways are classified by function and roadway characteristics such as traffic volume, speed and the environment. Standards are assigned on the basis of the priority given to land access versus through-traffic movement (see figure). Access management is particularly important along arterials and other primary roads that are expected to provide safe and efficient movement of traffic, as well as access to property. However, it is still necessary on lower-functioning roadways such as minor collectors and local streets, where much of the responsibility lies with local governments, to address the numerous safety considerations.

**Air Transportation**

Kentucky has five major air carrier airports providing scheduled passenger and freight service, including two International Airports, located at Erlanger (Northern Kentucky) and Louisville. Fifty-five regional or city airports are located throughout the state providing commuter, private passenger and cargo services. Approximately 21 million passengers and over 4.5 billion pounds of freight are handled annually through Kentucky’s airports.

Kentucky also has two airports which serve major hub operations including Comair and Delta at the Northern Kentucky International Airport and United Parcel Service (UPS) operating its major international hub at the Louisville International Airport. Louisville International-Standiford Field was ranked as having the third largest amount of cargo (domestic and foreign) landing by aircraft dedicated to freight transportation in 2006. The annual service volumes of the major air carrier airports are indicated below.



Annual Service Volumes of Major Commercial Airports		
Airport	Number of Passengers (2006)	Pounds of Freight Handled (2006)
Cincinnati/No. Ky. International	16,245,000	95,456,000
Louisville	3,663,000	4,372,564,000
Lexington	1,025,600	500,780
Paducah	52,848	41,919
Owensboro	9,312	NA

Source: Kentucky Department of Aviation

Kentucky's airport needs at this time total approximately \$200 million, including airport construction projects and operational enhancements. Improvements at the major commercial airports are not included in this total since such improvements would be dependent upon major discretionary funding. Kentucky funds the aviation program with up to \$10 million annually from the Kentucky Airport Development Fund (KADF), whose revenues are derived from a portion of the sales tax levied on the sale of jet fuel. These funds are used primarily to match Federal Aviation Administration (FAA) funds.

Aviation projects are selected based on the following priorities:

- ✈ Match federal grants
- ✈ Enhance safety
- ✈ Meet legislative mandates
- ✈ Promote economic development
- ✈ Other

During 1998, Kentucky completed its last major update to the Kentucky Aviation System Plan (KASP), which is incorporated in this Plan by reference.



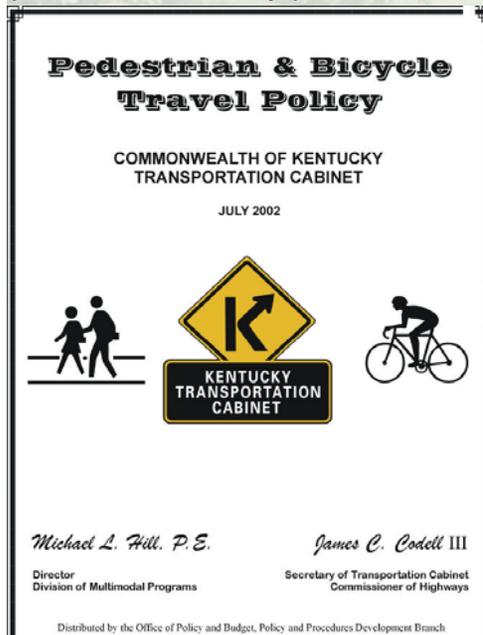
The KASP provides a guide for developing, maintaining, and promoting airports in Kentucky, with an emphasis on General Aviation Airports. The Plan, which recommends airport development projects over a 20-year planning period, is not scheduled for update at this time, but is typically updated on a ten-year cycle

**Bikeways and Pedways**

The bicycle and pedestrian transportation systems are concentrated largely in Kentucky’s metropolitan areas, although this system is expanding into Kentucky’s rural and recreational regions as well. The bicycle transportation system is composed of shared roadways (bicycle and motorized vehicles share the roadways), bicycle lanes (a part of the roadway) or multiuse paths (bicycle and pedestrian), and bicycle paths (separated from the roadway). Kentucky has designated a series of statewide bicycle routes, which are mapped and also provide guidance for bicycle travel. Most of the metropolitan areas in Kentucky also have their own bicycle plans, as do many regional and local planning agencies.



The KYTC also has designated a full-time Pedestrian and Bikeway Coordinator to coordinate and ensure that all pedestrian/bikeway policies are implemented and updated.



Kentucky developed and adopted a Pedestrian and Bicycle Travel Policy in 2002 which provides policy and guidelines for incorporating pedestrian and bicycle facilities on all new or reconstructed state-maintained roadways and also requires accommodating bicycle and pedestrian transportation when planning the resurfacing of roadways, including shoulders. Kentucky plans to update this policy plan during 2007.



The Pedestrian and Bicycle Travel Policy Plan has been incorporated into this document by reference.

***Public Transportation***

Kentucky has 21 rural public transportation services located throughout the state and eight city bus/transit systems. Kentucky's urban bus systems provide service for approximately 21 million urban transportation passengers annually.

Since 1999, Kentucky has implemented a regional coordinated human service delivery program in an effort to coordinate the funding and the services for the various human service transportation systems throughout the state. The coordinated transportation delivery program consists of 15 service regions, providing transportation services for all 120 counties. Kentucky's regional coordinated transportation system provided over 2.6 million trips in 2006 for the purpose of non-emergency medical transportation, including providing transportation services for almost three million elderly and handicapped passengers annually.



***Railways***

Rail service in Kentucky is provided through 2,790 miles of railroad track, including 2,262 miles of Class 1 track. Four major, one regional, and nine short line railroads operate in Kentucky, including CSX, Norfolk Southern, Canadian National Railway Company, and the Paducah and Louisville Railway.

Kentucky is home to six intermodal facilities. The rail industry in Kentucky transported 283 million tons of cargo in 2004. In 2005, over 7,000 passengers passed through Kentucky's four Amtrak stations, located at Ashland, Maysville, South Shore and Fulton.

In 2002 the Kentucky Transportation Cabinet updated the Kentucky Statewide Rail Plan (KSRP), which is incorporated into this Plan by reference. The KSRP identified system-wide strategies and policies, developed specific goals and objectives for this system, and provided a vehicle to identify future rail issues to meet Federal Railroad Administration requirements for federal funding, as it may become available.

The goals established through the preparation of this Rail Plan are as follows:

- Preserve the existing rail system to the extent the Kentucky Transportation Cabinet can influence the largely privately owned and operated Kentucky Rail System.
- Support economic development by providing Kentucky's rail system connectivity to the national rail system and Kentucky's transportation system.
- Strengthen customer relationships with the rail industry through coordination and cooperation in the transportation planning process.
- Enhance rail transportation safety and convenience to ensure mobility and access.

Kentucky does not currently have a source of funding to implement specific rail improvement projects. However, the specific action plan identified for each of the above goals does provide long-range direction for policy and program activities for rail transportation in Kentucky.

### **Waterways**

There are more miles of navigable inland waterways in Kentucky than in any of the contiguous states in the United States. Kentucky has 1,090 miles of navigable waterways, second only to Alaska in the US and a total of 49,100 miles of rivers, creeks, streams, and tributaries. The Ohio River alone flows 664 miles along the northern border of Kentucky.

The freight movement through Kentucky's nine public riverports and over 160 private terminals in the Ohio River Basin represents 25 percent of the nation's waterborne commerce. Four of Kentucky's public riverports have been included in the Latin America Trade and Transportation Study as key riverport locations for trade. Kentucky's riverports offer transloading equipment, storage facilities, and access to rail and major highway corridors, placing products within one day's ground transportation of



65 percent of the U.S. population. Some Kentucky riverports also offer value added services, such as the Paducah Riverport in western Kentucky. The total domestic waterborne commerce in Kentucky each year exceeds 90 million tons, with a value of over \$10 billion.

There are also ten ferry operations located in Kentucky, two of which are operated by the state and eight are operated by private operators.

In 1999 the *Kentucky Water Transportation Corridors, Public Riverport Development, and Intermodal Access Study* was completed. This study was mandated by the Kentucky General Assembly to determine the development and intermodal access needs of the public riverports. Specific capital and access needs were identified for each public riverport.



## RIVERPORTS AND RAILROADS 2005



Although no state funds have been provided for port projects in Kentucky, KYTC does evaluate the highway access to riverports and rail lines, from which specific projects are developed and included in the Unscheduled Projects List for consideration of future funding and possible implementation.

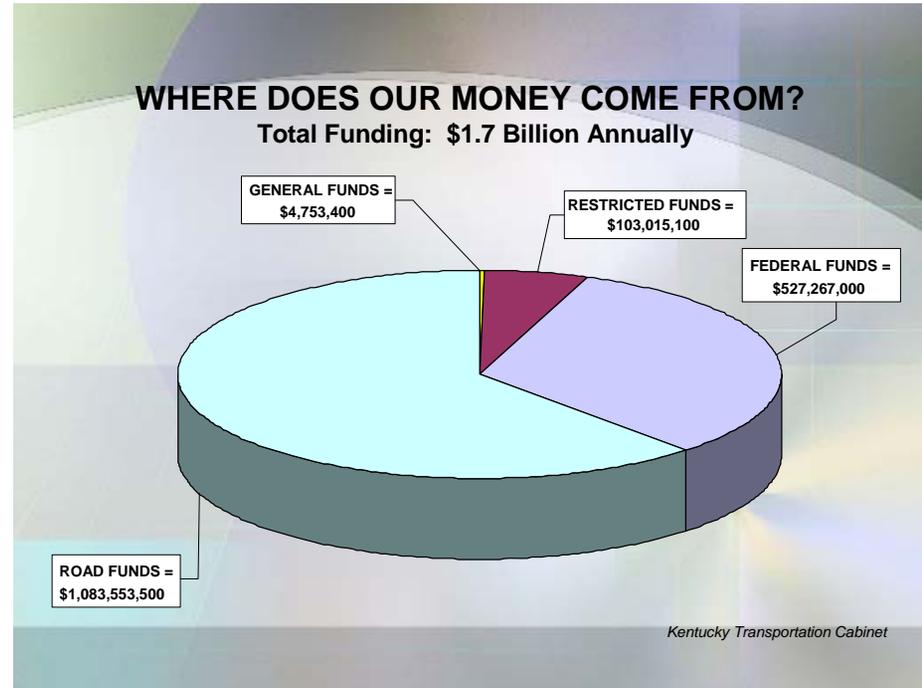
A subsequent study on Kentucky's Public Riverports and Waterways was completed in 2004 which identified public riverport issues and the economic impact of the riverports, as well as identifying some long-range funding scenarios.

