

## 5.0 Transforming Needs to Realities

### 5.1 Performance-Based Planning and Programming Process

#### 5.1.1 PBPP Overview

Performance-based planning and programming (PBPP) is a system-level, knowledge-driven process that builds upon the concept of “performance management”. Performance management is the strategic approach that uses data to support decisions which help to achieve the desired outcomes. Those desired outcomes support the overall aims of a transportation plan: the goals and the vision.

PBPP includes a range of activities and products undertaken by a transportation agency together with other agencies, stakeholders, and the public as part of a 3C (cooperative, continuing, and comprehensive) process. It includes development of: long range transportation plans (LRTPs), other plans and processes (including those Federally-required, such as Strategic Highway Safety Plans, Asset Management Plans, the Congestion Management Process, Transit Agency Asset Management Plans, and Transit Agency Safety Plans, as well as others that are not required), and programming documents, including State and metropolitan Transportation Improvement Programs (STIPs and TIPs).

Using data to support investment decision-making, PBPP process attempts to ensure that transportation investment decisions are made – both in long-term planning and short-term programming of projects – based on their ability to meet established goals. The PBPP process also provides a tool to educate the public, political leadership, and other stakeholders on the costs and potential performance results of different strategic investments in the transportation system.

#### 5.1.2 Performance Evaluation and Target Setting

The federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21) includes performance goals for increasing safety, improving system condition and reliability, reducing congestion, enhancing freight movement, promoting environmental sustainability and reducing delays in project design and construction. MAP-21 requires the United States Department of Transportation (USDOT) to identify national-level performance measures for various performance management areas related to safety, pavements, bridges, freight, emissions, performance, and congestion. The 2014 LRSTP will operate under the guidelines and recommendations of the American Association of State Highway and Transportation Officials (AASHTO) for highway design and construction throughout the United States. As indicated as part of the “pyramid of performance” shown in **Figure 5.1.2 A**, and previously discussed in Chapter 4, these include the recommended performance measures for safety, pavement and bridge conditions, management, congestion mitigation, air quality and overall system performance.

As illustrated in **Figure 5.1.2 B**, the KYTC has selected specific targets for each performance measure. For each specific target, the KYTC will define quantitative values for specific performance measures for the state’s transportation system as a whole, as well as for its individual elements.

