5.2.2 Public Transit

- ***GOAL:*** **Adequately consider all modes of transportation in the creation of an integrated system for the dependable movement of people and freight.**
- ***GOAL*****: Provide for reliable local, regional, and global access for people and freight.**
- ***GOAL*****: Provide for the safe and secure movement of people and freight.**
- ***GOAL:*** **Ensure that the process which develops and maintains the transportation system adequately considers the dependable access to markets, jobs, and resources.**

"I believe that a successful transportation network must include the non-automobile transportation alternatives. Transit service (both rail and bus) along with bike-ways and sidewalks truly enhance a transportation network and provide ways to travel without a car."
Warren County Survey Participant

5.2.2-1 Overview of Public Transit

Kentucky's public transit bus systems provide approximately 31 million transportation passenger trips annually. Almost 3 million trips per year are for the elderly and persons with disabilities, transporting them for medical treatment and other needed services. Additionally, public transit routes for commuters, whose primary purpose is employment, operate throughout the state of Kentucky. Intercity services, connecting our rural areas and smaller communities with larger communities have also become an important part of public transit in Kentucky. Regardless of the distance of the trip, the success of transit services in Kentucky is dependent upon a highway system that is well maintained and provides high mobility.

Kentucky has 25 rural public transportation providers that are identified by service area boundary statewide in **Figure 5.2.2 A**. Given the involved nature of this map, this image was also broken up into four regions that are shown with Counties from left to right in **Figure 5.2.2 B** - Western Rural, **Figure 5.2.2 C** - Central Rural, **Figure 5.2.2 D** – Bluegrass Rural and **Figure 5.2.2 E** – Western Rural.