## Funding Needs

“Our projected funding...”

The Kentucky Transportation Cabinet is confronted by a significant fiscal challenge. In recent years, the Cabinet has experienced an enormous short-term benefit resulting from its shift from an obligation basis to a cash basis in its fiscal management of revenues. Much, if not most, of this one time cash infusion was targeted toward transportation system expansion, i.e. upgrading existing facilities and development of new facilities to add capacity.

In order to transition to this new environment, the Cabinet has further adopted a rigorous fiscal discipline to ensure that its present obligations are prudent and consistent with projected future cash balance levels. However, even with a severe cutback in administrative spending, KYTC cannot address the escalating needs of the transportation system with a continuing decrease in road fund revenues coupled with increasing costs of inflation.



Source: KYTC Office of Budget and Fiscal Management

Kentucky’s transportation funds total about \$1.7 – 1.8 billion annually and are a combination of State Road Funds, State General Funds, State Restricted Funds and Federal Funds. The percentage of funds by source is as follows:

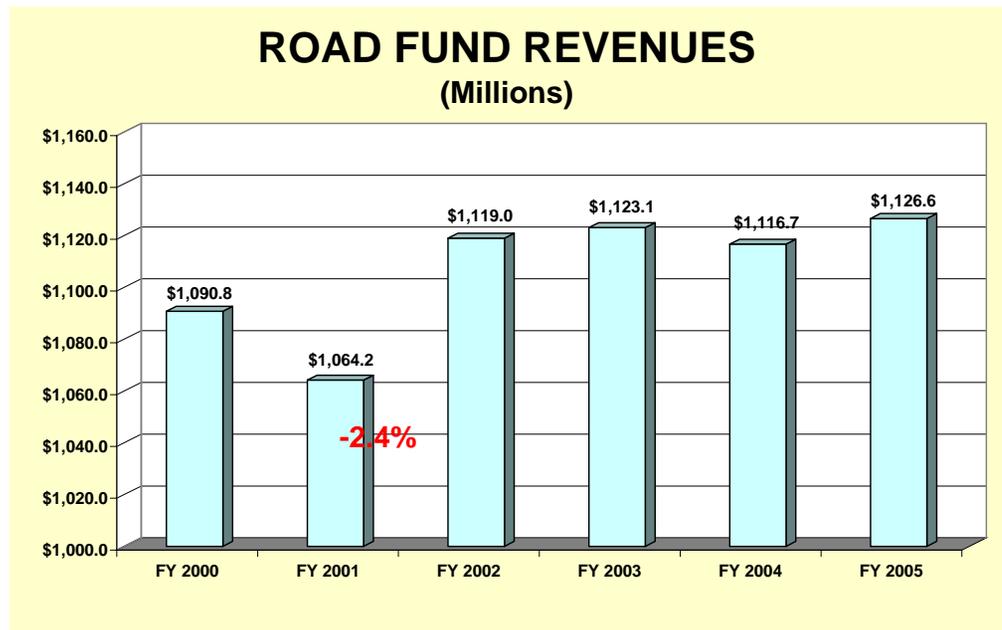
\$	Road Funds	63.0 %
\$	General Funds	0.3 %
\$	Restricted Funds	6.0 %
\$	Federal Funds	30.7 %

Kentucky State Road Funds are receipts from motor vehicle usage tax, vehicle and boat registration, motor vehicle operator's licenses, motor fuels tax, tolls, and interest. Road Funds are used for road construction, maintenance, operations, engineering, planning, and research, and the majority of administrative functions within the KYTC. The Kentucky Constitution prohibits the use of Road Funds on non-highway related uses.

State General Funds are collections of taxes on sales and use, income, corporations, coal severance, property and lottery receipts. State General Funds may be used on any area of state responsibility, but are used primarily by KYTC to match federal dollars for the public transit and aviation programs.

Restricted State Funds are monies received from fees, sales, bond proceeds, licenses, investment income, and other miscellaneous receipts. Restricted funds are used to fund the respective program for which the revenue is collected.

Federal Funds are derived from the Federal Highway Trust Fund, public transit, federal aviation administration funds, and other various grants and earmarks.



Source: KYTC Office of Budget and Fiscal Management

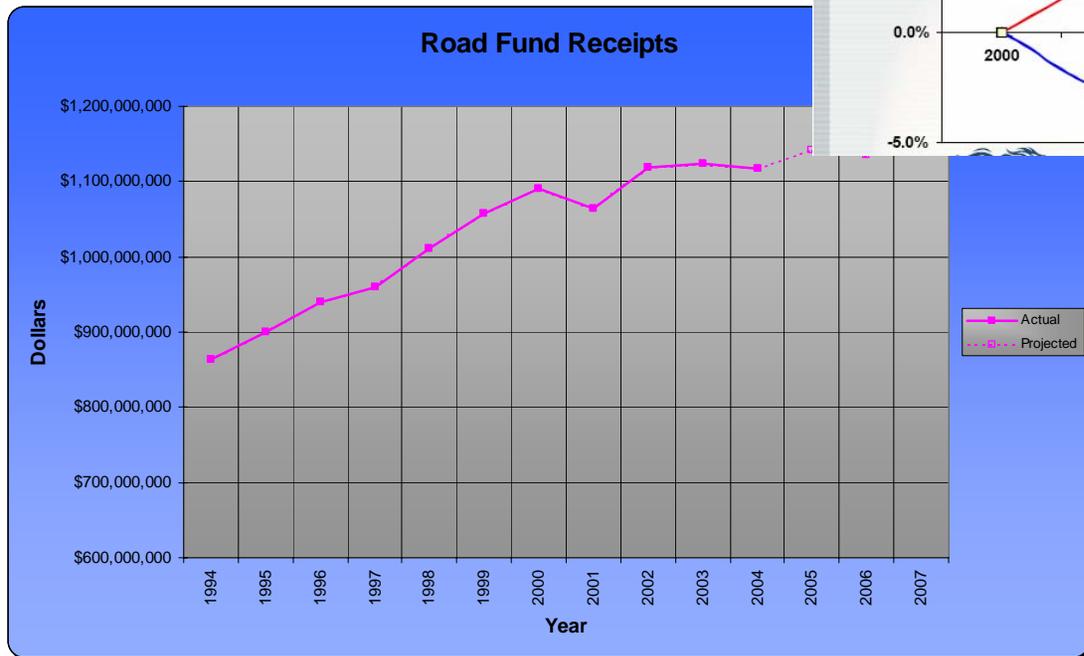
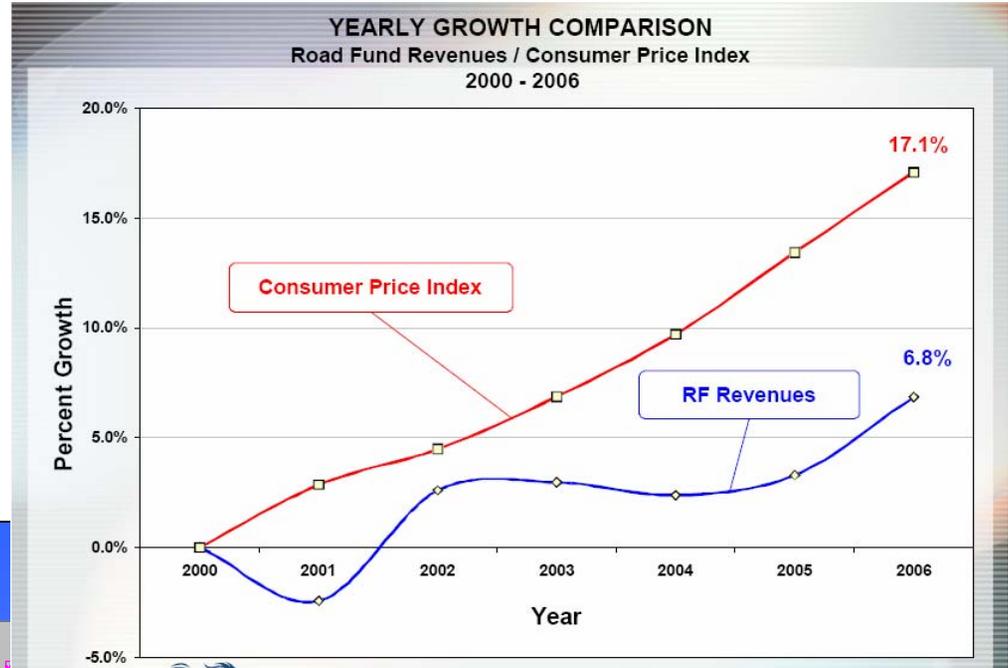
The lack of state funding is due in part to the inability of the Road Fund revenues to keep up with the growth experienced in other areas. The Road Fund experienced fairly consistent growth for years. However, since FY 2002, the Kentucky Road Fund revenues have remained relatively flat.