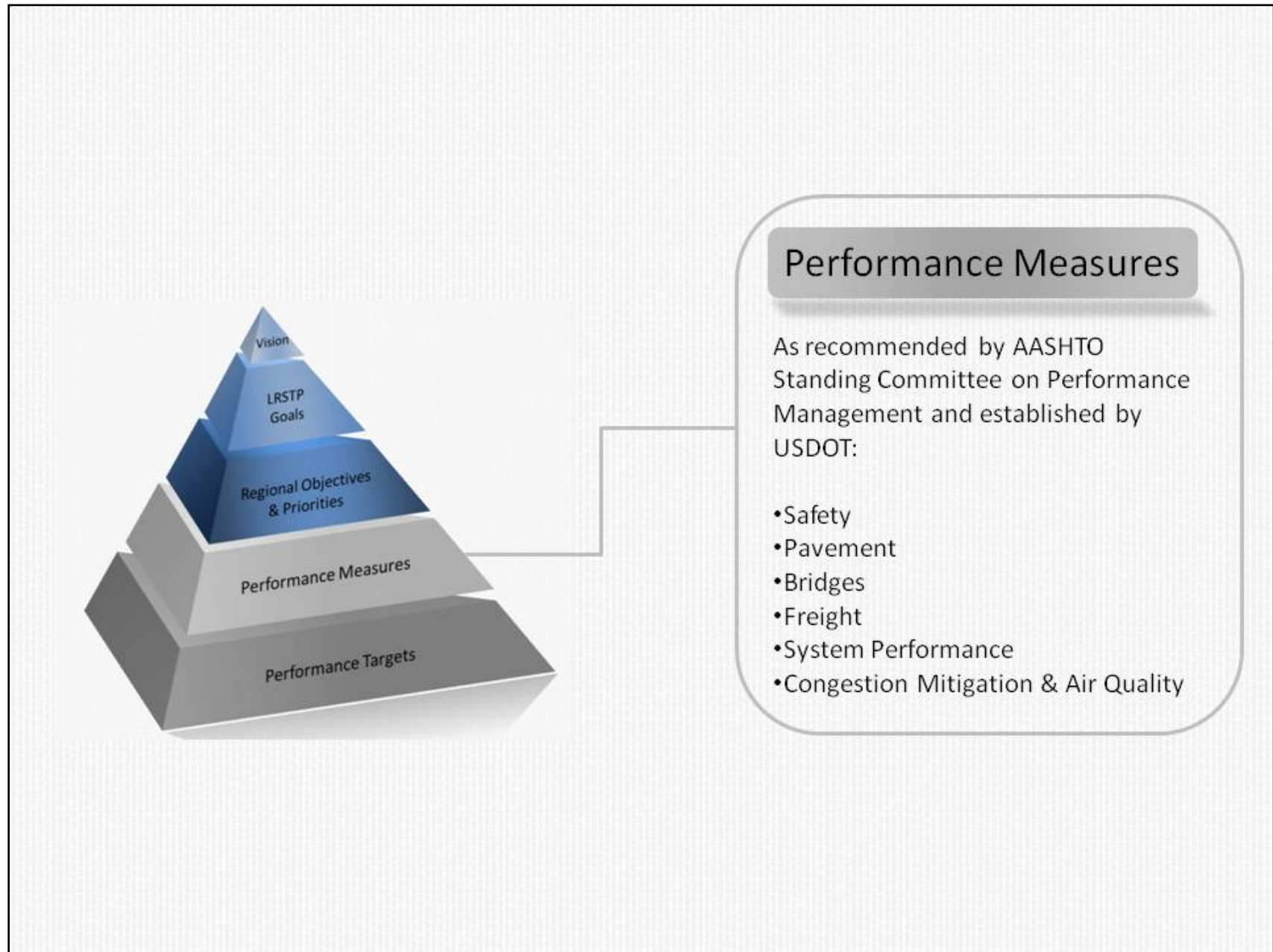


Figure 5.1.2 A - KYTC Performance Measures as Part of the PBPP Process

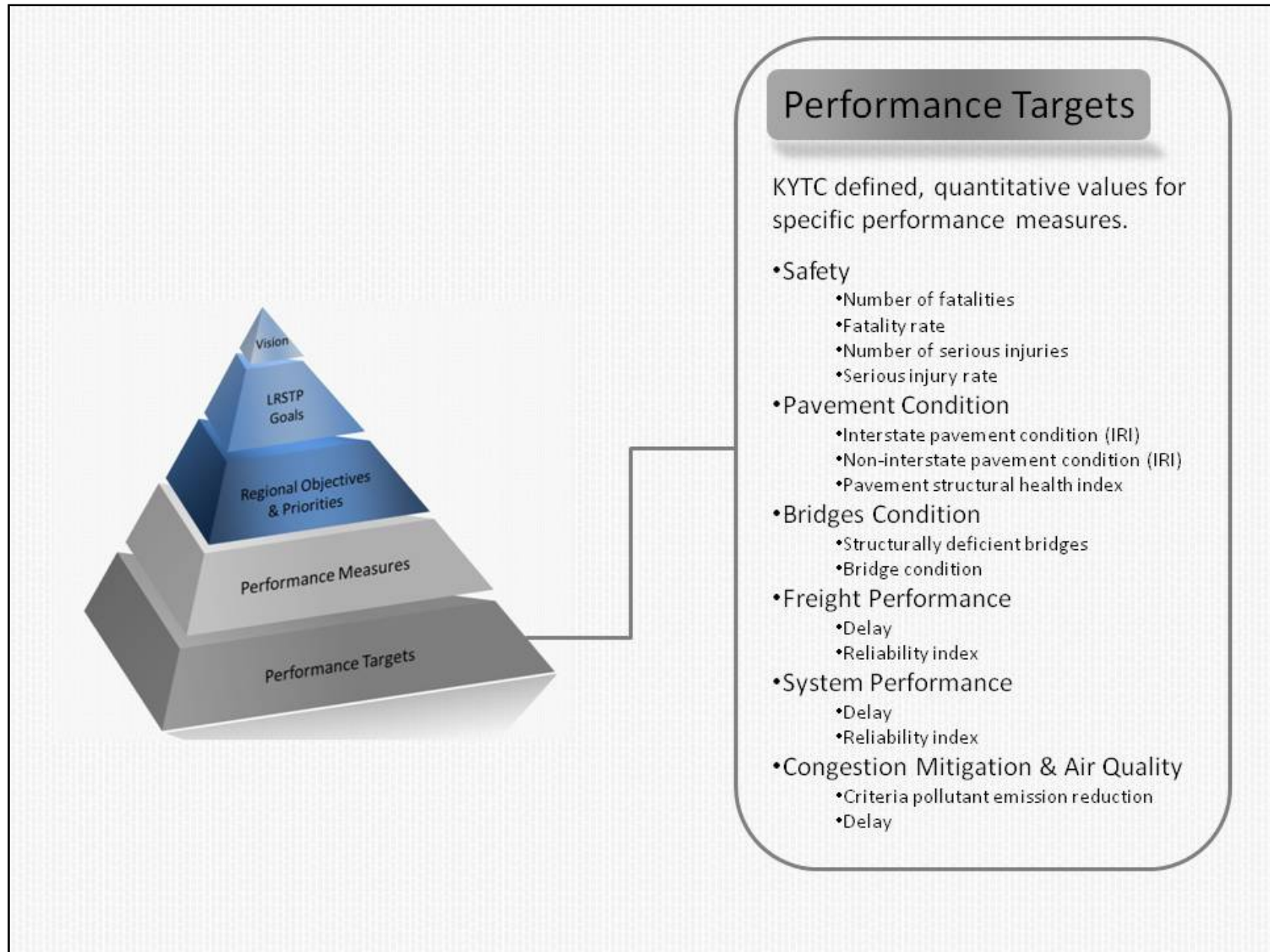


Figure 5.1.2 B - KYTC Performance Targets as Part of the PBPP Process

Safety will be assessed by the number and rate of both fatalities and serious injuries. Delays and reliability are considered the two primary factors within the system performance and freight performance categories. The pavement conditions will be monitored by the KYTC pavement structural health index, as discussed in greater detail in 5.2 Modal Application of PBPP under 5.2.1 Highways, along with the interstate International Roughness Index (IRI) and non-interstate (IRI) pavements. The standards to be considered for congestion mitigation and air quality include delays and emission reduction.

These performance measures and their associated targets become the framework to performance-based planning and programming (PBPP) for each state's transportation system. PBPP refers to the application of performance management within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system. The data collected regarding each of these targets is the foundation upon which the performance of the investments into the transportation system is determined and supports the decision-making in place to achieve desired performance outcomes.

#### **5.1.2-1 Data Management**

- **GOAL: Ensure that the process which develops and maintains the transportation system considers the use of transparent decision-making that effectively addresses the public's transportation needs.**

- **GOAL: Ensure that the process which develops and maintains the transportation system considers the efficient and flexible use of available resources to meet the transportation needs of the state.**

Data is a collection of facts expressed in numbers, words, measurements, observations or even just general descriptions. Data is considered in virtually every decision made in development and maintenance of the transportation system. This data is collected in part as required by FHWA through CFR statute that mandates we collect highway information in order to review and compare similar type highway systems through functional classification.

Differing issues require different types (and amounts) of data and the availability of these data sets allow for decision makers to assess what is needed for a particular issue. This data also has secondary and sometimes tertiary uses that may not have been readily apparent when it was first collected but are beneficial now.

Over a number of years, the KYTC has developed several robust data sets as presented in **Table 5.1.2 A** to provide useful analytical information for making sound planning and engineering decisions.

As discussed in detail in *Chapter 4: Vision, Mission, Goals, and System Performance*, the on-going performance management of the transportation system examines how well the KYTC is achieving its vision and goals through certain quantifiable indicators or measures: safety, pavement condition, bridge condition, freight movement, system performance, congestion mitigation, and air quality.

<b>KYTC Databases</b>			
<b>Database</b>	<b>Acronym</b>	<b>Contents</b>	<b>Custodian</b>
Highway Information System	HIS	<ul style="list-style-type: none"> <li>• GIS of all Public Routes with ownership, road name, pavement type, etc.</li> <li>• Roadway System Information like; Functional Class, State System, Truck Network, Appalachian Development System, etc.</li> <li>• Roadway Features like; Lane widths, Shoulder types, Median type and width</li> <li>• Analysis data such as: Evaluation Homogeneous sections, HPMS Sample Sections, etc.</li> </ul>	KYTC Planning
Pavement Management System	PMS	<ul style="list-style-type: none"> <li>• Pavement Type</li> <li>• Pavement Condition</li> <li>• Pavement Testing</li> <li>• Pavement Rating</li> </ul>	KYTC Maintenance
Operations Management System	OMS	<ul style="list-style-type: none"> <li>• Equipment Inventory</li> <li>• Personnel</li> <li>• Materials</li> <li>• Work Order Route Locations</li> <li>• Sign Locations</li> </ul>	KYTC Maintenance
Bridge Maintenance System	Pontis	<ul style="list-style-type: none"> <li>• Bridge Location</li> <li>• Bridge Rating (Sufficiency)</li> <li>• Bridge Clearance</li> <li>• Other key bridge information (type, length, width, etc.)</li> <li>• National Bridge Inventory Report</li> </ul>	KYTC Maintenance
Traffic Count Processing Database	TRADAS	<ul style="list-style-type: none"> <li>• Annual Average Daily Traffic (AADT)</li> <li>• Vehicle Classification Information</li> <li>• Truck Volume and Truck Percentage</li> <li>• Vehicle Miles Traveled</li> <li>• Weigh In Motion</li> </ul>	KYTC Planning
Asset Collection System	Mandli	<ul style="list-style-type: none"> <li>• Roadway Images</li> <li>• Roadway Inventory Extraction</li> <li>• Pavement Rutting</li> <li>• Pavement Faulting</li> </ul>	KYTC Maintenance
Rail Crossing Inventory	RCI	<ul style="list-style-type: none"> <li>• Rail Crossing Locations</li> <li>• Inspection Records</li> </ul>	KYTC Right of Way and Utilities
Transportation Enterprise Database	TED	<ul style="list-style-type: none"> <li>• KYTC Data Clearinghouse for data sharing and reporting</li> </ul>	KYTC Office of Information Technology

Please note: sign structures, high-mast light poles, and mast-arm traffic poles are inspected and rated, but they are not currently located in a centralized database.

**Table 5.1.2 A – KYTC Databases and Contents**



Each performance measure includes specific, quantifiable targets. For example, for the performance measure of bridge condition, a target is set for the acceptable decrease in the number of bridges that are structurally deficient within the highway system. Other targets would include a reduction in the number of traffic crashes or the reduction in traffic delay for commuters and/or freight delivery. The information collected and made available through these electronic databases is the foundation upon which the performance of the investments into the transportation system is measured.

#### **5.1.2-2 The Highway Project Identification and Prioritization Process**

- **GOAL: Ensure that the process which develops and maintains the transportation system adequately considers the use of transparent decision-making that effectively addresses the public's transportation needs.**
- **GOAL: Ensure that the process which develops and maintains the transportation system adequately considers the efficient and flexible use of available resources to meet the transportation needs of the state.**

The main objective of the statewide transportation planning process is to develop a multimodal plan which identifies improvements that make the best use of limited financial resources to improve safety and efficiency. The 2014 LRSTP attempts to highlight the major challenges of the entire system and present a plan to address those challenges. This approach is bound by Kentucky's Constitution that does not provide for the use of road funds for non-highway related expenses and specific state funding is not provided for most other transportation

programs. As such, this plan's main focus is on the highway system and the consequences Kentucky will face if adequate funding is not made available.

The 2014 LRSTP goals provide the framework for the decision-making process of project identification, prioritization, development, delivery and maintenance.