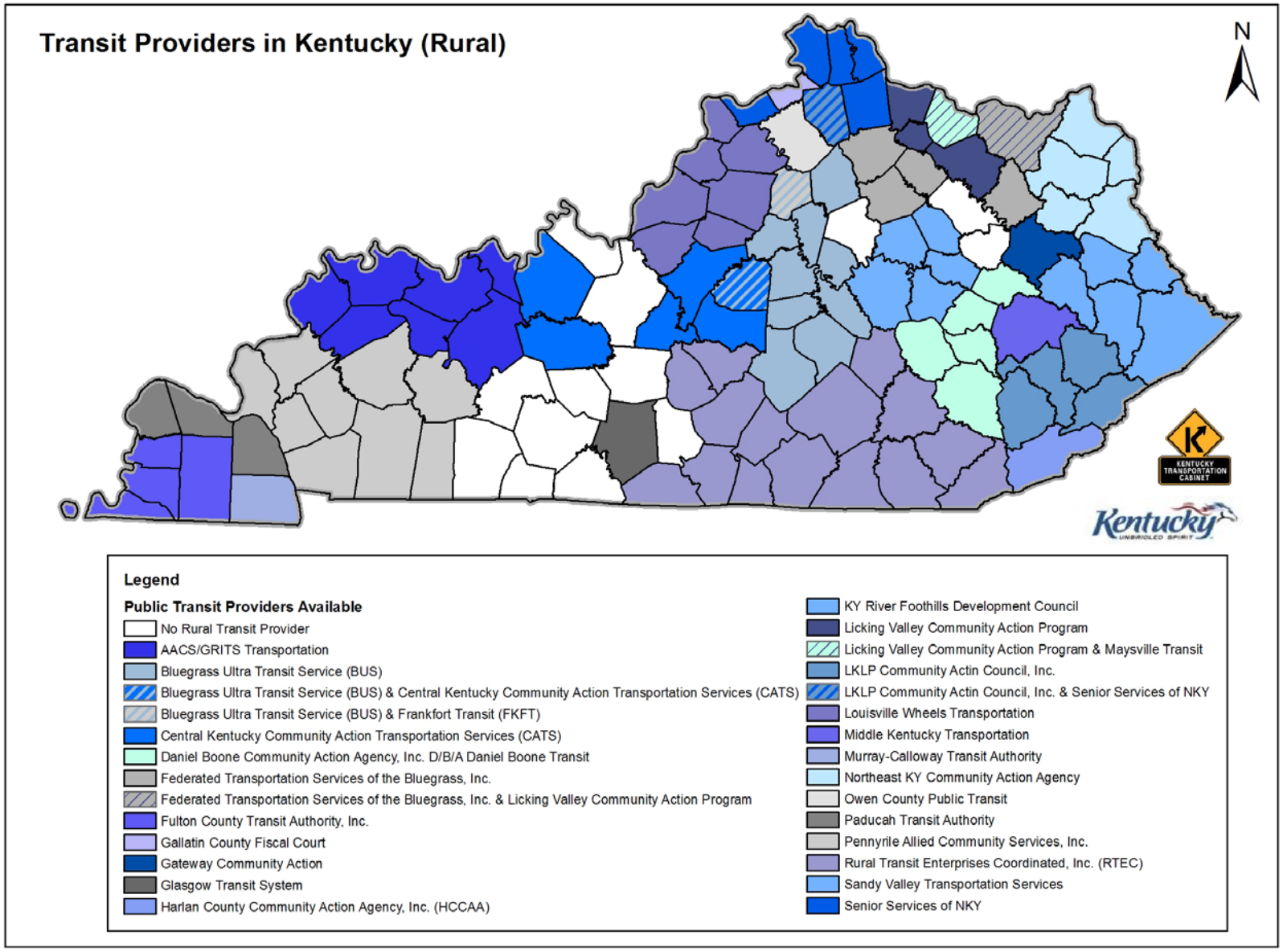

Figure 5.2.2 A - Rural Transit Providers in Kentucky

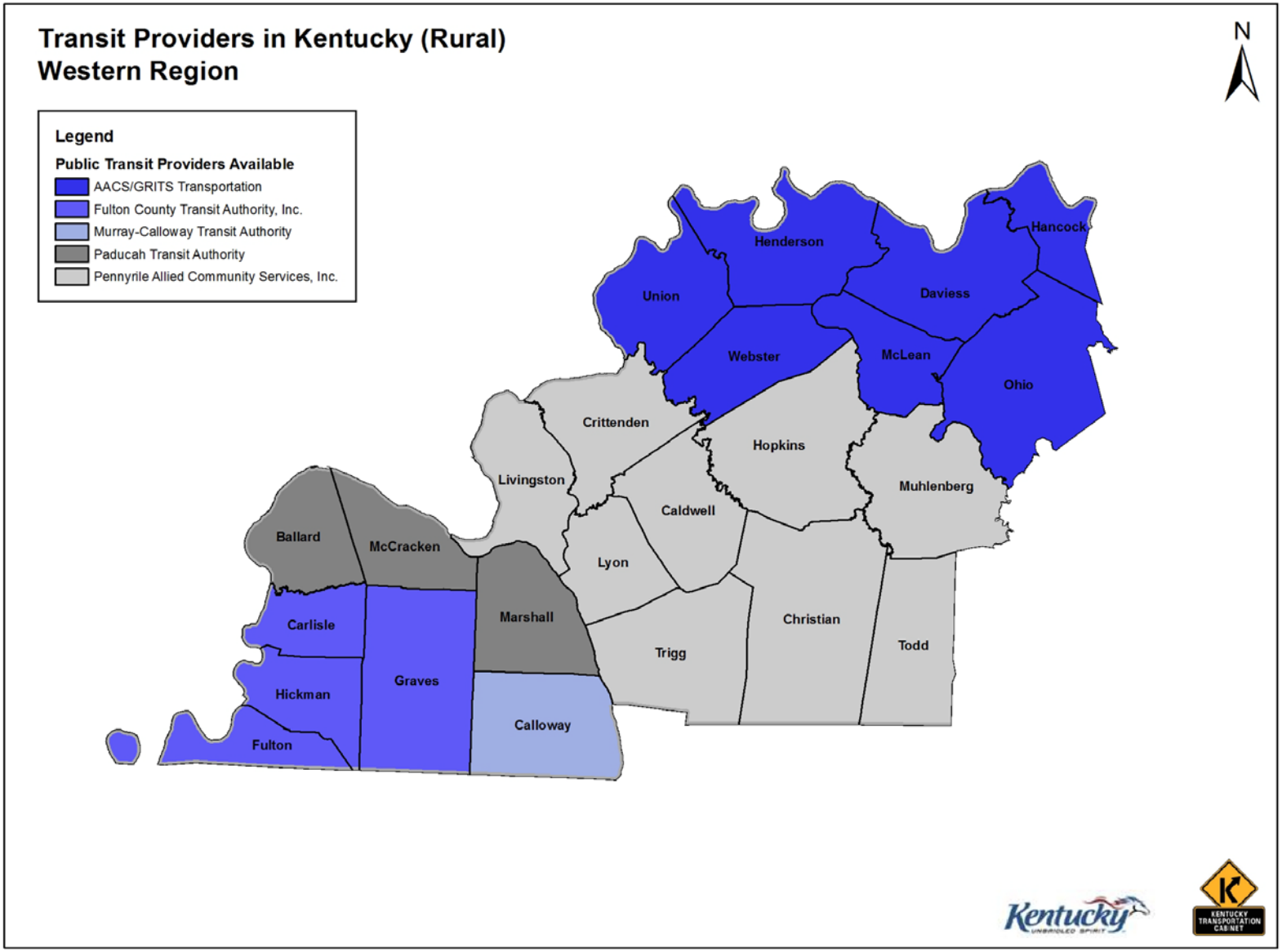

Figure 5.2.2 B – Kentucky Western Region Rural Transit Providers

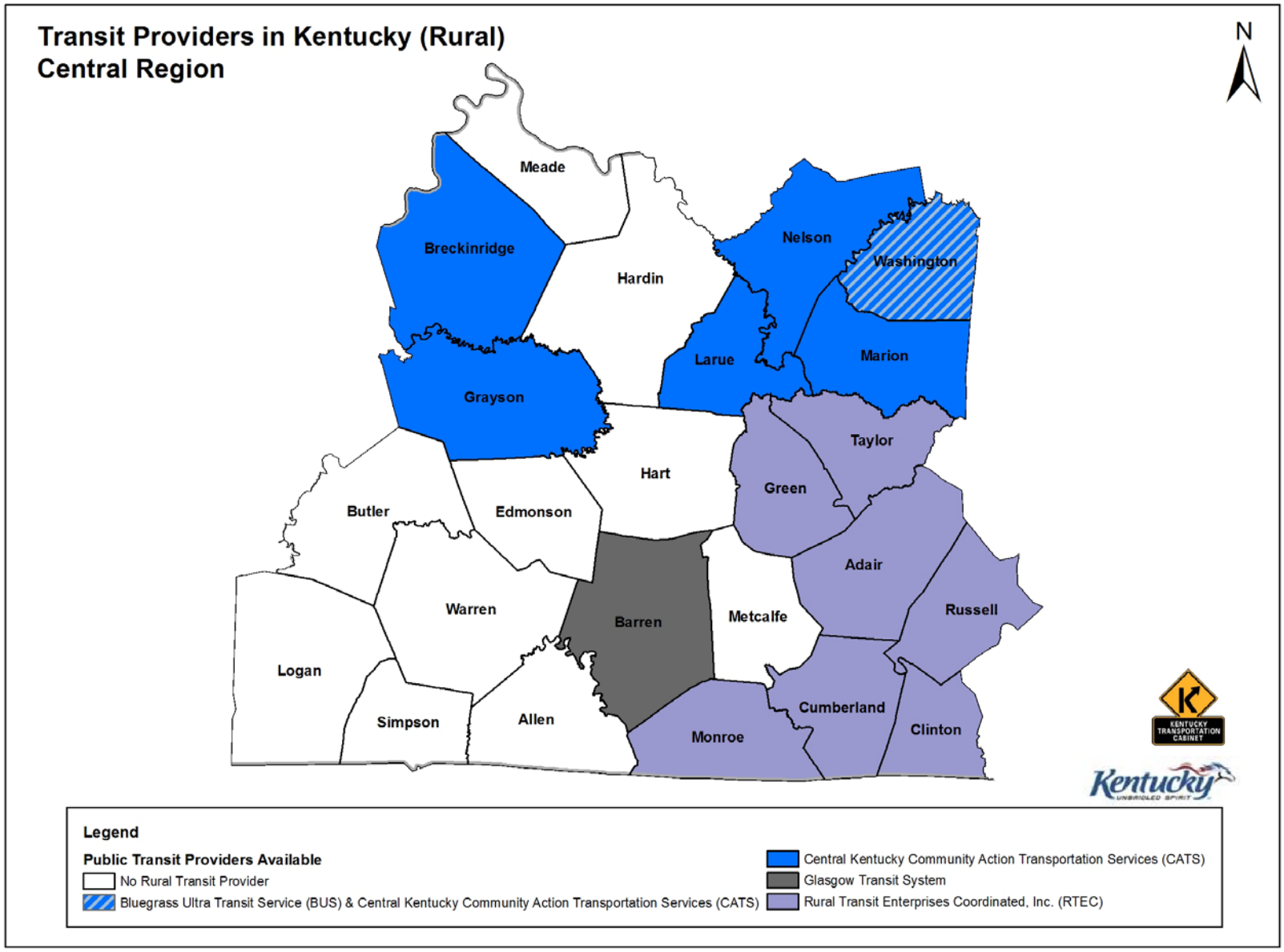

Figure 5.2.2 C – Kentucky Central Region Rural Transit Providers

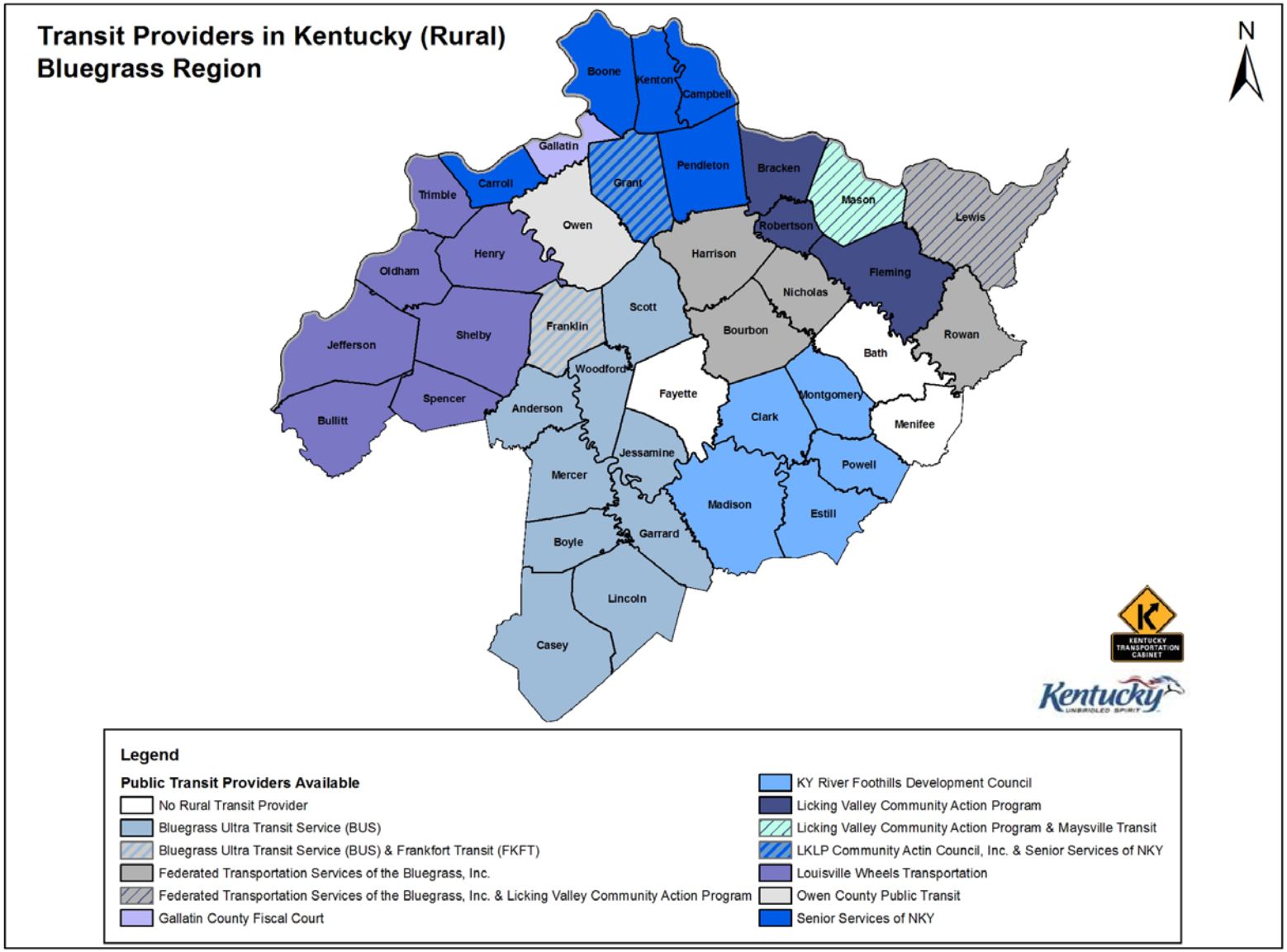

Figure 5.2.2 D – Kentucky Bluegrass Region Rural Transit Providers

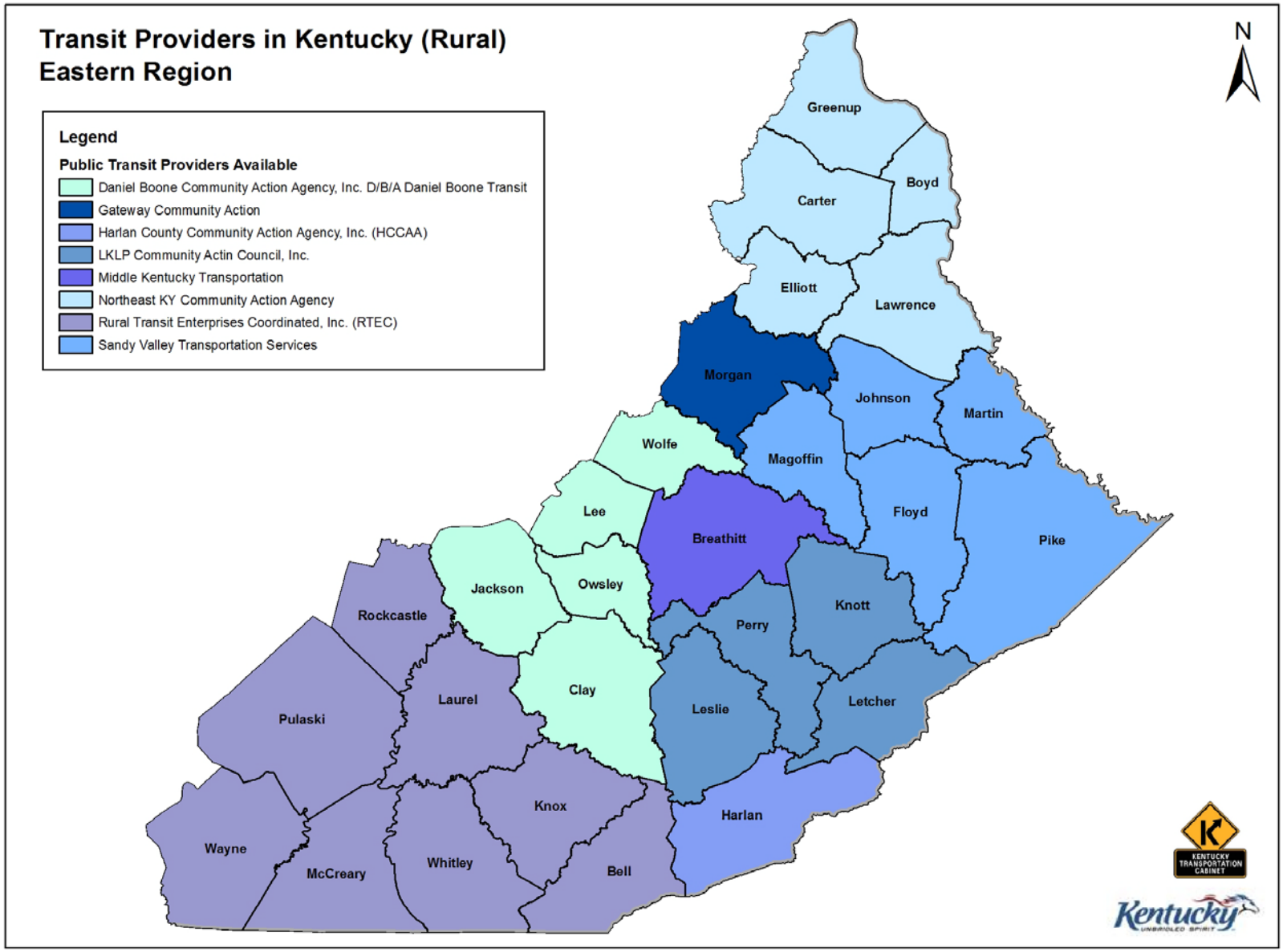

Figure 5.2.2 E – Kentucky Eastern Region Rural Transit Providers

Listed within **Table 5.2.2 A**, Kentucky has 9 small urban and large urban city bus/transit systems located throughout the state as shown in **Figure 5.2.2 F**. The larger systems provide fixed route services with complementary Para-transit that accommodate the disabled. These systems strive to reduce the time a rider has to wait for the next bus and increase the frequency of routes while attempting to maintain diverse accessibility for their citizens. Smaller cities usually operate a deviated fixed route system in which there are regular stops and times, but the bus may go off the route for a pickup or drop off and then return to the route. Rural systems use demand-response type services in which a call must be made to schedule a trip.

Short Name	National Transit Database ID	Location	Long name	Website
LEXTRAN	4017	Lexington	Lexington Transit Authority	http://lextran.com/
TARC	4018	Louisville	Transit Authority of River City	http://www.ridetarc.org/
TANK	4019	Fort Wright	Transit Authority of Northern KY	http://www.tankbus.org/