The Road Fund revenues are increasing at an average rate of only 0.66 percent per year, less than inflation, and lag behind the 3.2 percent annual rate of growth in the General Fund.

While the Consumer Price Index (CPI) has increased 17.1 percent since Fiscal Year 2000, the Road Fund revenues have increased only 6.8 percent for this same six-year period.

Inflation is also eroding the state gasoline tax's purchasing power, meaning it doesn't buy what it did back in 1986, the last year the tax was increased. A project that required \$1 million to complete in 1987 now requires over \$1.6 million.

Further, it is interesting to note that thirty-nine states have a higher motor fuel user fee than Kentucky.



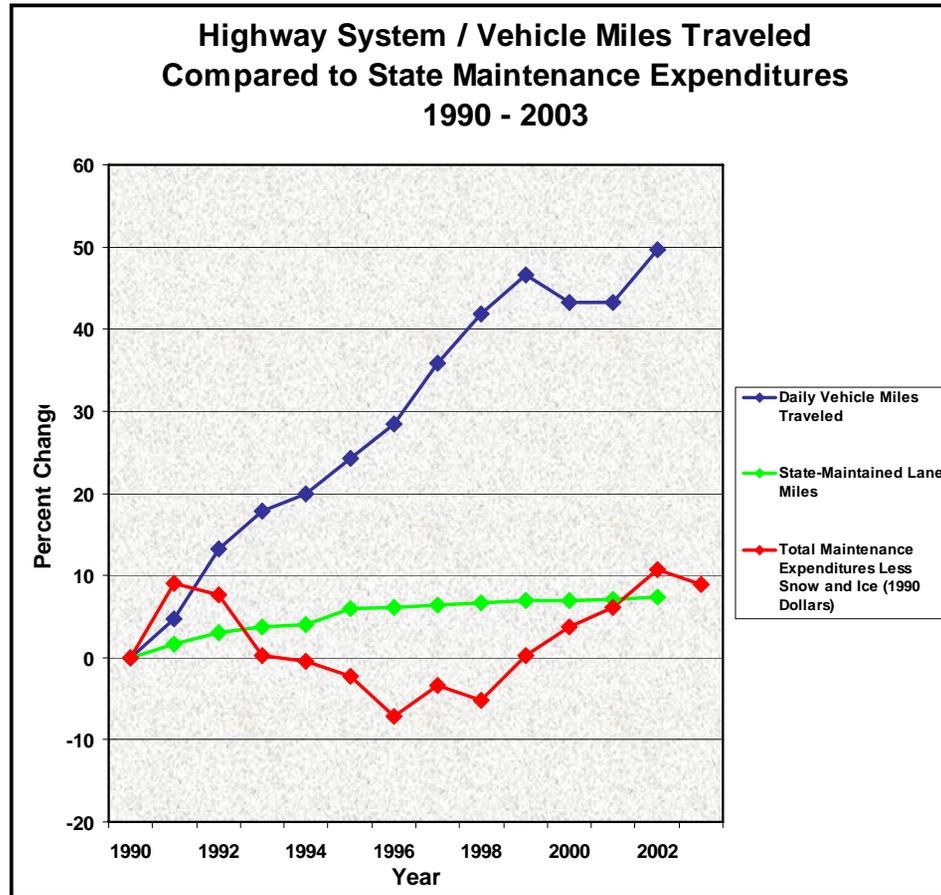
Source: KYTC Office of Budget and Fiscal Management

Kentucky's gasoline tax is 19.7 cents per gallon, five cents lower than the average of surrounding states. The adjacent states of Illinois, Indiana, Ohio, West Virginia and Tennessee all have higher gas tax rates, ranging from 21.4 cents per gallon to 29.8 cents per gallon.

When today's dollars are adjusted for inflation, Kentucky's gas tax of 19.7 cents per gallon is worth less than one dime per gallon today.

Source: KYTC Office of Budget and Fiscal Management

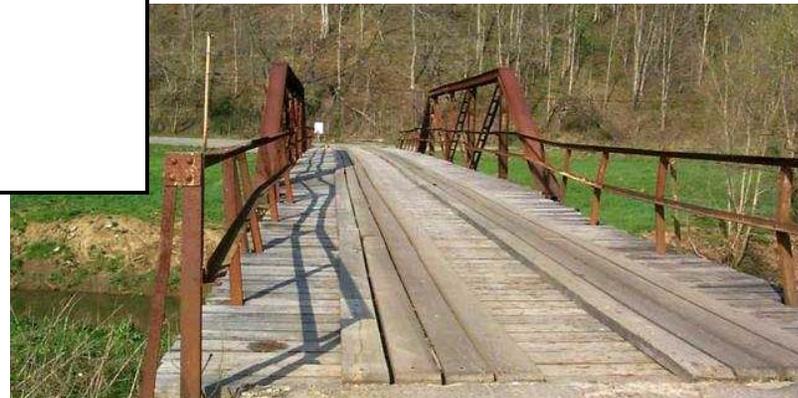
The graph below illustrates the percent growth in the daily vehicle miles traveled in Kentucky for the period of 1990 – 2003, compared to the state-maintained miles of roadway and the maintenance costs for those same roadways. The level of maintenance expenditures shown for the same period illustrates quite well the fact that the Kentucky Road Fund, maintaining a flat revenue stream, cannot possibly continue to maintain the state highway system at a level which would be acceptable or even feasible over a prolonged period of time.



Source: KYTC Division of Maintenance

The federal reauthorization bill, SAFETEA – LU did improve Kentucky’s rate of return of federal taxes paid over the previous federal authorization bills of ISTEA and TEA-21. The rate of return (federal tax dollars) for Kentucky will increase from 90.50 percent in FY 2003 to 96.14 percent in FY 2009.

While Kentucky is encouraged by this increased rate of return, the question remains as to whether it will be enough to pay for Kentucky’s most critical needs. A comparison of the average annual funding for Kentucky under TEA-21 and SAFETEA-LU shows an increase of approximately 30.32 percent or \$147,205,000. However it should be noted that these are not “final” figures and Kentucky anticipates that the actual annual increase will likely be less than this figure.



## Needs and Analysis Tools

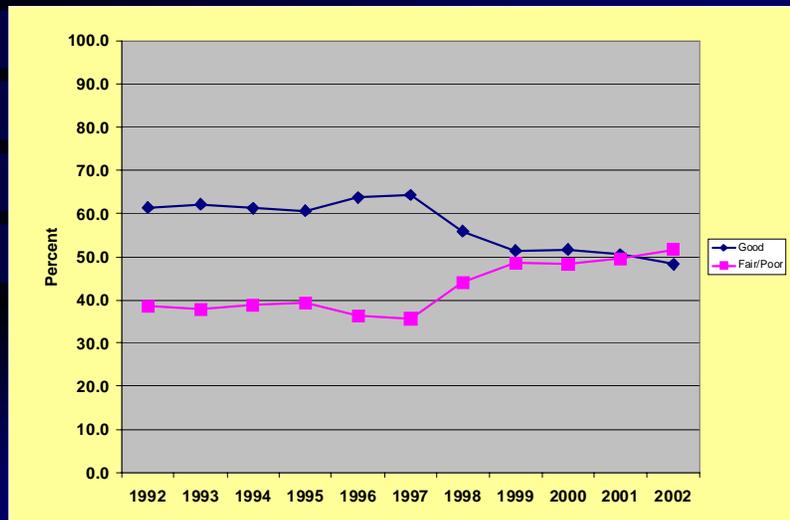
“Our projected needs, tools and strategies”

### “Our Needs”

The demographic, geographic and financial profiles for Kentucky provide us with one set of challenges for our transportation system in Kentucky. However, we must look ahead to see how these challenges, combined with the current condition of our existing networks, and the increasing future demands on our existing



## Deteriorating Pavement Conditions on State Highways



Source: KYTC Division of Maintenance

networks will affect Kentucky’s transportation needs for the next 25 years. Then we must look ahead to see what resources Kentucky has available to address these needs.

### Bridges

At the current rate of federal bridge replacement program spending, it will take Kentucky over 93 years to replace all of the bridges which were rated as structurally deficient (having a sufficiency rating of 50 out of a possible 100 points) in 2003.

### Pavement Deterioration

Since 2002, Kentucky has seen an increase in the percent of roadways whose pavements are rated “poor.”

As much as 25 percent of our interstate system and 29 percent of our parkway system pavements have been rated as “poor” – more than ever before. This deficiency can be attributed to several factors: increased truck traffic on our interstate system, less funding for maintenance and rehabilitation of our existing roadways, less funding due to the eroding buying power of the transportation dollar, and the inability of our transportation resources to keep up with the consumer cost index. Therefore Kentucky has been unable to increase maintenance expenditures or move additional projects into the state’s legislative highway program.

Until 2001, over 50 percent of Kentucky’s pavements were rated “good.” However Kentucky has seen this percentage steadily decline from approximately 64 percent in 1997 to about 48 percent in 2002.