*"Take politics out of transportation related decisions and make these data driven decisions. You will see an immediate increase in the efficient use in transportation dollars."*  
Jefferson County Survey Participant

#### **5.1.2-2.1 The Prioritization Process**

Since the 1970s, Kentucky has implemented a statewide transportation planning process that solicits public input at the local and regional levels. In response to the directives of ISTEA and subsequent reauthorizations acts, as discussed previously in Chapter 4, this process has expanded to include more comprehensive public involvement in the identification, evaluation and prioritization of transportation needs. The current process now also includes coordination between Kentucky's nine Metropolitan Planning Organizations (MPO), fifteen Area Development Districts (ADD), twelve of the KYTC Highway District Offices (HDO) and other planning agencies, as well as with the Kentucky Division of Air Quality to assure compliance with the State Implementation Plan (SIP), a plan in which a state provides its process for addressing air pollution.

*"KYTC needs to effectively communicate to the public why we need the money and how we're going to use it. Then we make certain to go back and show them how we made a return on that investment."*  
Vision 2035 Member

This knowledge-driven process identifies transportation needs and establishes priorities for input into the LRSTP, the Statewide Transportation Improvement Program (STIP) and the Six-Year Highway Plan. Throughout this process, local and state officials are consulted and the public is involved as represented graphically in **Figure 5.1.2 C**.

#### What is an MPO?

A Metropolitan Planning Organization (MPO) is a federally mandated and federally funded transportation policy-making organization that is made up of representatives from local government and governmental transportation authorities. The Federal-Aid Highway Act of 1962 required the formation of an MPO for any urbanized area with a population greater than 50,000. MPO's were created to ensure that existing and future expenditures of governmental funds for transportation projects and programs are based upon a continuing, cooperative, and comprehensive (3-C) planning process. As of 2014, nine MPO's are responsible to plan for transportation in the urbanized areas of Kentucky. As shown in **Chapter 4, Figure 4.3 E**, displays the locations of these nine MPO offices.

The transition of a transportation need to a realized transportation improvement flows as if through a funnel, which is shown graphically in **Figure 5.1.2 D**. Each transportation need identified through the consultation process is documented through a Project Identification Form (PIF) that is incorporated into an electronic database of all Unscheduled Needs List (UNL) projects. The current UNL consists of more than 2,500 projects with an estimated cost of more than \$58 billion for the highway element of the state transportation system. The UNL is analyzed continuously to determine if needs are still

#### What is an ADD?

An Area Development District (ADD) is a regional planning and development organization that focuses on developing and sustaining the fundamental building blocks for multi-county regions across the state. This includes our traditional emphasis on strategic planning and project funding for clean and safe drinking water systems, health care facilities, affordable housing, small business development, and transportation improvements. As of 2014, fifteen ADD's are in existence across the state and serve as the point for planning transportation for the rural regions of the state. As shown in **Chapter 4, Figure 4.3 D**, displays the locations of these fifteen ADD's.

“active” or if they should be placed as “inactive” outside of the prioritization process. High priority projects are then selected from the Unscheduled Needs List as candidate projects to be prioritized for consideration of being selected for the KYTC Recommended Six-Year Highway Plan.

With the intent to complement the metropolitan and regional planning efforts that provide the public and political input, the KYTC established a District Transportation Planning (DTP) process within the consultation process in 2011. This DTP process is an integral element of the overall PBPP process in which the “Plan step” of a PDCA cycle asks “What needs to happen?” In efforts to answer this question, the DTP provides for a professional engineering review of quantifiable data related to UNL projects.

Focused within each of the twelve KYTC Districts, this review uses an automated mapping tool that includes technical input from various sources such as the Highway

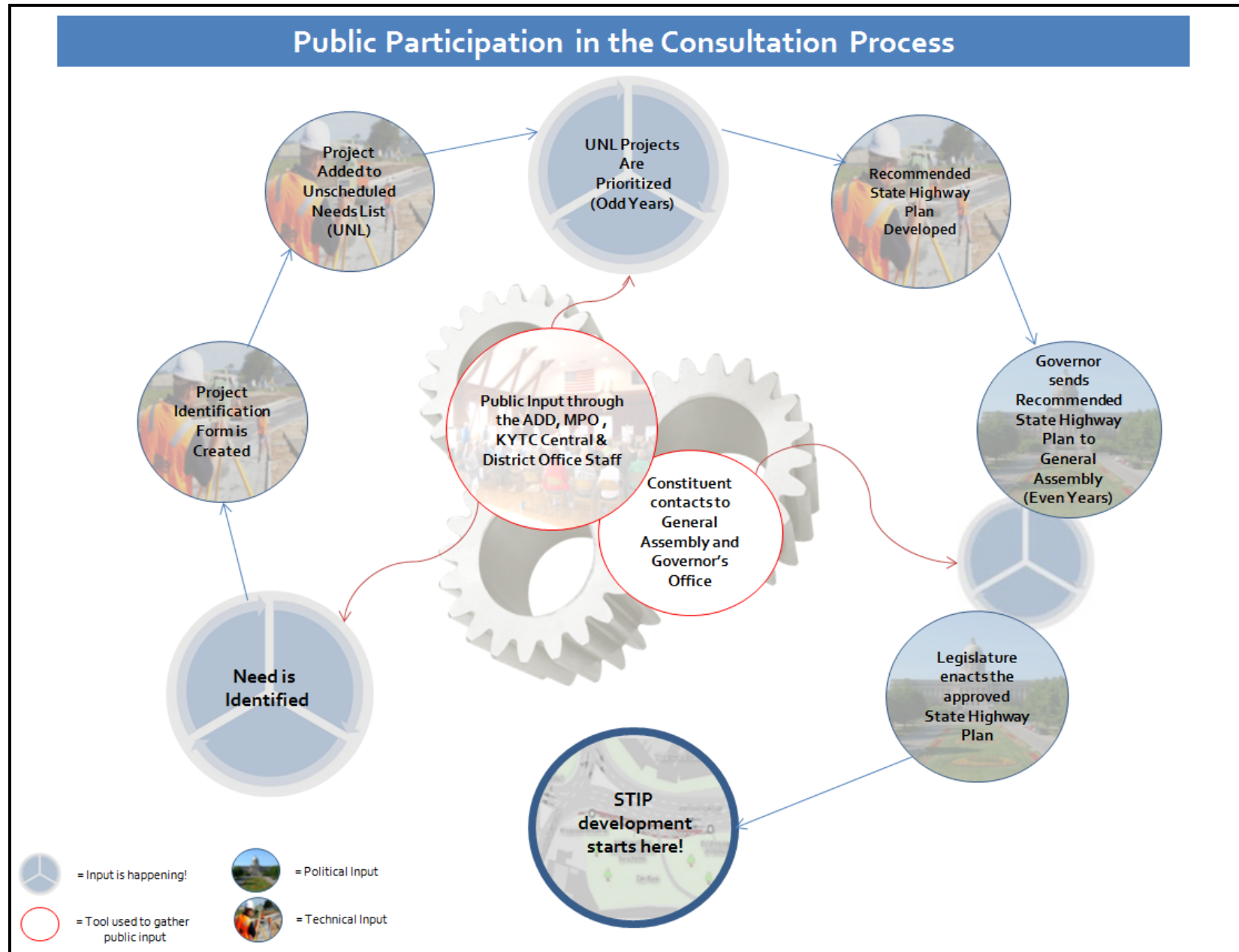


Figure 5.1.2 C: Public Participation in the Consultation Process (from the 2014 KYTC Public Involvement Plan)