GObg	4184	Bowling Green	Community Action of Southern KY	http://www.casoky.org/transportation
ABS	4016	Ashland	Ashland Bus System	http://www.ashlandky.gov/index.php/abs-home
HART	5107	Henderson	Henderson Area Rapid Transit	http://www.cityofhendersonky.org/index.aspx?NID=199
OTS	4020	Owensboro	Owensboro Transit System	http://www.owensboro.org/transit
TACK	n/a	Elizabethtown-Radcliff	Transit Authority of Central Kentucky	No website
CTS	4092	Clarksville	Clarksville Transit System	http://www.clarksvilletransit.org

Table 5.2.2 A - Urban Fixed Route Transit Systems in Kentucky

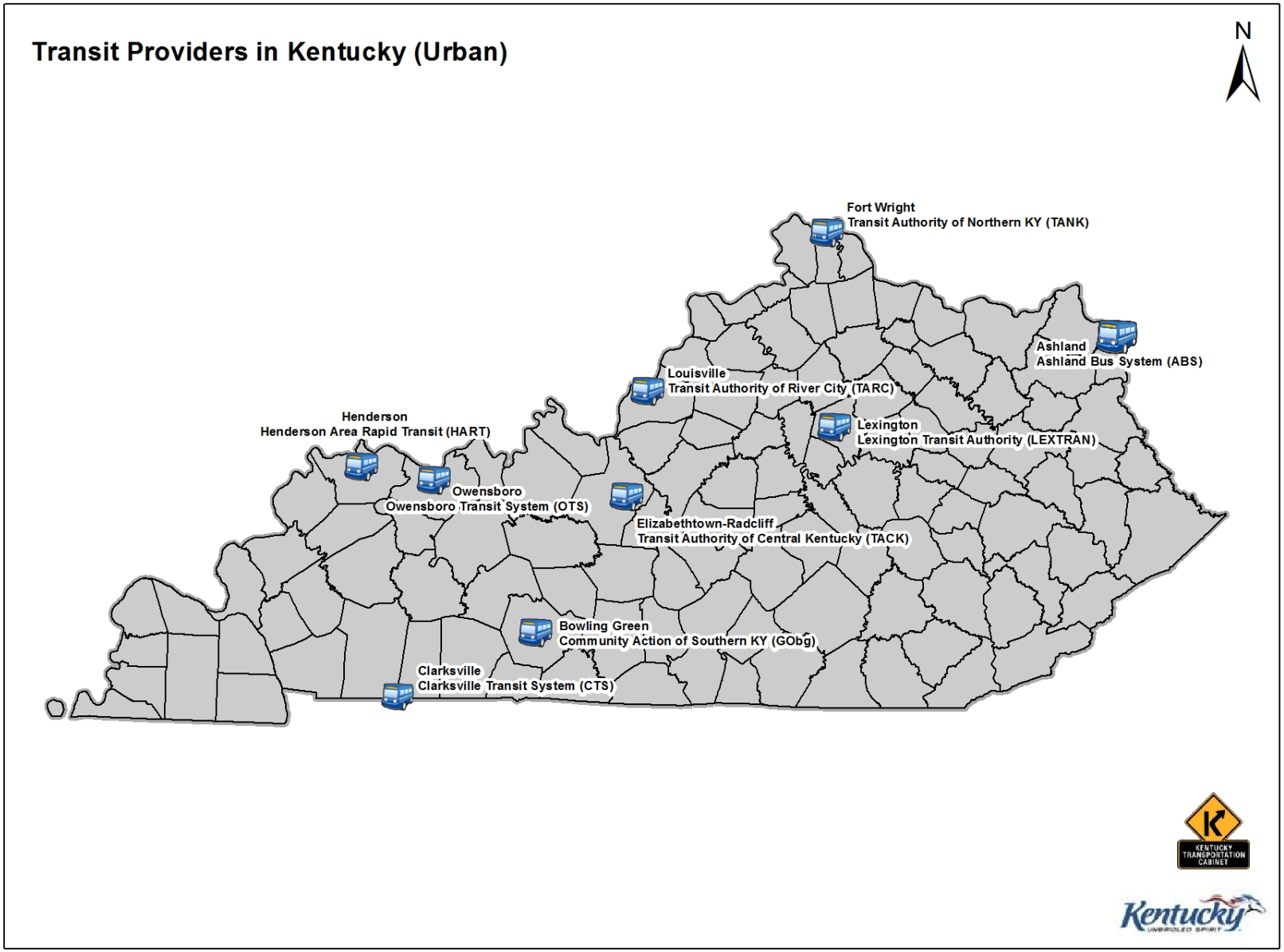

Figure 5.2.2 F - Urban Fixed Route Transit Systems in Kentucky

Public transit agencies in rural areas and small communities throughout the Commonwealth are providing intercity services which allow rural citizens to make connections with scheduled intercity bus service. For example, Louisville Wheels Transportation operates a regular intercity bus route from Bullitt County to Louisville to provide access to Louisville's Transit Authority of River City (TARC), Greyhound commercial bus terminals and the Louisville International Airport. Leslie, Knott, Letcher, Perry (LKLP) Community Action Council in Eastern Kentucky provides intercity routes among the cities of Hazard, Whitesburg, Hyden, and Hindman. Other rural systems across the state provide "feeder services" into routes that eventually arrive at Greyhound commercial bus terminals or other connecting points such as Amtrak passenger rail stations.