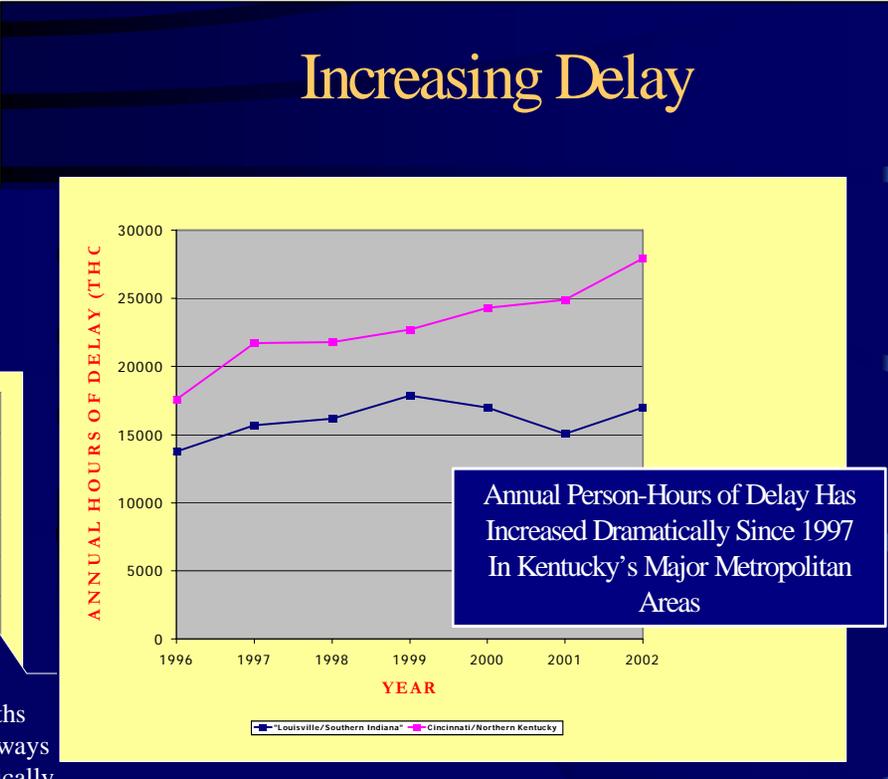
Conversely, the percentage of pavements that are rated “fair” or “poor” has steadily increased since 1997 to a level exceeding 50 percent for all pavements in 2002.

In fact, more of Kentucky’s highway pavement is rated “fair” or “poor” at the present time than those rated in “good” condition. If the current resurfacing trend for the State Primary System continues, it will take 27 years to meet all resurfacing needs. At the current rate of accumulating resurfacing needs for the Rural Secondary System, it would take Kentucky 31 years to meet the current needs for the Rural Secondary System.

**Increased Delays**

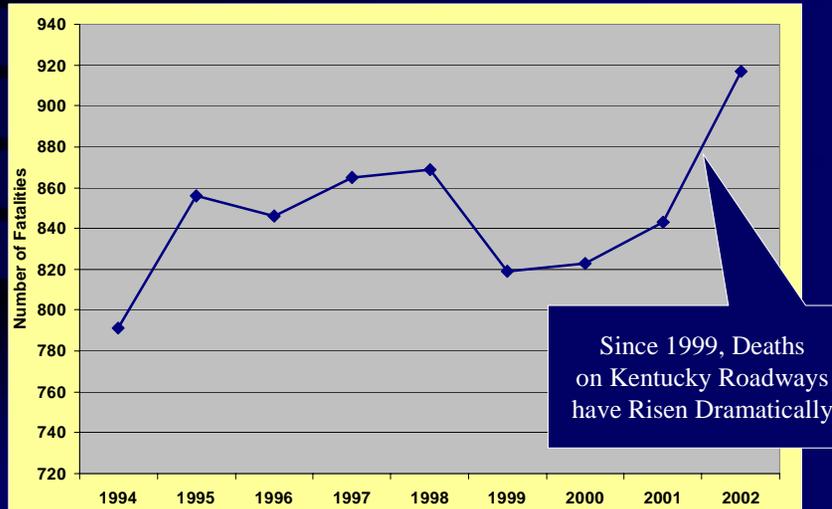
With deteriorating pavement conditions in Kentucky, we can expect increased hours of delay per driver, increased cost of vehicle operation for drivers, an increase in highway crashes, and increased numbers of highway fatalities.

Delay times in Kentucky’s metropolitan areas have increased by more than 20 percent in the last six years. This challenge is dramatically illustrated by the deterioration of our road conditions and the corresponding increase in fatal highway crashes.



Source: KYTC Division of Maintenance

### Growing Highway Fatalities Corresponds with Poor Roads



Source: KYTC Division of Maintenance

**Increased Crashes**

Kentucky’s highway crashes are increasing as our pavement deteriorates. In 2002, 130,347 collisions were reported in Kentucky with 32,393 injury collisions and 915 fatalities. The total number of collisions in 2005 increased to 152,925 with 985 fatalities. As indicated in this chart, most of our collisions (51%) occur on U.S. and State Routes, other than Interstates and Parkways. Twenty-nine percent of all collisions and fifty-one percent of all fatal collisions occur on state maintained roadways.



**COLLISION LOCATIONS**  
2005

- Interstates – 31% of traffic**
  - 7% of total collisions
  - 9% of fatal collisions
  
- Parkways – 5% of traffic**
  - 1% of total collisions
  - 2% of fatal collisions
  
- U.S. / State Routes – 64% of traffic**
  - 51% of total collisions
  - 74% of fatal collisions

With increasing traffic demand, a lack of increased funding, and the declining buying power of our existing funds, KYTC’s ability to adequately manage our state highway system is being challenged. Traffic volumes are expected to increase by more than 60 percent over the next twenty years.



Kentucky has clearly lagged behind in its ability to maintain and improve the highway system in a timely manner. Projects for improved safety, increased travel efficiency, economic development, and even for maintaining our existing system are in jeopardy.

With the current and projected funds we cannot possibly meet or address the needs that we have identified. Therefore, we have developed and identified specific tools and strategies to help us focus and direct our limited funds in the most effective manner and hopefully, get the greatest return on our limited dollar.

***Air, Rail, Public Transit and Water Transportation***

As noted in the Assessment of Current Conditions Section of this document, Kentucky receives very limited funds for the air and public transit programs and does not receive federal or state funds for rail and water transportation programs. While the needs for these programs are great, the funding sources are certainly not. Therefore, we have not included the specific needs for these modes in this document, but rather have incorporated those mode-specific plans by reference so that we might provide complete data and identified needs for those programs as well.

***“Our Strategy and Tools”***

***Kentucky’s Highway Network***

Our highway transportation network serves various transportation needs, principally access and connectivity. Those elements of the highway transportation system in Kentucky, whose primary function is connectivity, are more appropriately the administrative responsibility of the Kentucky Transportation Cabinet. Conversely, those elements of the highway transportation system in Kentucky whose primary function is access are more appropriately the administrative responsibility of local units of government. There are more than 78,000 miles of streets and highways in Kentucky. The Kentucky Transportation Cabinet is administratively responsible for over 27,500 miles of this network. While only one-third of the total mileage, the state responsible system serves nearly ninety percent of the vehicle-miles of travel within the Commonwealth.



Within this state system, there is a further stratification of priority elements. In actuality, there is a highway network encompassing approximately 5,000 miles which serves approximately 58 percent of the total travel on streets and highways within the Commonwealth.

This network is composed of the following elements:

- Kentucky portion of the National Highway System: 2870 miles
- Other Urban and Rural Roadways Functionally Classified as Principal Arterial Routes: 550 miles
- Kentucky portion of the National Truck Network not on Principal Arterial Routes: 730 miles
- Additional mileage intended to enhance statewide geographic coverage: 850 miles

The National Highway System (NHS) is a 160,000 mile network of roadways important to the nations' economy, defense, and mobility. Principal arterial routes include all NHS segments as well as other highways with significant traffic volumes and long average trip lengths. The National Truck Network (NN) consists of those designated roadway segments over which increased dimension vehicles (102 inch-wide trailers) may legally operate. Each of these administratively designated highway systems have been defined for purposes associated with a particular aspect of transportation system management and operation deemed to be of critical importance.



### ***HERS Analysis Tool***

Kentucky must focus on new policies for optimizing the decision-making process for selecting how our limited revenues are committed. With cash balances stabilized and overall program levels diminished, the Cabinet must ensure that available revenues are targeted to the greatest needs and produce the highest possible benefits.

In order to assist in this task, the Cabinet is utilizing the Highway Economic Requirements System, State Version (HERS-ST) developed by the Federal Highway Administration. FHWA describes HERS-ST as an engineering/economic analysis tool that uses engineering standards to identify highway deficiencies, and then applies economic criteria to select the most cost-effective mix of improvements for system-wide implementation. A national

level model of HERS has been used by FHWA to analyze future highway investment needs. HERS is the basis for the Conditions and Performance Report submitted biennially to Congress by FHWA. In the state level HERS-ST, each potential highway improvement is subjected to a rigorous benefit-cost analysis that considers travel time, safety, and vehicle operating costs. HERS-ST then uses incremental benefit-cost analyses to optimize highway investments. For a given level of investment, HERS-ST can predict resulting system conditions and user costs. Additional details about HERS-ST may be found at <http://www.fhwa.dot.gov/infrastructure/asstmgmt/hersindex.htm>.

It should be noted that HERS-ST does not include estimates of the indirect benefits of transportation investments. These various types of potential indirect benefits include positive changes in incomes, property values, employment, and real wages. Even conservative estimates have projected an additional 33 percent in indirect economic benefits over and above direct benefits.

The Kentucky Transportation Cabinet initially applied the HERS-ST model to several alternative investment scenarios:

- Existing Funding Levels
- “Full Engineering Needs”
- Derived Investment Level for Maintaining Current User Costs

Each of these scenarios is described in some detail below followed by a discussion of a final alternative investment scenario.