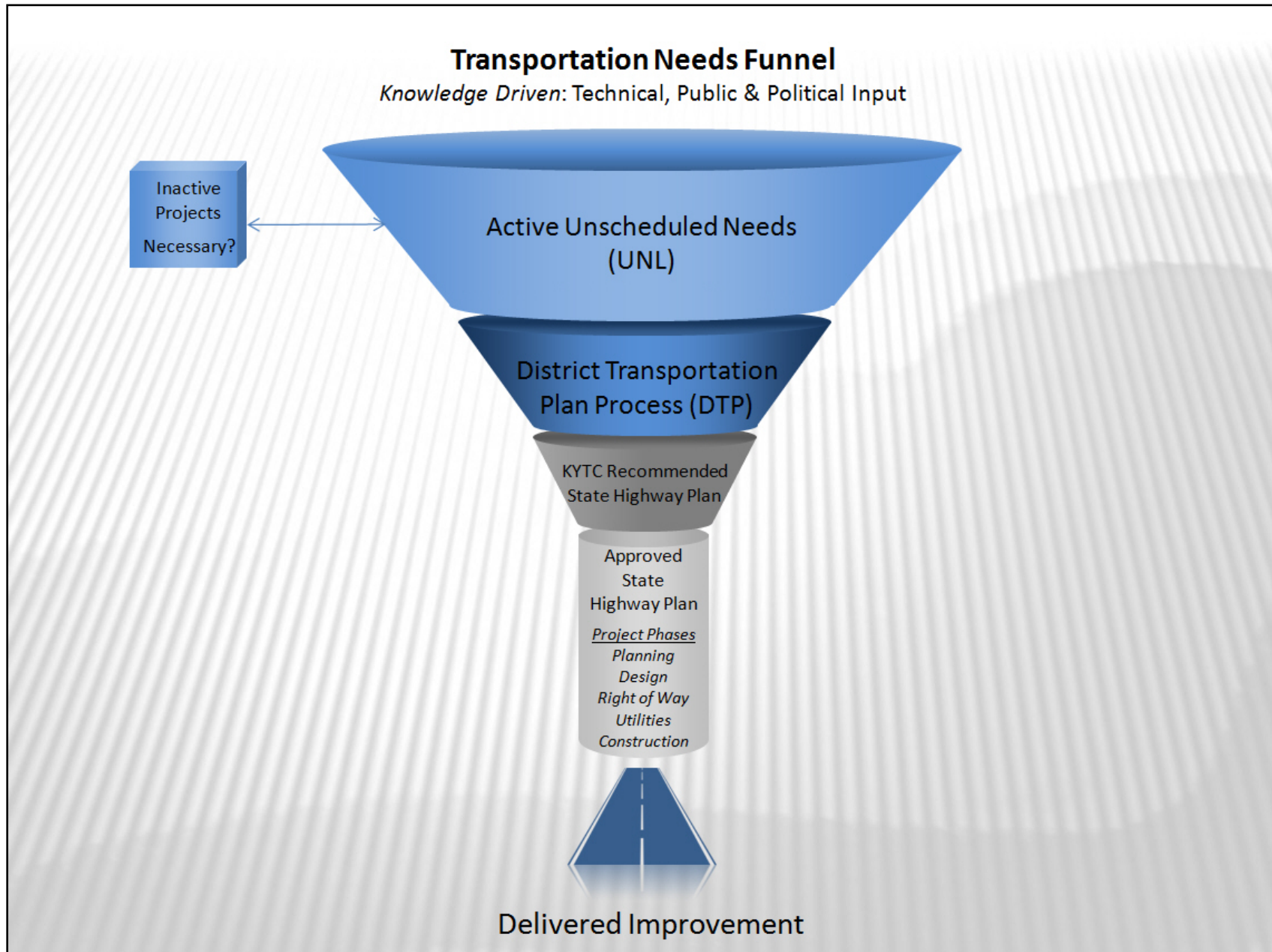


Figure 5.1.2 D: Transportation Needs Funnel: From a Need to a Delivered Project

Information System (HIS), crash data, congestion, bridge information and others. This mapping tool provides a technically sound view of the current form and function of the state highway system that is then used to establish project priorities based on observable system gaps or weaknesses. Historical rankings and current demand conditions are also considered. Each District then compiles a list of its own 30 to 50 highest priority projects, known as the Unscheduled Projects List (UPL).

In the next step of the process, a final list of fiscally constrained projects is detailed as part of the KYTC recommended Six-Year Highway Plan and forwarded to the state legislature and the governor for their examination and approval. Once the Six-Year Highway Plan is

approved and enacted, each new project undergoes a Data Needs Analysis (DNA) process which solidifies project alternatives and cost estimates and identifies any project development concerns, such as environmental impacts, that need to be addressed.

Rolling into the “Do” step of a PDCA Cycle, the projects then proceed into the design, right-of-way acquisition and utility relocation phases toward an eventual letting date for construction. As part of the “Check” step, the new or refurbished facility is maintained by the state until its preservation is no longer effective and a replacement or new facility is required. The “Act” step is the link between the operations of the system to the planning for future improvements thus beginning the cycle anew.

### 5.1.3 Environment

#### 5.1.3-1 Considerations

- **GOAL:** Ensure that the process which develops and maintains the transportation system adequately considers the human and natural resources of the state.

Transportation affects our quality of life. With this in mind, the development and operation of our transportation system must be balanced in such a way as to provide access to the resources that we need while minimizing negative impacts on our environmental resources. The KYTC recognizes the relationship between the elements of the natural environment as well as those of the human environment.

As illustrated in **Figure 5.1.3 A**, in the development and operation of the transportation system, the KYTC must consider the natural environmental issues which include water, air, noise, and land as well as those animals and plants that are considered threatened or endangered species. Additionally, the KYTC must consider human environmental issues such as those illustrated in **Figure 5.1.3 B**. These factors are diverse and include but are not limited to the following: community activity centers (e.g., schools, churches, and hospitals), Resource Conservation and Recovery Act (RCRA) sites (e.g., underground chemical/petroleum tanks), and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites such as areas of former industrial activity that require the removal of hazardous materials. Other human environmental considerations include archeology

*“Protecting the environment is very important to consider when planning transportation-related projects.”*

Wolfe County Survey Participant

sites, historic sites, socioeconomic impacts and environmental justice.

Within the KYTC, the Division of Environmental Analysis (DEA) facilitates the KYTC’s goal of adequately considering the human and natural resources of the state by ensuring that environmental impacts associated with planning, design, construction, operation, and maintenance projects are identified and addressed in accordance with applicable state and federal laws. With this information, the KYTC is best positioned to understand the potential implications of its actions and make the best possible decisions.

The KYTC makes every effort to identify environmental resources and **avoid** impacting those resources. When impacts to environmental resources cannot be avoided, efforts are made to **minimize** impacts. Finally, where impacts cannot be avoided or acceptably minimized, **mitigation** activities are pursued. Sometimes mitigation activities are appropriate at the site of the impact (e.g., noise barriers to protect homes and businesses from highway noise, vegetative screening to protect the view of the road from an historic property, or clean-up of hazardous materials). Other times, it is more effective to facilitate mitigation off-site.

Off-site mitigation has proven to be especially effective for impacts to ecological habitat or water quality. Because ecosystems are large scale, it makes sense to accumulate



Figure 5.1.3 A – Kentucky Natural Environmental Considerations





**Figure 5.1.3 B – Kentucky Human Environmental Considerations**

*"I think that Kentucky should be at the forefront of community-focused and environmentally-responsible development in transportation. Kentucky's communities are filled with wonderful people who should be able to travel safely and whose travel should promote the health of Kentuckians and our world."*

Fayette County Survey Participant



the mitigation funding from several smaller impacts and combine the mitigation effort at a larger scale and in locations where there is the potential to have more of an impact on ecological diversity and health. The KYTC partners with other federal and state agencies to develop stream and wetland banks. The KYTC mitigation efforts also fund research, and create, enhance and preserve habitat for endangered species in Kentucky. Lands selected for these mitigation activities are then protected by preservation easements or are owned and managed by appropriate agencies for the long-term health of Kentucky's natural ecosystems and water quality. These activities and programs offset the unavoidable impacts to streams, wetlands and ecosystems that may result from highway construction projects.

The KYTC DEA executes these duties through the review, preparation, and oversight of environmental documents, contracts, or actions as required by state and federal environmental laws and regulations. The DEA also provides a single point of contact through the District Environmental Coordinator to the general public and to the KYTC personnel for environmental guidance, information, and concerns. Policies and procedures are regularly evaluated to identify more efficient ways to incorporate environmental considerations into practice.

Early in the project development process, the KYTC project teams invite public officials and other stakeholders to identify and address potential impacts to environmental resources. The KYTC has also developed a web-based portal so that those interested in historic preservation can easily request to become Section 106 consulting parties. This opportunity can be accessed at [http://transportation.ky.gov/environmental-](http://transportation.ky.gov/environmental-analysis/pages/consulting-party-projects)

[analysis/pages/consulting-party-projects](http://transportation.ky.gov/environmental-analysis/pages/consulting-party-projects). Stakeholder involvement greatly enhances the KYTC's understanding of the circumstances surrounding individual projects and local priorities.