All Kentucky counties are covered with public and/or specialized transportation services. The core needs of public transit riders remain the same – employment and medical needs. As illustrated in **Figure 5.2.2 G** and **Figure 5.2.2 H**, ridership is increasing across the nine urban transit systems in Kentucky since 2006.

All Kentucky counties are covered with public and specialized transportation services. The core needs of public transit riders remain the same – employment and medical needs.

Some specialized transit providers for the elderly or persons with disabilities, such as the senior citizen centers, only transport their own patrons. However, there are more accessible vehicles and different types of accessible vehicles than ever in the Commonwealth, and drivers are receiving intensive training on serving the elderly and persons with disabilities. As awareness of all the transportation services for the general public grows, the same service for the elderly and persons with disabilities should also grow.

> *"Public Transportation providers and brokers in Kentucky need continued support. I have many family members and friends that rely heavily on public transit agencies to get to medical appointments and attend necessary programs."*
> Rockcastle County Survey Participant

Incentives and tools are needed to communicate with and educate the public, local and state leadership on the benefits of public transit. A balanced public transit system is needed to meet all these needs. However, Local, State, and Federal funds are being reduced or are not keeping up with inflation. Some public transit providers have had to raise fares, while cutting hours and routes creating affordability concerns for users on low or fixed income. Federal assistance may help keep fares low, but fares can still be a problem for some individuals.

> *"As I advance in age, public transportation may rise on my list of priorities."*
> Madison County Survey Participant

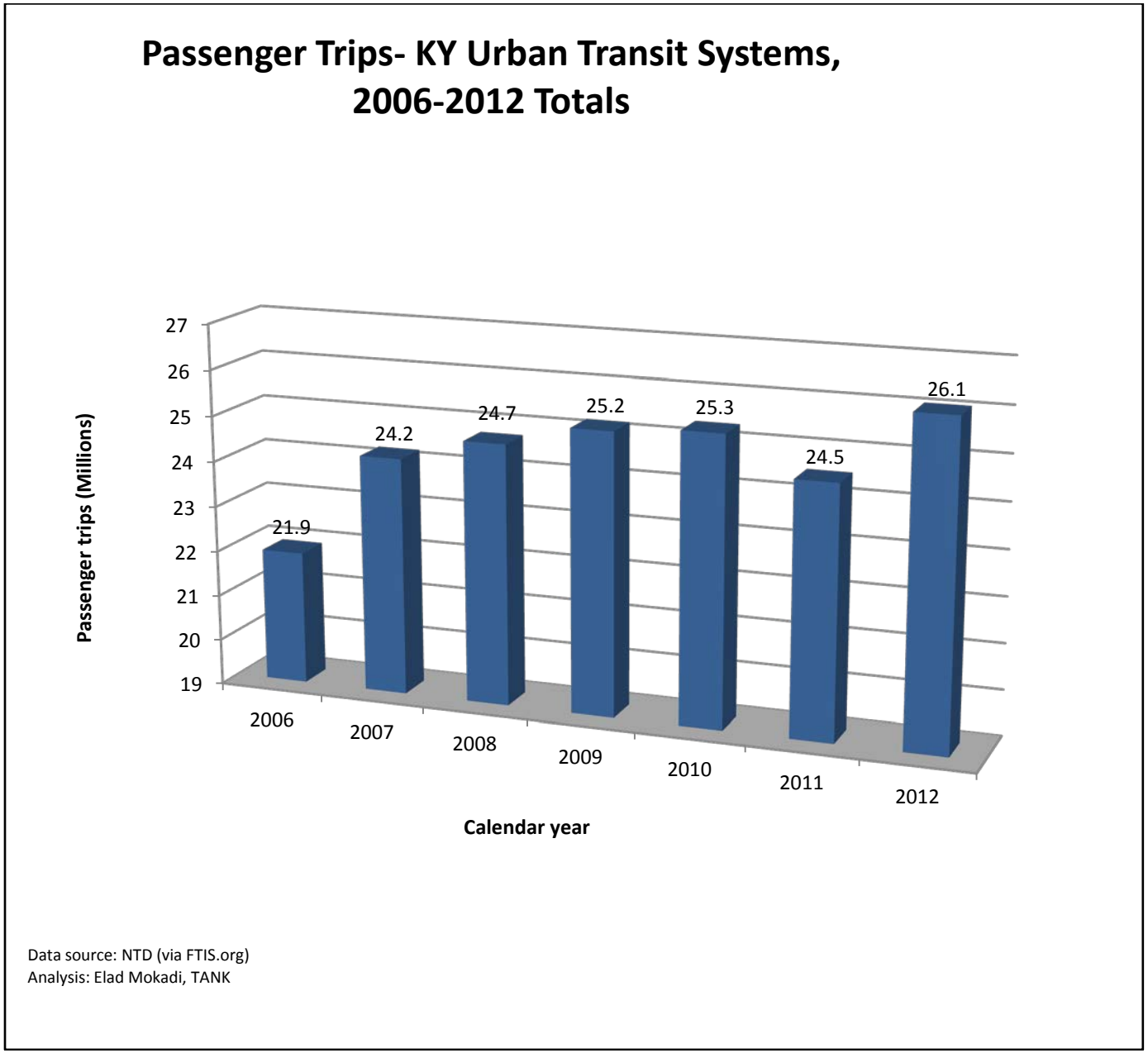

Figure 5.2.2 G - Total Passenger Trips for Urban Transit Systems in Kentucky

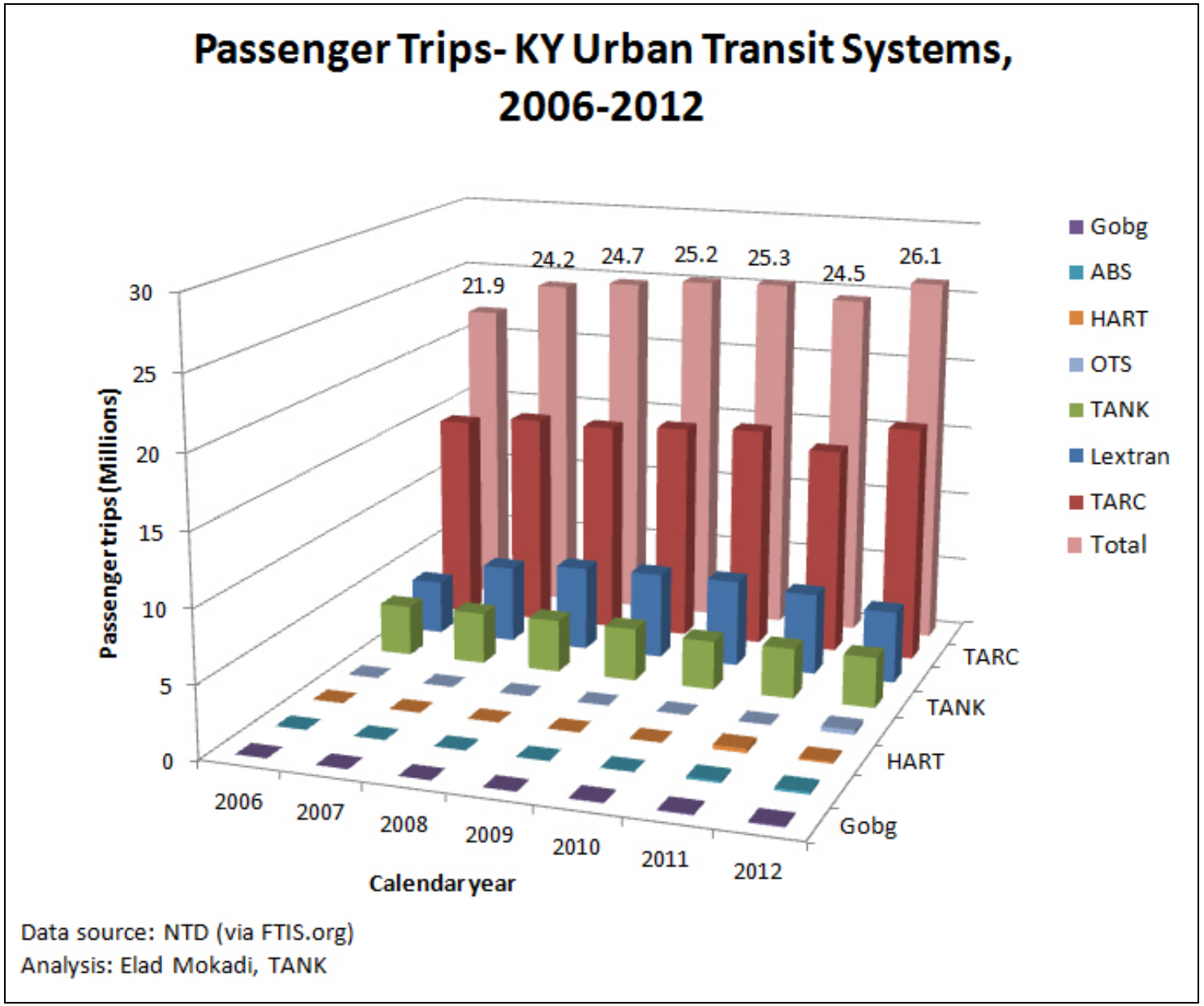

Figure 5.2.2 H - Passenger Trips of the Urban Transit Systems in Kentucky

5.2.2-2 KYTC Office of Transportation Delivery

The Office of Transportation Delivery (OTD) administers FTA programs in Kentucky. The OTD is responsible for seeking grant funds; the oversight and implementation of various statewide public transit grants; and coordinating human service transportation such as non-emergency medical transportation.