#### Existing Funding Levels

Historic and current fiscal data were gathered from appropriate KYTC offices. Data for expenditure categories not expressly considered in the HERS-ST analysis process were segregated to enable rational analyses of HERS-ST information; these categories were categorically funded safety projects (\$19.5 million annually), bridge rehabilitation and replacement projects (\$134 million annually), and routine maintenance activities (\$240 million annually). HERS-ST then analyzed an existing investment level of \$475 million for pavement rehabilitation, major widening, and other reconstruction projects. (Note: While the safety, bridge, and routine maintenance investment levels include consideration of all facilities for which either the Cabinet has administrative responsibility or are expressly eligible under federal program funding guidance, HERS-ST does not consider local roads or those functionally classified as Rural Minor Collectors; this has the approximate effect of excluding the Rural Secondary System from the HERS-ST analysis.)

For purposes of this evaluation, the following funding figures were used for “existing funding levels:”

<u>Total Yearly Funding (in million \$)</u>	<u>\$869</u>
\$ New Lane Mileage	\$169
\$ Reconstruction, Widening Existing Lanes and Shoulders	\$109
\$ Pavement Rehabilitation on Major Highways	\$197
\$ Safety and Bridges	\$154
\$ Routine Maintenance	\$240

The HERS-ST analysis indicated that, at this current level of investment over twenty years, the following conditions would result by the end of the twenty year period:

- 🚗 Pavement conditions will deteriorate by eleven percent
- 🚗 Direct user costs will increase by nearly \$18 a week
- 🚗 Driver delay will increase by nearly two hours a month

Note that this HERS-ST scenario evaluates the conditions for the optimum annual expenditure of \$475 million for pavement rehabilitation, major widening, and other reconstruction projects. Were the Cabinet to make investment choices that deviate substantially from the optimum strategy, the likely result would be even further deterioration in one or more of these performance measures.

Full Engineering Needs

HERS-ST possesses the capability to define what annual level of investment is needed for pavement rehabilitation, major widening, and other reconstruction projects to bring all facilities for which the Cabinet is administratively responsible (approximately - excluding the Rural Secondary System) up to full design standards for geometrics and pavement condition and maintain that condition. In addition, the Office of System Preservation and Operations provided an estimate of the investment level necessary to similarly upgrade bridge and safety conditions and to provide full funding of routine maintenance needs.

For purposes of this evaluation, the following funding figures were used for calculating “full engineering needs” (shown in \$ millions):

<u>Total Yearly Funding (in million \$)</u>	<u>\$4,428</u>
\$ New Lane Mileage	\$1,586
\$ Reconstruction, Widening Existing Lanes and Shoulders	\$ 798
\$ Pavement Rehabilitation on Major Highways	\$ 424
\$ Safety and Bridges	\$1,320
\$ Routine Maintenance	\$ 300

The HERS-ST analysis indicated that, at an investment level required to bring highway facilities to Full Engineering Standards over the next twenty years:

- 🚗 Over 44,500 crashes will be prevented
- 🚗 812 fatalities would be prevented
- 🚗 Direct user costs will be reduced by \$61.2 billion
- 🚗 Time in traffic will be reduced by 1.2 billion hours

While the resultant performance measures under this investment level are impressive, it is simply not reasonable to expect anything close to a five-fold increase in revenue over what is currently in place for highway transportation purposes. Still, there are some analytical benefits to examining this scenario.

Since HERS-ST uses incremental benefit-cost analyses to optimize highway investments, one can deduce which types of improvement options provide the least relative benefits when compared to costs by scrutinizing the types of improvement options which show up only in an analysis of this level of investment. When compared to the optimum strategy at the current level of investment one notes that, while investment in pavement rehabilitation projects increases by a factor of only two, the investment level for reconstruction projects increases by a factor greater than seven and the investment level for new lane mileage increases by a factor greater than nine.

Derived Investment Level for Maintaining Current User Costs

HERS-ST also possesses the capability to set certain end-result performance measures, define the annual investment level necessary to achieve those results, and also depict other performance measures resulting from that annual level of investment. One scenario was examined with the end-result defined as “minimizing increases in user costs.” Further, some constraints were placed on project improvement standards to restrict highway widening in some areas, allow narrower lanes and shoulders in some circumstances, and allow some roads to have more curves and hills. These allowances were defined to provide a more realistic assessment of the type and magnitude of improvement options the KYTC would pursue in a real-world environment. The annual funding required for a twenty-year period to minimize increases in direct user costs using some modified improvement standards are as follows:

<u>Total Yearly Funding (in million \$)</u>	<u>\$1.694</u>
\$ New Lane Mileage	\$ 597
\$ Reconstruction, Widening Existing Lanes and Shoulders	\$ 275
\$ Pavement Rehabilitation on Major Highways	\$ 368
\$ Safety and Bridges	\$ 194
\$ Routine Maintenance	\$ 260

The HERS-ST analysis indicated that, at the derived investment level required to maintain current user costs over the twenty-year period, the following would occur over a twenty-year period:

- 🚗 Over 33,100 crashes will be prevented
- 🚗 442 fatalities will be prevented
- 🚗 Direct user costs will be reduced by \$28.6 billion
- 🚗 Time in traffic will be reduced by 185.1 million hours

As can be seen, the annual investment level needed to minimize future increases in direct user costs is approximately twice the current level of investment. However this overall figure includes only modest increases in investment levels for safety projects, bridge rehabilitation and replacement projects, and routine maintenance activities based on adjustments made by KYTC estimates. Annual investments in pavement rehabilitation are about twice what they are

under the optimum strategy at the current level of investment, while annual investments for reconstruction projects are about two and one-half times the level under the optimum strategy at the current level of investment. Annual investments in new lane mileage would be between three and four times the level under the optimum strategy at the current level of investment. In this scenario, the increased cost of the investments is more than offset by the direct cost savings to the users. Again, despite these positive performance indicators, there is no realistic expectation that current revenues available for investment in highway projects will increase by this order of magnitude.

Alternative Scenario (Additional \$100 million investment)

A quick overview of the three scenarios above leads to some stark conclusions:

- The current level of investment is insufficient to make significant improvements in the Commonwealth’s highway network;
- The level of investment necessary to upgrade all facilities to full geometric standards and maintain that condition is not going to be made;
- A level of investment necessary to just minimize the potential increases in costs for the highway user is not really an attainable policy.

HERS-ST may be used, however, to evaluate the impact of any investment level using the performance measures cited in the scenarios above. One such scenario might involve the impact of an additional \$100 million in annual investment.

For purposes of this analysis, the investment levels for safety projects, bridge rehabilitation and replacement projects, and routine maintenance activities were assumed to be unchanged from current allocation. HERS-ST thus assigned the additional \$100 million in annual additional investment among new lane mileage (\$56 million); reconstruction, widening existing lanes and shoulders (\$16 million), and pavement rehabilitation of major highways (\$28 million).

<u>Total Yearly Funding (in million \$)</u>	<u>\$ 969</u>
\$ New Lane Mileage	\$ 225
\$ Reconstruction, Widening Existing Lanes and Shoulders	\$ 125
\$ Pavement Rehabilitation on Major Highways	\$ 225
\$ Safety and Bridges	\$ 154
\$ Routine Maintenance	\$ 240

The HERS-ST analysis indicated that, at an investment level of \$100 million per year more than current funding over the twenty-year period, a total additional investment of \$2.0 billion, the following would occur over twenty years:

- 🚗 Over 9,500 crashes will be prevented
- 🚗 118 fatalities will be prevented
- 🚗 Direct user costs will be reduced by \$8.9 billion
- 🚗 Time in traffic will be reduced by 29.6 million hours



Nearly 500 additional new lane miles would be enabled at this enhanced investment level. Reconstruction and widening of existing lanes and shoulders could be increased by nearly twenty percent annually. Pavement rehabilitation projects on major highways could be increased by more than 100 miles annually. More importantly, projections for reduced travel times and direct costs to users while improving the safety performance of the highway network show compelling evidence of the value of this increased level of investment. Approximately \$8.9 billion in incremental direct benefits are projected to accrue over twenty years as a result of this incremental \$2.0 billion investment.

#### Summary

Existing investment levels underfund Kentucky's highway network and result in our inability to perform as a key link in growing the Commonwealth's economy. Investment levels necessary to achieve and maintain a flaw-free highway system are a pipe dream. Even the investment levels needed to minimize user cost increases are likely beyond the realm of possibility. However, modest increases in the aggregate level of investment could produce demonstrable direct and indirect benefits for highway users and those market segments positively impacted by a safer, smoother, less congested transportation system throughout the Commonwealth.

## Evaluation and Analyses

*“Kentucky’s Approach to our Transportation Challenges”*

A recent overview of the management practices of the Kentucky Transportation Cabinet pointed out that “planning is the process through which the objectives are set for the future...of Kentucky’s transportation system...planning establishes the broad, system-level needs for...major categories of need. Best practice involves the planning process establishing strategic investment priorities by allocating funds between broad policy objectives... the process is policy driven and supported by technical analysis...”

In recognition of these issues, our approach to Kentucky’s challenges must include an extensive public involvement process, comprehensive collection and analysis of data, a Cabinet policy regarding expenditure priorities, several tools for implementing these policies in a transparent fashion, and measurements of the linkage between policy and transportation system investment.