The KYTC strives for constructive relationships with regulatory agencies to facilitate meaningful review and project approvals. These relationships are formalized through interagency agreements and built on trust. These valuable partnerships mutually enhance the mission of each participating agency, resulting in improved outcomes for the citizens of the Commonwealth.

### **5.1.3-2 Air Quality**

Although Kentucky is largely a rural state, air quality is still a major concern. The KYTC's top priority is the health and safety of the Commonwealth's citizens. The KYTC knows that emissions from motor vehicles that use our highways are one of the leading causes of air pollution. The KYTC works with local, state, and federal agencies to reduce air pollution to help minimize the effect upon the health of Kentuckians. Since the Clean Air Act Amendment of 1990 and subsequent policies, 41 percent of the total emissions of six principal air pollutants have decreased in the past 20 years. Those six criteria pollutants are ground level ozone (smog), fine particulate matter (PM<sub>2.5</sub>), lead, carbon monoxide, nitrogen dioxide, and sulfur dioxide. More information concerning specific air pollutants can be found at <http://www.epa.gov/air/criteria.html> and <http://www.epa.gov/air/urbanair/>.

*"Louisville is ranked as a city with the top 20 worst air quality in America and we know automobile traffic contributes hugely to this. What is the transportation department doing to address this?"* Jefferson County Survey Participant

The Air Quality Index (AQI) is a tool for reporting how clean or polluted a community's air is, and what associated health effects might be a concern. The AQI focuses on health effects a person may experience within a few hours or days after breathing polluted air. The Environmental Protection Agency (EPA) calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. Additional information on the AQI can be found at <http://airnow.gov/> or <http://air.ky.gov/Pages/AirQualityIndexMonitoring.aspx>.

The Environmental Protection Agency (EPA) created National Ambient Air Quality Standards (NAAQS) which are used to designate areas as attainment, non-attainment, or attainment with an approved maintenance plan. A status of attainment means that an area has never had an air quality problem with any of the six principal air pollutants. A status of non-attainment means that an area is in violation of at least one of the six principal air pollutants and must take action to correct the issue. A status of attainment with an approved maintenance plan means that it has been demonstrated to the EPA that an area which was once designated nonattainment is no longer in violation of any of the six principal air pollutants, and a plan is in place to prevent reversion into nonattainment. Improvements in air quality over the past 20 years have resulted in some areas being removed from nonattainment status. The 2013 air quality status of counties within Kentucky is illustrated in **Figure 5.1.3 C**.

In the past 20 years, the air quality in the state has improved. To continue this improvement over the next 20 years, the KYTC has various programs to encourage pollution reduction. Through emissions model analysis,

the KYTC works closely with local air quality and transportation agencies to make sure that planned transportation projects add capacity and do not exceed the Motor Vehicle Emission Budgets (MVEBs) which are set for Transportation Conformity purposes including public health and welfare protection.

Congestion can create travel delays, negatively impact the economy and air quality as well as increase the potential for crashes. The Park-n-Ride program, funded through the Federal Congestion Mitigation and Air Quality (CMAQ) Program, helps people interested in carpooling or vanpooling to find designated state or privately owned parking sites. These CMAQ Program funds are designated for areas with air quality concerns. Congestion Mitigation Strategies are also used to help identify and select long range planning projects to minimize or improve pollution levels.

The Division of Planning has a full-time bicycle and pedestrian coordinator who works to encourage more people to walk and/or bike instead of using motorized vehicles (see the Bicycle and Pedestrian Section in **Chapter 5**). The Division of Planning also has a freight coordinator who works with riverports, railroads, trucking companies, and ferryboats to promote development of multimodal and intermodal transportation systems thereby reducing the number of trucks on the highways (see additional information regarding freight in various modes in **Chapter 3** and **Chapter 5**).

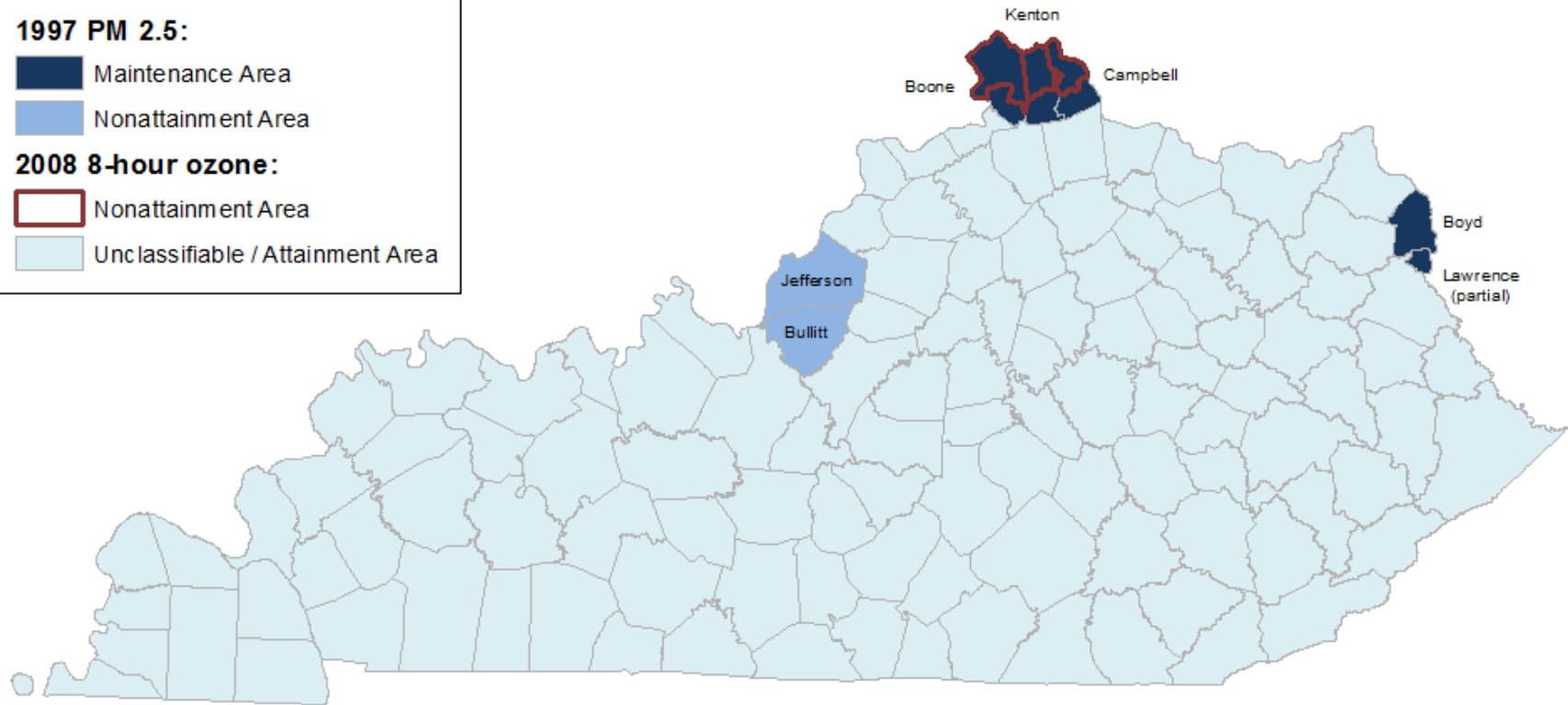
## Air Quality Nonattainment and Maintenance Areas

### 1997 PM 2.5:

- Maintenance Area
- Nonattainment Area

### 2008 8-hour ozone:

- Nonattainment Area
- Unclassifiable / Attainment Area



Valid as of October 2013

Figure 5.1.3 C – Kentucky Air Quality Attainment Map

**5.1.3-3 Transportation and Human Health**

**Figure 5.1.3 D – The Four Points of Intersection between Health and Transportation**

According to the World Health Organization, health is defined as the state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity. Human health and transportation intersect at four points of concern: Safety, Access, Air Quality, and Physical Activity. The issues of Safety and Air Quality have long been strongly incorporated in the development and operation of the transportation system as efforts have been made to reduce the number of crashes within the system and also to reduce the amount of emissions into the atmosphere. Most recently, the discussion of the

relationship of transportation and health has expanded into the concerns for access to healthy food and healthcare and the concerns with the lack of physical activity in transportation options. Collaborations between the KYTC and health officials are emerging to cultivate a better understanding of shared goals of the professions particularly in regards to increasing physical activity in transportation trips and to strengthen access for all citizens to health care and healthy food. The KYTC activity areas of transit and pedestrian/bicycle facilities are two opportunities for this collaboration.