In regards to administering federal transit grants, the KYTC/OTD has the primary responsibility for the following:

- Develop and implement public transportation programs throughout the state;
- Ensure adherence to federal program guidelines by all sub-recipients through periodic monitoring and oversight;
- Notify eligible and/or potential local entities of the availability of programs;
- Develop project selection criteria; Solicit applications;
- Ensure fair and equitable distribution of program funds;
- Ensure the maximum feasible coordination of transit resources at both the state and local levels; and
- Ensure a process whereby private transit and para-transit operators are provided an opportunity to participate to the maximum extent feasible.

However, all federal funds for Kentucky's major transit systems do not flow through the KYTC, but directly to the public transit systems in each of Kentucky's urban areas.

In addition to public transportation, the OTD is responsible for the Human Service Transportation Delivery (HSTD) program. HSTD coordinates transportation services for the Department for Medicaid Services, Department for the Blind, and the Department for Vocational Rehabilitation. 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 3.2 million trips in 2012 for the purpose of non-emergency medical transportation. The Office of Transportation Delivery has received a grant for $1.6 million to help with the transportation needs of our veterans, current military, wounded warriors and their families.

The OTD also collects operational statistical information from each of the rural and non-urbanized transit systems that include trips, miles, fuel, days, accessibility, etc. The statistics are reported to the USDOT/Federal Transit Administration (FTA) through the National Transit Database (NTD). The NTD is used by the Government and Congress to allocate public transit funding for each state. Revenue miles are also used within the NTD when funding is allocated. Larger transit systems do not report to the Cabinet, but report directly to FTA via the NTD.

5.2.2-3 Safety

To achieve the highest practical level of safety and security for all modes of transit is a goal of transit safety and oversight. Accident prevention and preventive maintenance for facilities and vehicles are strict requirements for all public transit systems in the Commonwealth. Safety issues are now expanding into the areas of hazardous materials, emergency preparedness, and criminal and terrorist threats.

The OTD with guidance and direction of the FTA is developing a statewide Public Transit Safety Plan to include all rural and non-urbanized area transit systems that will identify risks and minimize exposure to hazards. This Plan will expand on what many public transit agencies are already jointly carrying out with their local communities through emergency preparedness. Performance targets will be developed or enhanced as part of this measure. FTA is developing minimum safety performance standards for transit vehicles which will be incorporated into the Public Transit Safety Plan. Also, The Drug and Alcohol Testing Program for public transit drivers, dispatchers, maintenance personnel, etc. is a valuable tool in maintaining the safety of the riding and driving public.

5.2.2-4 Future Needs

Public transit has been and will continue to be a quality of life issue. A dedicated source of funding is needed for public transit in Kentucky as in other States. Services are being reduced or eliminated because of the need for local funding and matches. In rural areas of the Commonwealth, especially, it is difficult for counties and communities to maintain public transit services and nearly impossible to expand these services because they do not have the local matches to access the federal funds. **Table 5.2.2 B** provides greater insight into funding issues facing public transit in Kentucky when compared to the other surrounding states. This table was created from the *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the KTC and can be viewed at the following link: http://www.ktc.uky.edu/projects/states-support-of-non-highway-modes-of-transportation-investigation-and-synthesis/.

The OTD, with guidance from the USDOT and the Federal Transit Administration (FTA), is developing a Transit Asset Management Plan (TAM) to implement a strategic approach for assessing needs and prioritizing investments to help bring the Commonwealth's public transit systems into a State of Good Repair. Under this Plan, objective standards for measuring the condition of capital assets (equipment, rolling stock, infrastructure and facilities) will be set and performance measures established.

Public Transportation Mode[+]									
State	**Dedication of Fuel Tax Revenues to Highway Modes**	**State Agency**	**Financial Support**	**Bonding Authority**	**Dedicated Funding**	**Technical and/or Marketing Support**	**Operating Assistance**	**Capital Assistance**	**Distribution of Funds**
Kentucky	Constitutional	KYTC: Office of Transportation Delivery	Yes	Yes	No	Yes	No	Yes	Discretionary
Illinois	No – Multimodal	IDOT: Division of Public and Intermodal Transportation	Yes	Yes	Yes	Yes	Yes	Yes	Formula
Indiana	Statutory	INDOT: Office of Transit	Yes	Yes	No	Yes	Yes	Yes	Formula
Missouri	Constitutional	MoDOT: Transit Section	Yes	Yes	Yes	Yes	Yes	Yes	Formula
Ohio	Constitutional	ODOT: Office of Transit	Yes	Yes	No	Yes	Yes	Yes	Formula and Discretionary
Tennessee	No – Multimodal	TDOT: Office of Passenger Transportation	Yes	No	Yes	Yes	Yes	Yes	Formula and Discretionary
Virginia	No – Multimodal	Department of Rail and Public Transportation (DRPT)	Yes	Yes	Yes	Yes	Yes	Yes	Formula and Discretionary
West Virginia	Constitutional	WVDOT: Division of Public Transit	Yes	Yes	No	Yes	Yes	Yes	Discretionary
California	No – Multimodal	Caltrans: Division of Mass Transportation	Yes	Yes	Yes	Yes	Yes	Yes	Formula and Discretionary
Oregon	Constitutional	ODOT: Public Transit Division	Yes	Yes	Yes	Yes	Yes	Yes	Formula and Discretionary
Pennsylvania	Constitutional	PennDOT: Bureau of Public Transportation	Yes	Yes	Yes	Yes	Yes	Yes	Formula and Discretionary

[+]Reference: *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the Kentucky Transportation Center (KTC) using 2009 data.

Table 5.2.2 B –Public Transit Funding Comparison in Kentucky and Other States

As of 2013, preliminary information from the early stages of development of the TAM show over $57 million dollars immediately needed for replacement vehicles and over $10 million for facility renovations and expansions for rural and small urban systems. Asset Management will enable the Cabinet and OTD to try to balance the competing needs of operations, maintenance, reinvestment and system expansion. It will help to allocate limited resources between competing needs and competing uses. This document is in its preliminary stages and was developed through a survey of the State's rural and small public transit systems.

Additional information on the activities and responsibilities of the OTD as well as links to the transit resources across the state can be found at http://transportation.ky.gov/transportation-delivery/pages/default.aspx.

Maintaining the existing public transit system will continue to be a priority in the future. To help provide and sustain the best public transit services possible, the Cabinet and the Office of Transportation Delivery (OTD) will follow Federal guidelines in maintaining the Commonwealth's public transit infrastructure - including equipment, vehicles and transit facilities - in a State of Good Repair. Objective standards for measuring the condition of capital assets will be used to ensure that public transit systems in the Commonwealth are operating in a consistent, high-quality state and capital assets are functioning at their ideal capacity within their design life. Technology will continue to be used and expanded upon in order to improve the efficiency and effectiveness of operations and prolong the useful, safe life of transit vehicles.

Currently, there is a high investment backlog because of a significant gap between capital reinvestment needs and available federal and state funding. If needs are not addressed, there could be extended service disruptions or reductions.

Expanded services will also be needed and must involve coordination of services and resources to include updating and improving Infrastructure (vehicles, facilities, technology). The enhancement of mobility for the state's seniors and individuals with disabilities will remain a priority for the Cabinet and OTD as these populations continue to grow. Section 5310 of Chapter 53 of title 49 of the United States Code is one of the Cabinet's oldest and most valuable grant programs. The goal of the Section 5310 program is to improve mobility for seniors and individuals with disabilities by removing barriers to transportation services and expanding the transportation mobility options available. Vehicles that serve to help these efforts are awarded annually to organizations throughout the Commonwealth. The program requires coordination with other Federally-assisted programs and services in order to make the most efficient use of Federal resources.

Public Transit can integrate further with other modes of transportation. Highway resources should be considered for High Occupancy Vehicle lanes, bus only lanes, wider shoulders for bus operations, etc. Sidewalks, bike paths and multi-use pathways should also be considered to accommodate public transit. Park and ride lots, vanpools and other clean air initiatives are also working with public transit agencies in joint efforts.