Since the 1970s, Kentucky has implemented a statewide transportation planning process to solicit public involvement and assist the Cabinet in the identification of needs. In response to the directives of the Intermodal Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and SAFETEA-LU, this process was expanded to include more comprehensive public involvement, through the following:

- Identification, evaluation, prioritization, and ranking of transportation needs
- Coordination between Kentucky’s nine metropolitan planning organizations (MPOs), fifteen Area Development Districts (ADDs), twelve Highway District Offices, and other planning agencies.
- Coordination with the Division of Air Quality to assure compliance with the State Implementation Plan and the public involvement process.

A major portion of the public involvement for the statewide planning process is accomplished through a cooperative program with the nine MPOs, 15 ADDs, 12 Highway District Offices, local officials, and public involvement committees. This process identifies transportation needs,



researches data, and establishes priorities for input into the *Long-Range Statewide Transportation Plan*, *Statewide Transportation Improvement Program* and the *Six-Year Highway Plan*. In 2002 an ADD Safety Program with local and regional safety partners was added to the Regional Transportation Planning Program. This ADD Safety Program provides local input and coordination for the Cabinet's Strategic Highway Safety Program as well as for the safety conscious planning component of the Statewide Transportation Planning Program through the regions.

Each ADD and MPO maintain a transportation advisory committee with representatives of local government, transportation users and providers (freight and passenger), economic, industrial, planning and land-use interests, other special interests, traditionally transportation underserved representatives, and the general public. These committees play an important role in the identification and prioritization of transportation needs for each region. Each ADD and MPO transportation committee develops and documents goals and objectives for the region and then prioritizes transportation needs to meet those goals and objectives. These regional goals are closely considered during the prioritization of projects. The goals for the current update of the Long-Range Statewide Transportation Plan were based in part on these regional goals. Therefore, recommended projects reflect not only the goals of the Long-Range Statewide Transportation Plan, but also the regional goals and objectives.



Through the ADDs and MPOs, local governments and the regional transportation committees review and analyze data and the changing economic environment of their regions to identify transportation needs. All transportation needs are then documented on a Project Identification Form which includes: the purpose and need of a project, specific project data, specific information addressing the SAFETEA-LU planning factors, cost estimates, project photographs and maps.

All projects are maintained in an Unscheduled Project List database. Every two years, each project is thoroughly reviewed and evaluated, and the Project Identification Form is updated as needed. Each project is then prioritized by the locally elected officials, the regional transportation committees, and the appropriate Highway District Office staff. These priorities are utilized as input to the Cabinet's project

selection process, along with and in conjunction with a scoring system as described below. Previous agency-wide strategic planning articulated three primary goals for Kentucky's Transportation System over the next twenty-five years:

- Safety and Security
- System Preservation
- Economic Opportunity and Mobility

Investments in a transportation system do not represent static, one-time expenditures. Ongoing investment is needed to operate the existing system. Maintenance investments are needed to repair and preserve the original condition of system elements as they deteriorate over time as a result of continued usage and environmental exposure. Investments are also needed to upgrade the original system to modern standards and for system expansion to accommodate increased traffic needs and economic growth. The Kentucky Transportation Cabinet has articulated its priorities among these types of investments:

- ✓ SAFETY
- ✓ RELIABILITY
- ✓ ECONOMIC DEVELOPMENT

In order to advance these broad policy objectives through data driven technical analyses, a project evaluation or scoring system was developed. The goal of this scoring system is to define and apply a basis for evaluating project conditions and other factors using a consistent set of readily available data that enables comparisons across project types. This scoring system must reflect key measures of particular project types and reflect Cabinet priorities among project types.

Each project type is evaluated using a four-part system:

1. Safety data such as, critical crash rate factor and the critical fatal crash rate factor;
2. Reliability data such as, functional classification, volume-to-service flow ratio, percentage of trucks in the traffic stream, pavement smoothness, functional obsolescence or structural deficiency of any bridges, and access control;
3. Economic development data such as education level attainment, unemployment, accessibility to various transportation modes, as well as input from the Kentucky Economic Development and Commerce Cabinets;
4. Priority assignment and/or ranking through the Statewide Transportation Planning Process.

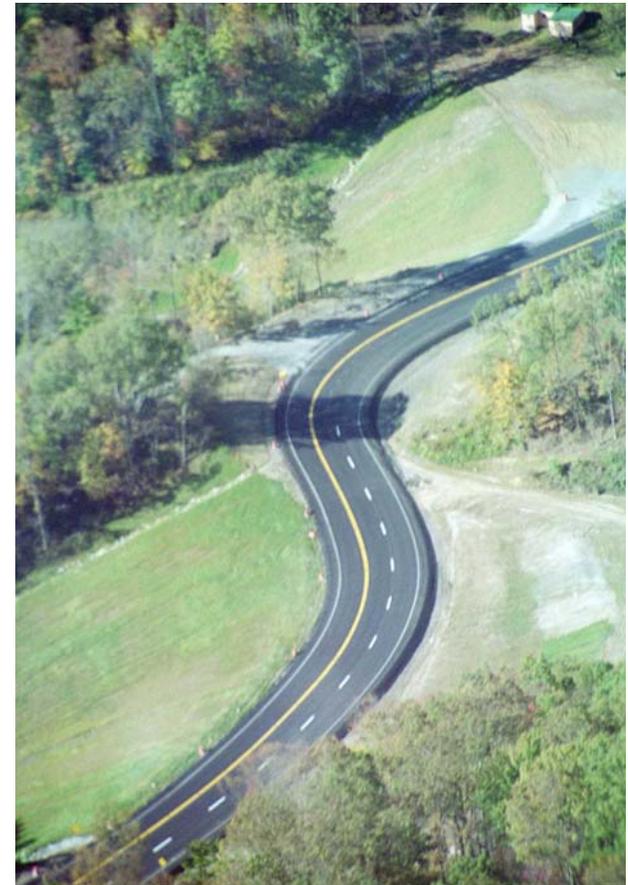
The numeric values of a set of candidate projects produce an ordered ranking among those candidate projects. The absolute value of the score for a candidate project has no inherent meaning. Rather, a candidate project's score is best viewed in comparison to other candidate projects. Thus, for example, a candidate project with a score of 237 would be viewed as a better project than another project with a score of 193.

The results of the scoring process produces a priority ranking based on a multi-faceted evaluation of roadway conditions which policy makers may then use as decisions are made regarding selection among candidate projects for advancement.

The main objective of the statewide transportation planning process is to develop a multimodal transportation plan which identifies improvements that will best utilize limited financial resources to improve the safety and efficiency of the transportation system. In this Plan, we have tried to highlight the major challenges of the transportation system and how we plan to address those challenges. However, most of our attention has been focused on the highway system and the consequences that Kentucky must face if adequate funding is not available.

Funding for other transportation modes is not quite so clearly defined nor as clearly addressed in this Plan. As was stated in the "State of the Commonwealth" section of this Plan, Kentucky does not provide specific state funding for most other transportation programs. Also Kentucky's constitution does not provide for the use of Road Funds for other than highway-related expenditures.

Kentucky's approach to transportation planning for rail and water transportation systems has been limited to addressing access needs and connectivity issues between the highway systems, the airports, the riverports, and the rail lines. Air transportation, however, is funded through federal aviation funds and through a trust fund, the Kentucky Aviation Economic Development Fund. However, these funds are limited to the current year's jet fuel tax receipts. For the purpose of this Plan and for Kentucky's long-range planning purposes, the needs, available funding, cabinet policies and strategic plans for these transportation systems will be addressed through incorporating by reference the following documents.



✈ Air Transportation

- *Kentucky Aviation System Plan (1998)* – a twenty-year plan of airport construction projects and operational enhancements at Kentucky’s regional and city airports that do not yet have a financial commitment. This Plan is generally updated about every ten years.
- *Six-Year Airport Capital Improvement Plan* – a short-range planning document implemented for the first time during 2002, which is a financially constrained list of projects based on anticipated funding levels. Total funding for this plan is derived from the Kentucky Airport Development Fund.



🚌 Public Transportation

The public transportation program in Kentucky is a two-year program which identifies capital and operating improvements to Kentucky’s public transportation system. This program uses local, limited state general funds and federal transit funds. All federal funds for Kentucky’s major transit systems do not flow through KYTC, but directly to the public transit system in Kentucky’s urban areas.

## Rail Transportation

- *2002 Kentucky Statewide Rail Plan (KSRP)* – This plan identified system-wide strategies and policies, developed specific goals and objectives, and provided a vehicle to identify future rail issues to meet requirements for federal funding, as it may become available.



## Water Transportation

- *Kentucky Water Transportation Corridors, Public Riverport Development and Intermodal Access Study (1999)* – This study determined the development and intermodal access needs for the public riverports, including capital and operational needs, as well as highway access needs. Some financial strategies were also included as possible funding sources for this transportation system in the future.
- *Kentucky's Public Riverports and Waterways (2003)* – The 2003 study highlighted the volume and economic impact of waterborne commerce traveling through Kentucky's public riverports. This study emphasized the impact of waterborne commerce on Kentucky's economy.

## Conclusion

*“How we will address the challenge over the next twenty-five years....”*

With total travel conservatively expected to increase another 50 percent over the next twenty-five years and truck traffic alone expected to increase 46 percent; our roads will be utilized more than ever before and good intermodal connections providing access to airports, rail lines and riverports will be essential for the movement of freight through our Commonwealth. There is no better way to jumpstart a state’s economy than to make a sizeable investment in transportation infrastructure. The most obvious benefits of highway investment are the time savings, enhanced safety, and vehicle operating cost reductions experienced by the highway users themselves. However, construction and maintenance of highway facilities can also help local, State, regional, and national economies grow by attracting new businesses and by provided access to new markets.