### **5.1.3-4 Kentucky Historical Marker Program**

An important element of the human environment is preservation and commemoration of historical resources such as buildings, battlefields, landmarks, etc. Since its inception in 1949, the Kentucky Historical Marker Program commemorates historic sites, events, and personalities throughout the Commonwealth. The goal of the program is to provide access along the state's highways to the wealth of Kentucky's history and to increase the public's awareness of those resources.

The Kentucky Historical Society (KHS) administers the marker program and collaborates with the KYTC for the installation and maintenance of new and more than 2,000

existing markers located across the state. The KYTC District staff members work with the local sponsors of the markers on the selection of safe and effective locations before the KYTC installs these markers. Additionally, the KYTC District staff members retrieve damaged or old markers and work with the KHS for the delivery of those markers to the marker foundry for repairs or refurbishment. The success of this program rests upon the partnership between the KYTC and the KHS.

More information on the program, the application process, and a searchable database of the existing historical markers across the state can be found at <http://history.ky.gov/portfolio/historical-markers/>.





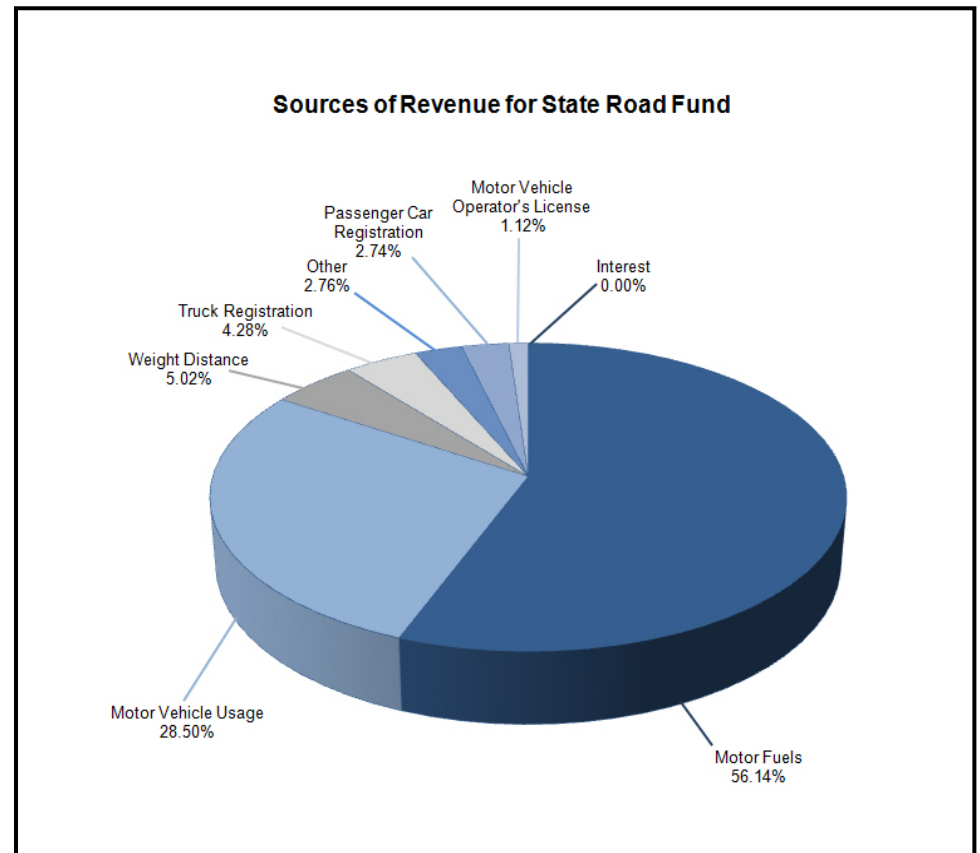
### 5.1.4 Transportation Funding

- **GOAL:** Ensure that the process which develops and maintains the transportation system adequately considers the efficient and flexible use of available resources to meet the transportation needs of the state.

#### 5.1.4-1 Sources of Funds

Funding transportation needs can be a complicated matter due to restrictions attached to the funding source by the legislative process at both the federal and state levels. The purpose and use of public funds is defined by legislative bodies through the budgeting process, while environmental, labor and procurement laws affect processes and expenditures for all aspects of transportation projects from planning through maintenance. Funding for water, rail, aviation, and transit modes of transportation must be sought from other public or private sources.

The Kentucky Road Fund is funded through four revenue sources: fuel taxes, usage taxes and registration and licensing fees. Approximately, 60% comes from state taxes on motor vehicle fuels as shown graphically in **Figure 5.1.4 A**. Kentucky uses a floating tax rate based on the wholesale cost of fuel, with a per gallon ceiling of \$0.31 and a statutory floor of \$0.225 per gallon and this amount includes a \$0.064 fixed component plus a variable component, which is based on the average wholesale prices of gas. The rate cannot increase by more than 10% of the variable rate established at the close of the previous fiscal year. Current tax rates for FY 2015 stand at about \$0.31 per gallon of gasoline and about \$0.28 per gallon of diesel and other fuels. These rates have risen over the past several years as wholesale prices have continued to increase.



**Figure 5.1.4 A - Revenue Sources for Transportation Funding in Kentucky**

The Road Fund is supplemented by a vehicle sales tax, also called a usage tax, which makes up 25% of annual revenue. Registration and licensing fees paid by commercial trucking companies generate 10% of fund revenues, with the remaining 5% from vehicle and driver licensing and other fees.

State bonds are another potential source of transportation funding. Their use, however, is often misunderstood. The sale of bonds is a financing tool in which funds must be repaid with interest. The debt service costs associated with these bonds reduce the cash available to build and maintain Kentucky's transportation infrastructure. Over the next two decades, the KYTC must reserve over \$150 million annually to cover the principal and interest on debts already acquired. Total revenues for Fiscal Year (FY) 2013 are approximately \$1.5 billion, of which more than 10% goes toward debt service repayment. If revenues do not grow significantly over the next two decades, debt service will consume a larger and larger percentage of available transportation dollars.

In addition to the state fuel tax, a federal fuel tax (18.4 cents per gallon on gasoline and 24.4 cents per gallon of diesel fuel) is collected for the Federal Highway Trust Fund. As a general statement, it would be correct to state Kentucky has traditionally been a donor state from the perspective of the federal fuel tax. In recent years, the Highway Trust Fund dedicated revenues have been supplemented by General Fund transfers by Congress to maintain a desired spending. The co-mingling of funds makes it impossible to know the true composition of the Federal Highway Trust Fund that Kentucky has received. Additionally, recent Federal transportation legislation has included minimum guarantees (TEA-21) and equity

bonuses (SAFETEA-LU) which have narrowed the gap between donors and states that donate.

The Federal Transportation Act recently passed by Congress (MAP-21) brought some stability to transportation funding. Looking ahead into the next two decades, significant short-term challenges to funding will continue as recent economic difficulties and debates over sequestration in the federal budget continue. The nation's slow recovery from the 2008 recession has negatively affected transportation infrastructure capabilities since virtually all funding comes from federal and state Road Funds, which are dependent on consumption-based revenues.

In recent years, nationwide fuel consumption has decreased as vehicle fleets become more fuel-efficient and the number of vehicle miles traveled declines. Kentucky has experienced the same trends with infrastructure funding needs outpacing Road Fund revenue growth. In addition, federal highway funds for Kentucky have remained flat and are likely to decrease in the future as Federal Highway Trust Fund receipts decline. General consensus nationwide is that consumption-based revenues are not sustainable and will not sufficiently support the

*"The best way to raise funds for transportation improvements would be a gas tax because the people using the roads should be the ones to pay for it."*  
Survey Participant,  
Christian County

*"Spend transportation money wisely. Any transportation infrastructure should be paid for by the end users. The money generated by the end user, i.e. cars, trucks, rail, bike, water or air, should be invested into that mode of transportation."*  
Survey Participant,  
Hardin County

nation's transportation infrastructure funding needs into the future.