In the future, livable communities with reliable transit service and joint transit oriented development efforts will be emphasized as supported by the FHWA and the FTA.

Public transit can be a valuable partner and should be at the table in State and local land use and economic decisions. Transit, labor and social service organizations should coordinate resources to meet economic, educational, job-related and social needs in the most efficient and effective way possible. A dedicated source of funding for public transit in Kentucky, as other states have, could give the State a competitive edge when vying for national projects.

5.2.2-5 Light Rail and Intercity Passenger Rail

The OTD partnered with the Georgia and Tennessee Departments of Transportation for a feasibility study regarding a high speed passenger rail corridor from Atlanta to Louisville (Atlanta-Chattanooga-Nashville-Louisville). The November 2011 study entitled, "High-Speed Rail Planning Study Atlanta-Chattanooga-Nashville-Louisville" investigated capital costs, funding and financing opportunities, operation and maintenance costs, ridership, revenue, operating ratios, and conducted a benefit-cost analysis. It concluded that capital costs for this corridor would be approximately $16 billion while the yearly operating and maintenance costs would run in excess of $250 million.

The Transit Authority of River City (TARC) in Louisville, which is the largest transit system in the state, has also explored the concept of light rail in the Louisville area. They have found that funding and ridership continues to be the major hurdles to development of light rail in 2004.

5.2.2–6 References and Links

Kentucky Public Transit Directory (a copy can be requested through the KYTC Office of Transportation Delivery)
Office of Transportation Delivery/the KYTC website: http://transportation.ky.gov/transportation-delivery/pages/default.aspx.

"State's Support of Non-Highway Modes of Transportation" by the Kentucky Transportation Center http://www.ktc.uky.edu/projects/states-support-of-non-highway-modes-of-transportation-investigation-and-synthesis/.

5.2.3 Aviation

> *"We need to continue working with the FAA to get more general aviation airport runways lengthened to 5,000 linear feet. Having at least a 5,000 linear foot runway opens an airport to more business aviation and thus enhances a community's economic potential. This minimum runway length of 5,000 feet is critical due to being required by insurance companies insuring the aircraft carrying freight and business leaders."*
> KBT Stakeholder Meeting Members

Air transportation in Kentucky is divided into five categories: General Aviation, Commercial Passenger Service, Air Cargo Service, Military Service, and Emergency Medical Service.

5.2.3-1 General Aviation

Kentucky's Air Transportation system includes a network of 53 public use general aviation airports. A general aviation airport is one that does not have regularly scheduled passenger service and is not military. These airports provide our citizens with access to the National Airspace System (NAS) and are economic development magnets. Operations at these airports include the following:

- Business aircraft
- Freight supplies for local manufacturing
- Recreation flying
- Police and military activities
- Medical evacuation (Medevac) operations
- Traffic reporting
- Crop dusting
- Aerial photogrammetric services
- Wildlife surveys
- Disaster relief
- Training at Nation-leading aviation education program

The state organization charged with the oversight of these 53 general aviation airports is the Kentucky Transportation Cabinet (KYTC) through the Department of Aviation (KDA). The KDA also operates and maintains the Commonwealth's air fleet, is responsible for the four state-owned airports (Capital City Airport in Frankfort and three State Park airports). Within the KDA is the Kentucky Airport Zoning Commission (KAZC), which reviews and permits the construction of all structures built on or near airports. The KDA also inspects approximately 250 private airports and heliports for safety compliance and is involved in all airport projects involving the Federal Aviation Administration (FAA) and local airport boards.

5.2.3-1.1 Future Concerns

Of primary and singular importance is a consistent and dedicated funding source as it is critical for the maintenance, safety and continued growth of our state's aviation transportation system. In order to keep our general aviation airports safe, vibrant and competitive with neighboring states, the following points need to be considered as we build a winning strategy over the next decade.

5.2.3-1.2 Current and Future Funding

Even though the vast majority of dollars spent on general aviation airport projects are appropriated through the FAA Airport Improvement Program (AIP), a reliable and consistent state funding mechanism is critical. In order to maintain operations at the current level, it is estimated that, over the next 22 years, the state funding needed for the continued operation of aviation in Kentucky will exceed $220 million ($10 million per year) per the KDA. This State funding stream is used in a variety of important ways, including required state match funding for FAA grants (currently 90% FAA, 7.5% KDA & 2.5% Local funds), safety and maintenance projects, state funded airport improvement projects and the day-to-day operation of the KDA. Further discussion on funding and financial assistance in Kentucky and other surrounding states for aviation programs can be found in the *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* study done by the Kentucky Transportation Center (KTC), which can be accessed at http://www.ktc.uky.edu/projects/states-support-of-non-highway-modes-of-transportation-investigation-and-synthesis/.

In 1998, the Kentucky General Assembly created the Aviation Economic Development Fund (AEDF). Sales tax on jet fuel is deposited into this fund and is only to be used for aviation related needs. However, a cap of $1 million per year is placed on each commercial carrier and this amount has generally been reached within the first quarter each year, thus limiting the full resources available. Further increasing the cap on the jet fuel tax should be considered to help address growing funding needs. By ensuring the funds collected through AEDF are only used for aviation purposes, these funds can then aid in aviation facility development, replacement, and rehabilitation projects. This is a critical component in the development of a competitive and robust economic program to attract further manufacturing to the Commonwealth.

5.2.3-1.3 Current and Future Infrastructure

The infrastructure of General Aviation Airports is a two part challenge – improvement of existing airports infrastructure and investment in new airport infrastructure.

5.2.3-1.4 Maintenance and Improvement

It is critical that we maintain our existing airport infrastructure (existing airport systems, hangars, fuel pumps, etc.) for added safety purposes through a consistent state funding stream since many of our airports do not have the financial capability to perform necessary maintenance and improvements. The KDA's Pavement Managing System has been in place since 2010, and it will continue to be extremely helpful regarding runway, taxiway and apron maintenance. This system is utilized to help identify and prioritize funding to support pavement maintenance.

5.2.3-1.5 Other Areas of Concern

The following are important topics that also directly impact existing general aviation airports.

- Runway Length – Kentucky needs to continue working with the FAA to get more general aviation airport runways lengthened to 5,000 linear feet. Having at least a 5,000 linear foot runway opens an airport to more business aviation and thus enhances a community's economic potential. This specific runway length of 5,000 feet is critical due to being required by companies insuring business aircraft carrying freight and/or corporate decision makers. See **Figure 5.2.3 A** for the location of the Air Carrier and General Aviation Airports throughout Kentucky and their associated runway lengths.
- Access Roads and Signage – Access roads that connect Kentucky citizens to general aviation airports must be adequately maintained. In addition, enhanced directional signage is needed at some airports.
- Tourism – Kentucky needs to continue to promote the existing general aviation airports for the role they play in advancing our Commonwealth's tourism industry. KDA currently operates the Capital City Airport and three State Park Airports including: Lake Barkley State Park, Rough River State Park and Kentucky Dam Village State Park.
- Declining Registered Aircraft - In Kentucky in 2010, the total number of registered aircraft was 2,082 with a total of 5,969 licensed pilots. Over the last decade, this total number of registered aircraft in Kentucky has declined by 5% which is consistent with the national economic conditions as well as aircraft owners deciding to follow more favorable tax laws in contiguous states per the Federal Aviation Administration. This is detrimental to general aviation airports in Kentucky since the majority of their general revenue generated comes from selling airplane fuel and renting hangars. Also, this negatively impacts the surrounding economy, through reduced business to the supportive service industry and decreased direct corporate travel to the area. **Table 5.2.3 A** shows how Kentucky compares to the surrounding states with regards to funding sources as noted by *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the KTC.

5.2.3-1.6 New Facilities

The second part of Kentucky's airport infrastructure challenge deals with adding new general aviation facilities. For the forecast period ending in 2032, the highest percentage of aircraft growth is projected to be in jet aircraft for the business sector with 4% growth, per the National Business Aviation Association. To keep our general aviation airports competitive with surrounding states, meet the need of this growing market, and expand economic development opportunities, Kentucky should continue to focus on the following enhancements:

- More airport hangars,
- New/improved terminal buildings,
- New/improved fuel systems,
- Enhanced apron space for airport parking.