According to the U.S. Department of Transportation publication, *Highway Infrastructure Investment and Job Creation*, highway investment to reduce congestion and improve levels of service can boost the productivity of U.S. Firms by lowering their shipping and logistics costs. In addition to the cost savings for the highway users and the economic boost provided through highway investment, there are also other benefits that come from putting money into repairing, expanding and enhancing state highways, such as providing better connections between and to other transportation modes.



Here are just a few examples of the economic benefits realized from investing in transportation infrastructure.

- Every \$1 billion of Federal-aid highway investment creates 42,100 jobs. (Source: *Highway Infrastructure Investment and Job Creation: A Look at the Positive Employment Impacts of Highway Investment*, 1996 and 1998, U.S. Department of Transportation, Federal Highway Administration)
- Every \$1 billion of Federal-aid highway investment combined with a state matching fund ratio of 20 percent (total of \$1.25 billion in spending) could generate 47,576 person-years of employment. (Source: *Evaluating Federal-aid Highway Construction Program Employment Impacts and Productivity Gains*, 2000, U.S. Department of Transportation, Federal Highway Administration)
- Every \$1 billion invested in transportation infrastructure generates more than \$2 billion in economic activity. (Source: *Benchmark Input-Output Accounts for the U.S. Economy*, 1992, U.S. Department of Commerce, Bureau of Economic Analysis, as quoted in *An Economic Analysis of the U.S. Transportation Construction Industry: A \$160 Billion Industry Employing 2.2 Million Americans*, Buechner, American Road and Transportation Builders Association, 1999)
- Every \$1 billion invested in highway construction creates a \$54 million boost in federal income and social security taxes, and a \$6 million jump in state and local tax revenues. (Source: *The Road Ahead, Economic Transportation Alliance for Kentucky*, 2006)
- Every \$1 invested in highway construction and maintenance yields \$6 in economic productivity because of reduced delays, improved safety, and reduced vehicle operation costs. (Source: *U. S. Department of Transportation Study*, 2000)



- Every \$1 invested in highway construction generates \$1.80 of gross domestic product in the short term. (Source: *The Road Ahead, Economic Transportation Alliance for Kentucky, 2006*)

Addressing Kentucky's Transportation Needs is a critical issue for the safety and economic well-being of our Commonwealth. The Kentucky Transportation Cabinet is responding to our fiscal challenges by carefully considering where and how our dollars will be spent. Kentucky will first identify the priorities which meet the goals of our Commonwealth. Second, Kentucky will utilize appropriate and realistic analysis tools and data to assist us in determining the most efficient use of our limited funds. Finally, Kentucky will continue to pursue increasing the level of funding for our transportation system which will allow more aggressive efforts to reverse the trends of deterioration, offer cost savings to Kentucky's transportation users, and afford economic opportunities for more businesses and citizens across Kentucky.



Kentucky's strategic geographic location and its system of terminals, riverports, enterprise zones, warehouse facilities, ports of entry, and foreign trade zones link with an intermodal transportation system of rail lines, inland waterways, and highways to form a network with the world.

By highway, river, rail, or air, Kentucky offers unique advantages for transportation, distribution and export, and provides new opportunities for capitalizing on North American markets and global trade. The increasing level of partnership among trucking, rail, and other shipping firms, and the development of efficient, integrated transportation systems throughout the industry, places the Bluegrass State in the position to become a 21<sup>st</sup> century leader in global transportation opportunities.



# KENTUCKY TRANSPORTATION AT A GLANCE

120 Counties

15 Regional Area Development Districts (Rural Planning) / 9 Metropolitan Planning Organizations / 12 Highway Districts

2005 Population of 4,173,405

Land area of 39,728 square miles

## Air Transportation

- Five major air carrier airports including two International Airports
- Fifty-five regional or local airports
- Over 21 million passengers annually
- Over 4.5 billion pounds of freight handled annually
- Major hub operations for two major U. S. companies



## Highways

- Over 78,000 miles of public roads and streets
- Nine interstate highways and nine state parkways
- 27,500 miles of state-maintained highways
- 46.8 billion vehicle miles of travel annually
- Over 42,000 freight carriers authorized to operate in Kentucky
- Over 14,000 bridges including 9,000 state-maintained bridges
- 2,870 miles on the National Highway System

## Public Transportation

- 21 rural public transportation services
- 8 city bus/transit systems
- Regional coordinated human service delivery program with 14 regions
- Over 26 million passengers annually
- Almost 3 million elderly and handicapped passengers annually

## Waterways

- 49,100 miles of rivers, creeks, streams, and tributaries
- 1,090 miles of navigable waterways, 2nd only to Alaska
- 11 public riverports
- Over 160 private terminals
- 10 ferry operations



## Railroads

- 2,790 miles of railroad track
- 14 railroads including: 4 major, 1 regional, and 9 local railroads
- 6 intermodal facilities
- 4 Amtrak stations
- 283 million tons carried by rail annually (2004)
- 7,145 Amtrak passengers annually (2005)



Note: All data is 2006 unless noted otherwise



## Acronyms

AADT	AVERAGE ANNUAL DAILY TRAFFIC - a commonly accepted measure used by states and FHWA to measure traffic volumes on an annualized basis.
ACIP	AIRPORT CAPITAL IMPROVEMENT PROGRAM - Kentucky has developed a six-year ACIP to include all projects planned for implementation over the six year period.
ADD	AREA DEVELOPMENT DISTRICT – Fifteen regional planning agencies mandated by state legislation. The fifteen ADDs in Kentucky are the regional planning agencies through which various federal and state programs are administered. The state’s rural transportation planning program is administered and facilitated through the fifteen Area Development Districts. See <a href="http://www.kycadd.org">http://www.kycadd.org</a> for more information.
	Adequacy Rating - a numerical score from 0 to 100 evaluating the current condition of a roadway segment based on congestion, safety, and pavement condition. See <a href="http://www.ktc.uky.edu/Reports/KTC_02_30_SPR_256_01_1F.pdf">http://www.ktc.uky.edu/Reports/KTC_02_30_SPR_256_01_1F.pdf</a>
ADT	AVERAGE DAILY TRAFFIC - a measure for traffic volumes in a 24 hour period used by states and FHWA.
APD	APPALACHIAN DEVELOPMENT FUNDS – Funding category which depends on the continued viability of the Appalachian Regional Commission and its programs. These funds can only be used on designated APD routes in Eastern Kentucky.
APHS	APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM – An administrative designation of a highway system in the Appalachian Regional Commission region of Kentucky.
BEA	BUREAU OF ECONOMIC ANALYSIS - Department of Commerce, U.S. Government Agency responsible for compiling and maintaining various economic statistics such as income and industry statistics.

BLS	BUREAU OF LABOR STATISTICS - U.S. Government agency responsible for maintaining and producing employment data and statistics.
BR	BRIDGE REPLACEMENT AND REHABILITATION - A funding category for Federal Highway Trust Funds to be used for replacing and rehabilitating Kentucky's functionally obsolete and structurally deficient bridges. These funds may be used, within certain limits, on locally-maintained as well as state-maintained bridges.
BTS	BUREAU OF TRANSPORTATION STATISTICS - U.S. Government agency responsible for producing various transportation statistics by state, region, and national level.
CPI	CONSUMER PRICE INDEX
CMAQ	CONGESTION MANAGEMENT AND AIR QUALITY FUNDS - A category of federal-aid highway funds that may be used only to support projects in air-quality non-attainment areas of Kentucky; such projects must demonstrate an air quality improvement as a result of their use. See <a href="http://www.fhwa.dot.gov/environment/cmaqpgs">http://www.fhwa.dot.gov/environment/cmaqpgs</a>
FAA	FEDERAL AVIATION ADMINISTRATION – The division of the U.S. Department of Transportation responsible for aviation policy and administration.
FAF	FREIGHT ANALYSIS FRAMEWORK - A federal database that integrates data from a variety of sources to estimate commodity flows and related freight transportation activity among states, regions, and major international gateways. See <a href="http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm">http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm</a>
FHWA	FEDERAL HIGHWAY ADMINISTRATION – The division of the U.S. Department of Transportation responsible for highway policy and funding.
FRA	FEDERAL RAIL ADMINISTRATION – The division of the U.S. Department of Transportation responsible for most railroad policy matters. Railroad rates and abandonment proceedings are administered by the Interstate Commerce Commission (ICC).

FTA	FEDERAL TRANSIT ADMINISTRATION - The division of the U.S. Department of Transportation responsible for administration of transit programs and grants.
FY	FISCAL YEAR – Defined as July 1 through June 30 of a given year. However, some agencies may choose to specifically designate their own “fiscal year.”
GAA	GENERAL AVIATION AIRPORT – A classification of airports which accommodates small to medium-size aircraft and provide services for business, government, and personal aircraft.
HERS	FHWA's HIGHWAY ECONOMIC REQUIREMENTS SYSTEM - An engineering/economic software that evaluates and analyzes the relationship between highway investment and system condition, performance, and user cost levels. This tool allows you to identify highway deficiencies and apply economic criteria to select the most cost-effective mix of investments.
HES	HAZARD ELIMINATION SYSTEM – A program for addressing the elimination of highway hazards and increasing the safety of the state’s highways.
HDO	HIGHWAY DISTRICT OFFICE - Kentucky has twelve district highway offices located throughout the state.
HIS	HIGHWAY INFORMATION SYSTEM - A system, maintained by the Kentucky Transportation Cabinet, in which highway data and statistics are available for the state-maintained highway system. The data is available for download in a tabular format, in the form of maps, or by queries on specific highway route segments. <a href="http://transportation.ky.gov/planning/data_reports.asp">http://transportation.ky.gov/planning/data_reports.asp</a>
HPMS	HIGHWAY PERFORMANCE MONITORING SYSTEM - A database maintained by each state and provided annually to the FHWA to assess the use, condition, performance, and operational characteristics of the nation’s highway infrastructure. HPMS is used to monitor vehicular travel to certify public mileage data, and to facilitate planning and policymaking at the national level.
HPR	HIGHWAY PLANNING AND RESEARCH – A federal funding category for the Highway Planning and Research Funds to be used by the states for planning, research, and development of highway systems.