In lieu of sufficient tax and fee based funding, transportation agencies are turning to other sources such as public and private investment and infrastructure user fees, such as tolls. Kentucky has used tolls in the construction of its highway system in the past. In 1954 the state opened its first toll road for motorized vehicles, the Kentucky Turnpike from the Jefferson County line to Elizabethtown, which was eventually incorporated into I-65. Kentucky's parkway system also began as a toll road system. Constructed beginning in the late 1960's, most of these roads were tolled through the next four decades to supplement the repayment of bonds sold to fund the construction. The last tolling stations were removed in 2006.

In recognition of deficiencies in traditional State Road Fund and Federal Highway Trust Fund as sources of future funding, the Kentucky General Assembly established the Kentucky Public Transportation Infrastructure Authority (KPTIA) in 2009. KPTIA was specifically created to address the unique funding requirements of large, complex highway projects within the Commonwealth and between Kentucky and Indiana. The enabling statutory authority permits KPTIA to sell revenue bonds that are to be repaid with revenues derived from completed projects, most likely from user fees such as tolls. KPTIA's first endeavor is a bi-state project with the state of Indiana to develop and construct two new Ohio River bridges and to re-configure the complex junction of I-65, I-64 and I-71 in downtown Louisville.

The Kentucky portion of the Louisville/Southern Indiana Ohio River Bridges (LSIORB) project will be financed through a combination of traditional federal funds and innovative financing methods including Grant Anticipation Revenue Vehicle (GARVEE) bonds, a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan from U.S. Department of Transportation and revenue bonds to be repaid through tolls collected from users of these new facilities. A federally approved plan is in place to make the proposed Ohio River Bridges toll roads. Without these multiple funding sources, it would be difficult to find the revenue to cover Kentucky's estimated billion dollar share of project costs.

### 5.1.4-2 Use of Funds

Kentucky historically collects approximately \$1.5 billion annually in Road Fund revenues from all sources. As shown in **Figure 5.1.4 B**, these revenues are supplied from the State Road fund and also from the Federal Highway Trust Fund. Within the State Funds "basket" these funds are distributed first to cover the fixed and operating costs of the KYTC such as Maintenance, Resurfacing, and Debt Service. Funds are then drawn from the "basket" to serve as the 20 percent match toward Federal Highway Trust Fund projects within the state as per the Federal Funding Programs. Once the fixed/operating costs and the matching funds have been assigned, then the remaining funds in the State Funds "basket" are used to fund state road improvement projects which are included in the Six-Year Highway Plan.

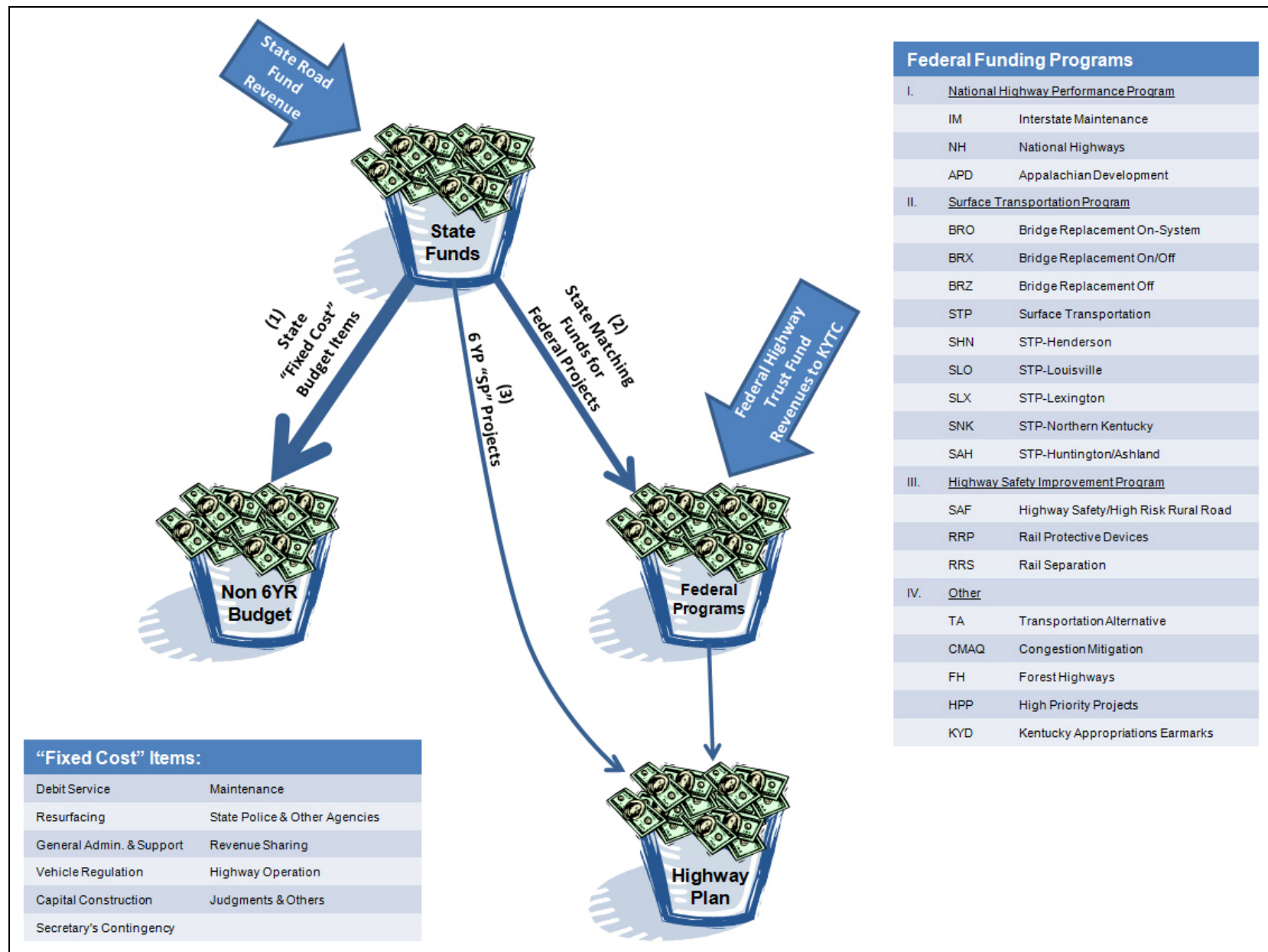
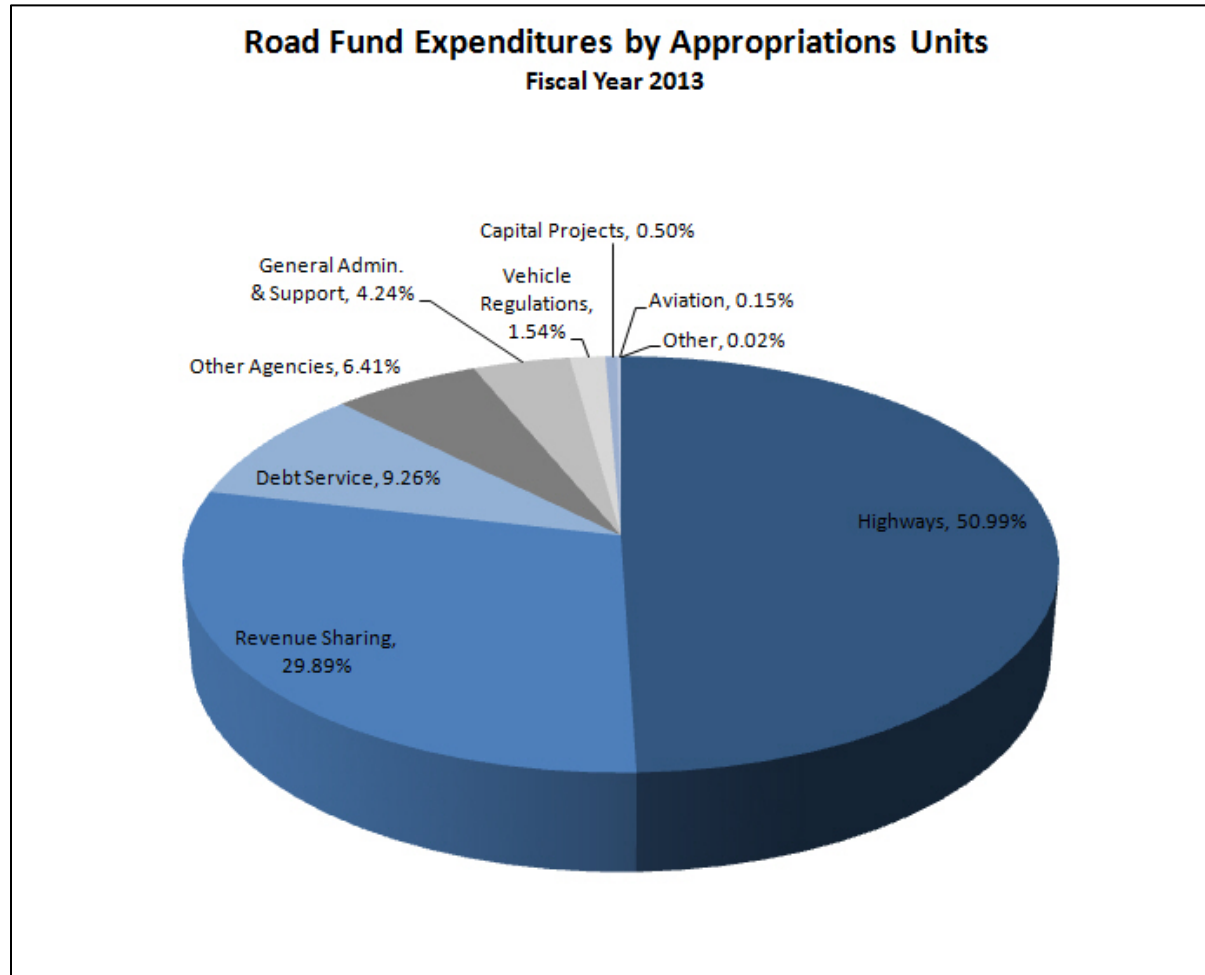