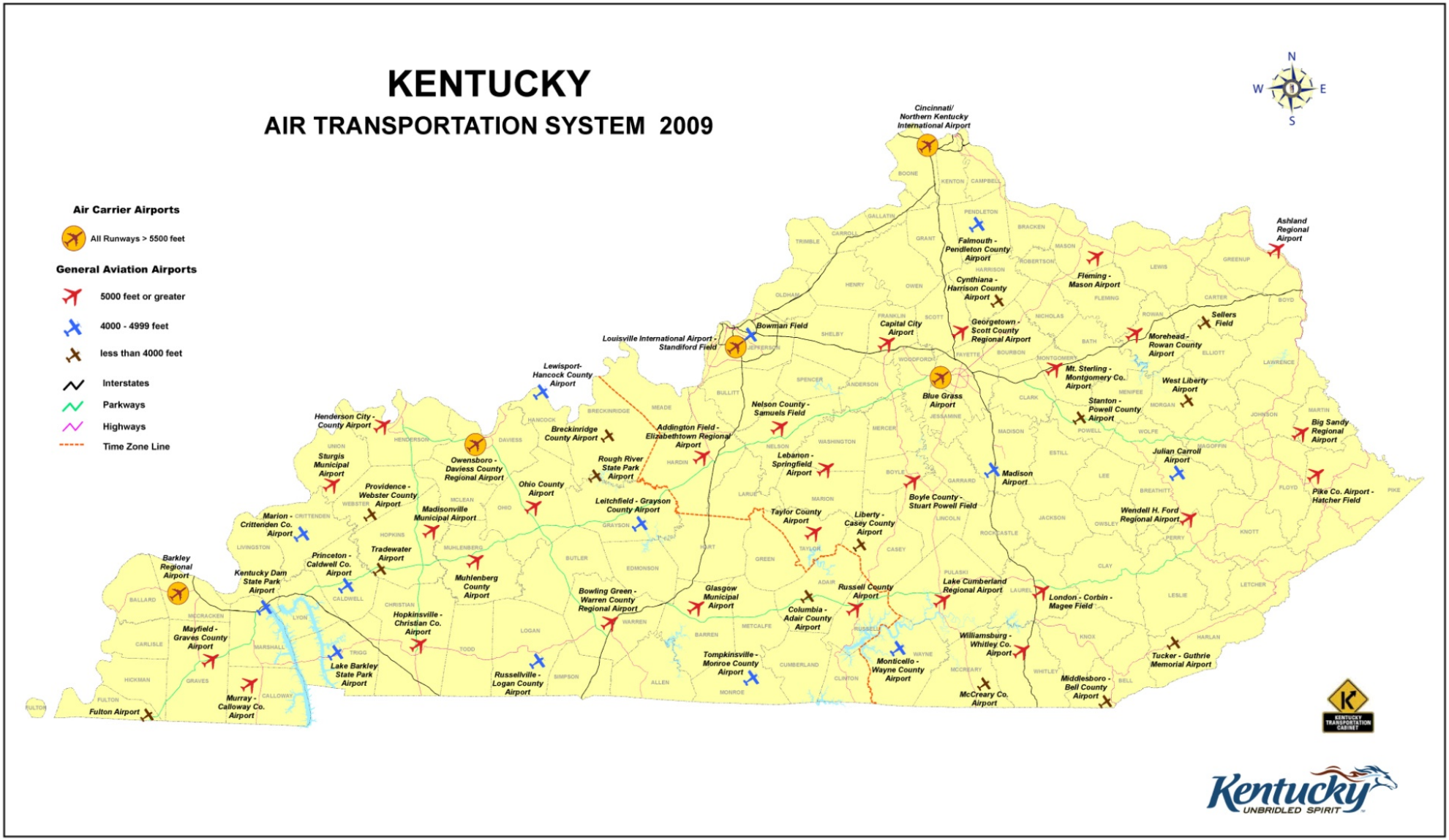

Figure 5.2.3 A – Airport Facilities in Kentucky

In addition to new facilities within existing general aviation airports, new general aviation airports are also recommended by the Kentucky Department of Aviation and Economic Development. When compared to surrounding states, **Table 5.2.3 A** also shows Kentucky ranks near the bottom for the number of general aviation airports.

Aviation Mode – Airports and Funding*				
State	**Number of Airports Eligible for AIP** Funding**	**Dedication of Fuel Tax Revenues to Highway Modes**	**Dedicated Trust Fund for Aviation**	**Personal Property Tax**
Kentucky	57	Constitutional	Yes	Yes
Illinois	88	No-Multimodal	No	No
Indiana	67	Statutory	No	No
Missouri	76	Constitutional	Yes	Yes
Ohio	100	Constitutional	No	No
Tennessee	69	No – Multimodal	No	Yes
Virginia	50	No – Multimodal	Yes	Yes
West Virginia	25	Constitutional	Yes	Yes

*Reference: *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the Kentucky Transportation Center (KTC) using 2009 data. **AIP – Federal Aviation Administration -Airport Improvement Program

Table 5.2.3 A –Aviation Funding Comparison in Kentucky and Other States

5.2.3-2 Commercial Passenger Service

There are six airports in Kentucky that are certified to provide air carrier (scheduled passenger) service: Cincinnati-Northern Kentucky International Airport (CVG), Louisville International Airport (SDF), Blue Grass Airport (in Lexington, LEX), Owensboro-Daviess County Regional Airport (OWB), Barkley Regional Airport (in Paducah, PAH), and Bowling Green-Warren County Regional Airport (BWG). With the exception of the BWG Regional Airport, all airports offer scheduled airline service. Annual passengers and aircraft operations of those five airports with scheduled passenger air carrier service is shown below in **Table 5.2.3 B.** In 2011, the Kentucky Legislative Research Commission, Program Review and Investigations Committee adopted the "*Air Service at Kentucky's Commercial Airports*" report that was developed with the support of Kentuckians for Better Transportation (KBT) among others. This report reviewed the three largest airports, with a specific focus on their financial status to include influences from FAA policies and procedures as well as funding issues and incentives. This report can be reviewed in its entirety at http://www.lrc.ky.gov/lrcpubs/RR390.pdf .

Each of these six airports serves as major economic engines in their communities. The three largest airports - CVG, SDF, and LEX - prepare economic impact reports for their respective airports and from the most recent information available. These three airports contribute more than 85,000 jobs and $9.6 billion in economic impact to the state.

Annual Passengers and Aircraft Operations

Airport	Total Number of Passengers (2013)	Total Aircraft Operations (take-offs and landings) (2013)
Cincinnati/Northern Kentucky International (CVG)	5,718,255	137,671
Louisville (SDF)	3,404,080	146,260
Lexington (LEX)	1,104,354	64,718
Paducah (PAH)	40,202	27,394
Owensboro (OWB)	30,795	16,192

Table 5.2.3 B – Annual Passengers and Aircraft Operations for Kentucky Airports with Scheduled Passenger Air Carrier Service

5.2.3-3 Air Cargo Service

A key element of the state's aviation sector is air cargo activities. UPS's air hub headquarters, called Worldport, is located at Louisville International Airport (SDF). This airport is the 7th largest airport in the world for total cargo tonnage at 4.88 million tons annually. This airport also has nearly half of their aircraft operations occurring for cargo aircraft. DHL Express, an international express company, has its U.S. headquarters at the Cincinnati - Northern Kentucky International Airport.

Table 5.2.3 C shows how much air cargo was handled by the six air carrier airports in Kentucky in 2013.

Major Commercial Airports		
Airport	**Total Aircraft Operations (take-offs and landings) (2013)**	**Total Tons of Cargo Handled (2013)**
Cincinnati/No. Ky. International (CVG)	137,671 (22,746 Cargo Only)	655,479
Louisville (SDF)	146,260 (70, 200 Cargo Only)	4,880,000
Lexington (LEX)	64,718	91
Paducah (PAH)	27,394	2.5
Owensboro (OWB)	16,192	N/A
Bowling Green (BWG)	80,000 (147 Cargo Only)	1102

Table 5.2.3 C – Annual Air Cargo Service Volumes of Major Commercial Airports

5.2.3-4 Military Service

Kentucky has one of the largest presences of military rotary-wing (helicopter) aircraft in the U.S. Army. The U.S. Army Air Assault Division (101st Airborne) is located at Ft. Campbell with approximately 150 aircraft based at that location. Ft. Knox hosts an Army Reserves Attack Helicopter Battalion which consists of over 20 aircraft. The Kentucky National Guard headquarters houses their aviation assets at the Boone National Guard Center in Frankfort with 20 aircraft. Fixed wing (non-helicopter) assets are also located at each of these military facilities along with the Air National Guard C-130 Wing located at Standiford Field (SDF) at Louisville International Airport.

These aircraft utilize airports within the state for training and during periods of disaster. Utilization plans have been developed for these aircraft in the event of a disaster along the New Madrid fault line located on the western boundary of the state. Aviation fuel supplied from our local airports is crucial to continued operations in the event of a disaster. All airports need to be configured to supply fuel from their tanks with a generator in the event of a catastrophic power failure.

5.2.3-5 Emergency Medical Service

Following closely in utilization of general aviation services is the air medical industry. Kentucky has one of the largest per capita Helicopter Emergency Medical Service (HEMS) capabilities in the nation. Across the state, these providers have become a vital community-based asset that ensures a higher level of health care to many in need of medical attention whether they are transferred from a hospital or from the scene of an emergency. Due to topographic limitations affecting access in rural areas, air medical services to trauma centers have become vital to Eastern Kentucky. Three major providers are located throughout Kentucky which consists of over 30 aircraft. There are regional maintenance and training facilities located in Somerset and Danville, which provide maintenance for numerous aircraft. There are over 140 heliports in the Commonwealth devoted to this segment of aviation. The continued need for these services will require a safety and standards infrastructure to provide and maintain safety of flight for the public being transported in helicopters for emergency medical care.