INFRASTRUCTURE – The built environment and, more specifically, the entire physical plant for the transportation network or some discreet component.

INTERMODAL – The movement of passengers or commodities using more than one mode of transportation for a specific trip that includes at least one intermediate transfer point.

ISTEA INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT - 1991. The federal five-year transportation funding act passed in 1991 which changed the approach to transportation funding programs. Through various measures, this act requires a greater degree of intermodal coordination, regional, and statewide planning than was required under previous highway and transit funding measures.

ITS INTELLIGENT TRANSPORTATION SYSTEM – An integrated system of highway monitoring and information services and technology development, which will allow drivers and public transit users to make optimal use of the transportation network {previously referred to as the Intelligent Vehicle Highway System (IVHS)}.

KASP KENTUCKY AVIATION SYSTEM PLAN – A plan developed by the Kentucky Division of Aeronautics to provide the tools and recommend projects to continue to improve the public airports in Kentucky. The plan includes three major elements: Aviation System Plan for 20 years, Economic Impact Study, and a Capital Improvement Plan. This plan was updated in 1998.

KYTC KENTUCKY TRANSPORTATION CABINET

METROPOLITAN AREA BOUNDARY – The boundary must enclose at least the existing Urban Area and the contiguous area expected to become urban in the next twenty years. The boundary establishes the area covered by the Transportation Improvement Program and is eligible for urban STP funds.

MPO METROPOLITAN PLANNING ORGANIZATION - A regional planning organization designated as being responsible, together with the state, for conducting the continuing, cooperative, and comprehensive planning process for the Metropolitan Area as designated by the Federal Government (more than

50,000 people). This organization is responsible for the regional planning process for the metropolitan area as required by ISTEA, TEA-21, and SAFETEA-LU.

**NHS** NATIONAL HIGHWAY SYSTEM – A network of interstate and state highways which serve longer distance mobility needs, are important to the nation’s economy, defense, and mobility, and are eligible for matching federal funds for capital improvement.

**NN** NATIONAL TRUCK NETWORK – A network of roads which have been specifically designated for use by commercial motor vehicles (trucks) with increased dimensions (102 inches wide; 13 feet 6 inches high; semi-trailers up to 53 feet long; trailers 28 feet long – not to exceed two trailers per truck).

**PCI** PER CAPITA INCOME – A measure of income derived by dividing the total income for a particular group by the total population. Personal income measures and statistics for counties, states, regions, and the U.S. are released by the U.S. Bureau of Economic Analysis.

**PIF** PROJECT IDENTIFICATION FORM – An identification form developed by KYTC Division of Planning for all transportation projects that contains problem statement, project description, specific geometric and analytical data, cost estimates, and assumptions for the project. The form is prepared when the transportation need is first noted and the information is entered into the Unscheduled Project List database and is updated periodically. Maps and pictures for the project may also be attached.

**PLAN** THE LONG-RANGE STATEWIDE TRANSPORTATION PLAN - A federally required long-range transportation plan for a minimum period of twenty years. The federal legislation requires that a plan be developed for at least a twenty-year period and must be financially balanced. This document, which was first produced in Kentucky in 1995 and updated in 1999, included both policy and projects. The 2006 Plan is a policy only plan.

**POVERTY LEVEL** - The minimum level of money income adequate for families of different sizes, in keeping with American consumption patterns. These levels are determined annually by the U.S. government on the basis of an index originated by the U.S. Social Security Administration and released biennially by the U.S. Census Bureau for states and counties.

P & N	PURPOSE AND NEED - A brief statement of the problem a potential transportation project is to address; in later project development phases, a concise purpose and need statement is essential in establishing a basis for the development of reasonable alternatives to be evaluated in accordance with a project's Environmental Impact Statement (EIS).
PMS	PAVEMENT MANAGEMENT SYSTEM – One of the management systems required under ISTEA, but made optional under TEA-21. Kentucky has continued to maintain a PMS and uses performance measures in this system to identify high priority roadways for resurfacing and also to assist in determining the resurfacing cycle.
RI	PAVEMENT RIDEABILITY INDEX – A general measure of pavement conditions. The RI is based on a scale of 0 to 5, with 0 being poor and 5 being very good.
RP	RESURFACING PROGRAM – A funding category of State Road Funds to be used for pavement resurfacing of the state-maintained highway system.
SAF	SAFETY FUNDS - A state funding category of STP funds to be used for safety improvement projects throughout the state.
SAFETEA-LU	SAFE, ACCOUNTABLE, FLEXIBLE AND EFFICIENT TRANSPORTATION EQUITY ACT: A LEGACY FOR USERS – The federal transportation reauthorization legislation, enacted August 10, 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009 and continued many of the provisions of TEA-21, but also further emphasized and elevated the importance of safety and security, further coordination of statewide planning with the metropolitan areas, consultation with local elected officials, and continued public involvement.
SP	STATE CONSTRUCTION FUNDS – An estimate of State Road Funds to be used for non-routine maintenance, state-funded improvement projects.
SPPR	PARKWAY AND STATE PRIMARY PAVEMENT REHABILITATION - State Road Fund Category for pavement rehabilitation projects on the Parkways and State Primary Road System.

- SPR STATE PLANNING AND RESEARCH FUNDS – A federal funding category for the planning, research and development of highway programs.
- SYP or 6YP SIX-YEAR HIGHWAY PLAN - A short-range highway plan of projects to be implemented by phase and funding levels for a six-year period in Kentucky. This plan is mandated by Kentucky Legislation and is updated and approved by the Kentucky Legislature every two years.
- STIP STATEWIDE TRANSPORTATION IMPROVEMENTS PROGRAM - This program was required under ISTEA, and continued under TEA-21 and SAFETEA-LU. The STIP is a capital improvement program for all federally funded state surface transportation (highway, bus and rail) projects which are anticipated for a specified period. The STIP is a subset of the Six-Year Highway Plan and the Statewide Transportation Plan and includes projects for a four-year period. The STIP must also be financially balanced.
- STP STATEWIDE TRANSPORTATION PLAN - Statewide Transportation Plan is a federally required long-range transportation plan for a minimum period of twenty years. The federal legislation requires that a plan be developed for at least a twenty-year period and must include funding information. The document is updated periodically and may include projects or just address state policy.
- STP SURFACE TRANSPORTATION PROGRAM - Surface Transportation Program is a funding category included under ISTEA and continued under TEA-21 and SAFETEA-LU for transportation roadway projects. The STP funds cannot be used for improvements on a highway, which is functionally classified as a rural minor collector or local road.
- STRAHNET STRATEGIC HIGHWAY CORRIDOR NETWORK - A federal highway designation of selected highways to be used for certain national emergencies.
- SYSTEM CLASSIFICATION / FUNCTIONAL CLASSIFICATION – The categorization of transportation facilities by their actual or expected use characteristics. The distinction is usually made on the basis of access vs. mobility, where lower order roadways are used primarily for access to individual land uses, while higher order roadways are used primarily for travel between towns or cities.

- TE           TRANSPORTATION ENHANCEMENT PROGRAM - Transportation Enhancement is a federal-aid funding category for projects that add community or environmental value to any active or completed transportation project. These projects, for instance, might enhance roadways with sidewalks, bikeways, or landscaping. This program was introduced through ISTEA and continued in TEA-21 and SAFETEA-LU with funding and project approval provided on an annual basis.
- TEA-21       TRANSPORTATION EQUITY ACT FOR THE 21<sup>ST</sup> CENTURY (1998) - The federal transportation legislation passed in June of 1998 which continued many of the provisions of ISTEA, but also further emphasized the coordination of statewide planning with the metropolitan areas, consultation with local elected officials, and continued public involvement.
- TIP           TRANSPORTATION IMPROVEMENT PROGRAM - Transportation Improvement Program is a document prepared by the MPO. It contains a prioritized list of projects within the metropolitan area for the next four years. This document identifies the projects for inclusion into the STIP. This document must be financially constrained and must be a direct subset of the area's Long-Range Transportation Plan.
- UPL           UNSCHEDULED PROJECTS LIST (formerly Unscheduled Needs List, or UNL) - A list, maintained by the KYTC Division of Planning, of potential transportation projects, with project data derived from the KYTC Project Identification Form.
- URBAN AREA – A place of 5,000 or more in population, including the urbanized area as defined by the Bureau of the Census. An Urban Area boundary, which encircles the urbanized areas in a region, is developed by states in cooperation with local officials. This boundary is the line of demarcation for rural/urban functional classification of roadways.
- VMT           VEHICLE MILES TRAVELED – This is a measure of the level of travel activity in an area. The figure is generally found by multiplying the average length of trip by the total number of trips, based on actual traffic counts.
- VSF           VOLUME TO SERVICE FLOW – The ratio of a facility's actual vehicular traffic volume to its theoretical maximum potential vehicular traffic volume; a ratio higher than about 0.6 indicates traffic volumes are approaching congested conditions. This is also referred to V/C or Volume to Capacity ratio.



KENTUCKY  
TRANSPORTATION CABINET