Figure 5.1.4 B - The Flow of State and Federal Highway Funding in Kentucky

**Figure 5.1.4 C** further illustrates the distribution of the Road Funds as per the example of FY 2013. Of the total expenditures of the FY 2013 Road Funds, over 50 percent

was spent toward the highway system while the remainder was spent on the Fixed/Operating costs associated with the work of the KYTC.

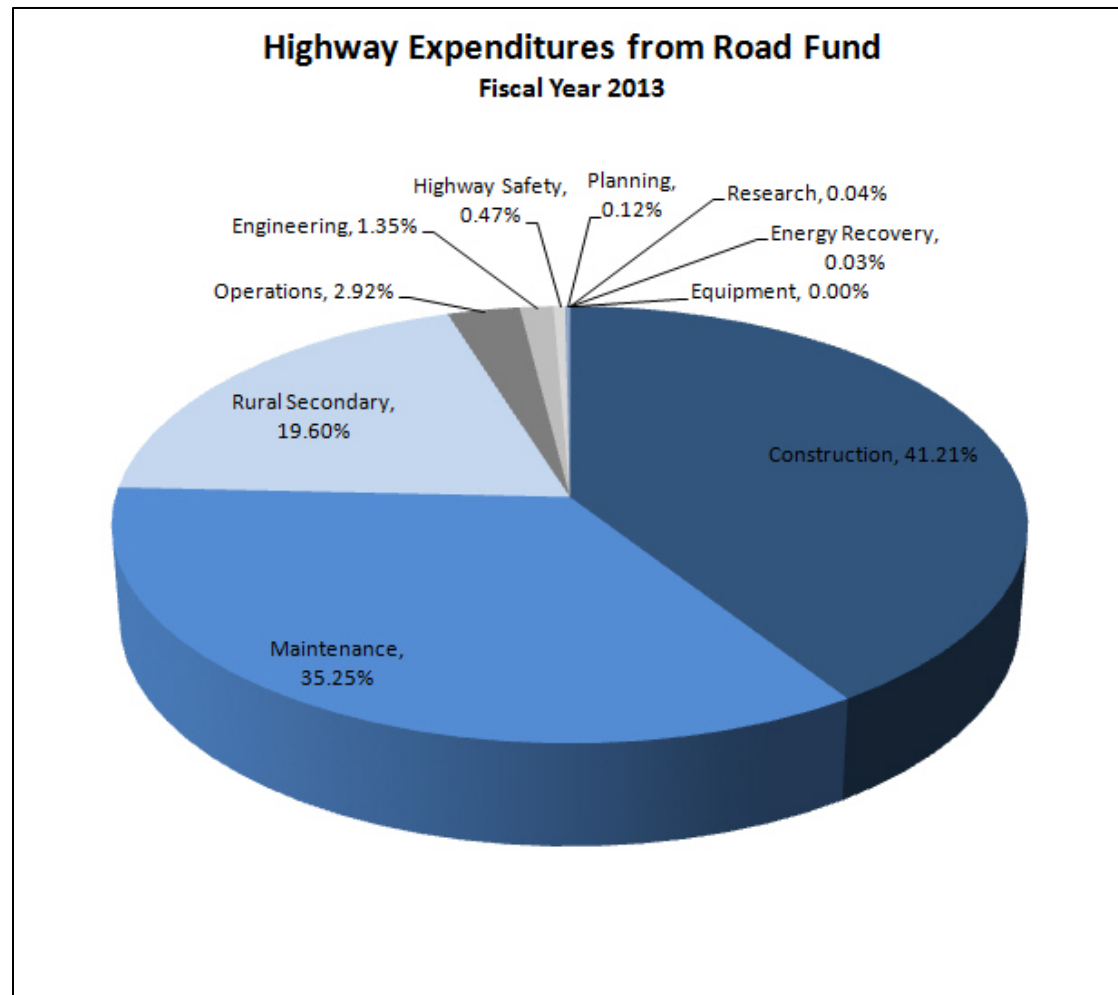


**Figure 5.1.4 C – Road Fund Expenditures by Appropriations Units (FY 2013)**



Of the expenditures dedicated from the Road Fund toward highways, **Figure 5.1.4.D** shows the distribution of those funds during FY 2013 across the multiple activities supporting the maintenance, operation, and development of the state's highway system. A little over 40 percent of

the expenditures is dedicated to cover the cost of construction of new facilities and reconstruction of existing facilities while over a third of the expenditures is dedicated toward the maintenance of the existing system



**Figure 5.1.4 D - Highway Expenditures from Road Fund (FY 2013)**

At the direction of Kentucky's Governor and General Assembly, the KYTC has spent \$7.56 billion in transportation system construction and maintenance in the past five fiscal years. **Table 5.1.4 A** depicts fiscal year expenditures for the KYTC funded by State Road Funds, Federal Highway Trust Funds and Restricted Funds.

Approximately 70% of these construction dollars were expended on federally funded projects, with about 50% of the total used to fund system preservation projects such as major resurfacing, bridge deck replacement and similar activities. The maintenance dollars represent Kentucky Road Fund money used exclusively for snow and ice

removal, mowing, right-of-way clearing, striping, replacement and repair of guardrail, signs and signals, and minor highway resurfacing projects. The KYTC Annual Budget Reports can be accessed at <http://transportation.ky.gov/Budget-and-Fiscal-Management/Pages/Financial-Reports.aspx>.

With a UNL of over 2,500 proposed highway projects at a total estimated cost in excess of \$58 billion, the cost of Kentucky's highway needs will always exceed the available revenue.

FY	Construction	Maintenance	Economic Development Bonds	GARVEE Bonds	Total
<b>2009</b>	\$ 0.9154 billion	\$ 300.0 million	\$84.5 million	\$97.2 million	\$1.3971 billion
<b>2010</b>	\$ 1.0124 billion	\$ 329.8 million	\$80.3 million	\$53.4 million	\$1.4759 billion
<b>2011</b>	\$ 0.9038 billion	\$ 339.1 million	\$118.3 million	\$52.7 million	\$1.4139 billion
<b>2012</b>	\$ 1.0451 billion	\$ 332.4 million	\$177.5 million	\$34.0 million	\$1.5890 billion
<b>2013</b>	\$ 1.0573 billion	\$ 317.9 million	\$165.4 million	\$146.4 million	\$1.6870 billion

**Table 5.1.4 A – KYTC Historic Construction/Maintenance Expenditures for Kentucky**