5.2.3-6 Technology & Education

5.2.3-6.1 Technology

There are three emerging developments in technology that are quickly evolving to change the face of day-to-day airport operations.

- Satellite-Based Navigation Systems - The development of GPS navigation and on-board technology improvements in the past decade has increasingly enabled pilots to navigate in nearly all weather conditions and fly an instrument approach procedure to many of the state's smaller airports. With the FAA's goal of implementing 500 GPS approaches per year nationally, it puts pressure on Kentucky to improve airport conditions so that these procedures can be designed and implemented for the smaller community airports. A big plus to the state is that GPS navigation requires little or no ground based equipment investment. The availability of these procedures for smaller

communities is a vital component that can help foster economic development.

- NEXTGEN - The next generation air traffic control systems (NextGen) is changing the way all aircraft move about the sky in the U.S. by shortening routes, saving time and fuel, reducing traffic delays, increasing capacity, and permitting controllers to monitor and manage aircraft with greater safety margins. This is a significant paradigm shift for monitoring aircraft movements in our state and nation.
- Unmanned Aerial Systems (UAS) – Further development and growth of Remotely Piloted Vehicles (RPV), commonly referred to as the "drone" sector of aviation, is anticipated to continue in the coming years. These unmanned vehicles are already used heavily by the military. Kentucky should consider additional economic development opportunities in testing, manufacturing and implementing this rapidly expanding sector of aviation as it evolves into the private sector.

5.2.3-6.2 Aviation Education

Kentucky has what is generally recognized by the aviation community as the finest aviation education program in the nation. In order to keep our state aviation system strong in the coming decades, we need to train the next generation of pilots, aircraft mechanics, aircraft owners, aeronautical engineers, airport managers, etc. The Institute for Aerospace Education (IAE), the Aviation Museum of Kentucky, and other organizations work hand-in-hand to make this happen.

An example of our continued success in education is with the continued addition of Kentucky public high schools teaching aviation/aerospace courses as part of the IAE consortium (headquarters in Kentucky). In the upcoming 2014-2015 school year, 2 additional public high schools will be added to the list of 23 public high schools already incorporating the IAE courses into their curriculum. This aviation education program is heavy in science, technology, engineering and math (STEM). Therefore, program graduates who do not pursue an aviation career, will still have a solid academic foundation for other engineering and science fields. An enhanced state support for this program, across many functional areas of government is recommended. Many of these educational resources can be found at: http://transportation.ky.gov/Aviation/Pages/Educational-Resources.aspx.

5.2.3-7 References and Links

5.2.3-7.1 General Information

1. AEDF KRS 183.525 - http://www.lrc.ky.gov/Statutes/statute.aspx?id=5791 and http://www.lrc.ky.gov/record/13rs/HB130.htm.
2. Air Service at Kentucky's Commercial Airports Study Jan. 2011 - http://www.lrc.ky.gov/lrcpubs/RR390.pdf.
3. Aircraft Owners and Pilots Association – http://www.aopa.org .
4. Airport Master Record 50/10 = http://www.gcr1.com/5010WEB/.
5. American Association of Airport Executives - http://www.aaae.org/.
6. AN ACT-appropriations providing Aviation Development debt service and funds- http://openstates.org/ky/bills/2014RS/HB236/ .
7. Association of Air Medical Association – www.aams.org.

8. Aviation Heritage Park - http://aviationheritagepark.com.
9. Commission on Accreditation for Medical Transport Systems - www.camts.org.
10. FAA FY2013 AIP Entitlement funds for Kentucky site- http://www.faa.gov/airports/aip/grantapportion_data/.
11. General Aviation Manufacturers Association – www.gama.aero.
12. Kentucky Airport Zoning Commission – http://transportation.ky.gov/Aviation/pages/zoning-commission.aspx.
13. Kentucky Aviation Association - http://www.aviationkaa.org/.
14. Kentucky Monthly Aviation Fuel Tax Form - http://revenue.ky.gov/NR/rdonlyres/AFA36727-8F5A-4D3D-8304-E4D26E5D8C18/0/51A130713.pdf.
15. National Association of State Aviation Officials – http://nasao.org.
16. National Business Aviation Association – http://nbaa.org.
17. NextGEN - http://www.faa.gov/nextgen/.
18. No Plane No Gain: http://www.noplanenogain.org.
19. Federal Aviation Administration – Associate Administrator of Airports -Offices with Link to: Office of Airport Safety and Standards - http://www.faa.gov/about/office_org/headquarters_offices/arp/offices.
20. Satellite Navigation - GPS/WAAS Approaches - http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/approaches/.
21. Special District HB1 – Special Purpose Government Entities (SPGE)-Office of the Governor: Department for Local Governments: https://kydlgweb.ky.gov/Entities/SPGE_Info.cfm.
22. States' Support of Non-Highway Modes of Highway Transportation; Investigation and Synthesis - http://www.ktc.uky.edu/files/2013/01/States-Support-final.pdf.
23. Unmanned Aircraft Systems - http://www.faa.gov/about/initiatives/uas/.

5.2.3-7.2 Education

1. Eastern Kentucky University - http://aviation.eku.edu.
2. Embry-Riddle Aeronautical University - http://worldwide.erau.edu/locations/louisville/index.html.
3. Kentucky Council on Postsecondary Education STEM Program - http://cpe.ky.gov/committees/stem/.
4. Somerset Community College Aviation Maintenance & Technology - http://somerset.kctcs.edu/en/Academics/Programs_of_Study/Copy_of_Aviation_Technology.aspx.
5. The Aviation Museum of Kentucky Inc. - Summer Aviation Camps - www.aviationky.org.
6. The Institute for Aerospace Education – www.iae.aero.
7. Wing Design Competition - http://www.iae.aero/wdc.

5.2.3-7.3 Government

1. Federal Aviation Administration - http://www.faa.gov/
2. Department of Aviation - http://transportation.ky.gov/aviation/Pages/default.aspx.
3. National Transportation Safety Board - http://ntsb.gov/.
4. Transportation Security Administration – http://www.tsa.gov/.

5.2.4 Railways

> *"Better freight rail transportation will help reduce long-haul heavily-loaded trucks on our highways and improve their longevity and reduce maintenance costs."* Daviess County Survey Participant

5.2.4-1 General Rail

The average distance a ton of freight can be transported by rail on one gallon of fuel is 476 miles. According to 2012 annual reports submitted to the KYTC by companies operating within the state, there are more than 2,600 miles of railroad track in Kentucky. The 2010 data shows that 72.7 million tons of rail freight originated in Kentucky and 37 million tons of rail freight terminated in Kentucky. By weight, most of Kentucky's freight rail industry services the coal industry, but many other commodity types are transported along the state's extensive rail system. Some of these other commodity types include automobiles and automotive parts, agriculture products, sand, recycled metals, oil, and natural gas, just to name a few. Energy will be a factor for the future of rail in Kentucky. Alternative energy sources such as natural gas are being used instead of coal for power generation nationally. Domestic coal shipments are on the decline, while crude oil and container-on-rail shipments are on the rise.

There are five Class I railroads operating on over 2,000 miles of track in Kentucky - CSX Transportation (CSXT), Norfolk Southern (NS), Canadian National (CN), Burlington Northern-Sante Fe (BNSF), and Union Pacific (UP). These Class I railroads operate large, multi-state networks connecting Kentucky's businesses to markets across the nation. Paducah and Louisville Railway (PAL) is a Class II railroad (also known as a regional railroad) providing service between the two cities that give the company its name. There are also seven Class III railroads (also known as short line railroads), which own more than 300 miles of track within the state. These short line railroads provide businesses with a connection to the Class I railroads, gaining them access to national and international markets.

Kentucky has over 4,000 freight rail employees working in the state at an average wage (including benefits) of $106,860. Each freight rail job supports 4.5 jobs elsewhere in the economy. There are also more than 14,000 railroad retirement beneficiaries in the state receiving a combined $273 million in annual benefits per the Association of American Railroads.

Rail connections to highway and waterway freight transportation modes are made at "intermodal" facilities. These facilities provide opportunities for transfer of freight between modes. For example, a container arriving at an ocean port may be shipped by rail to Kentucky and then be transferred from the railroad car to a tractor-trailer for local delivery. Kentucky has at least five facilities specializing in distribution of containers and another five facilities specializing in transferring new automobiles to rail cars. Many types of intermodal facilities specialize in bulk transfer of other materials such as coal, grains, limestone, or other commodities between truck, barge, and rail car. Kentucky's freight railroads operate more than ten of these bulk loading facilities. These facilities are all part of the Kentucky intermodal freight network contributing to the Cabinet's goal of providing a reliable transportation system that effectively and efficiently moves freight. (*See also the LRSTP sections on Freight and Waterways for more information concerning transportation by these modes.*)

Passenger Rail service in Kentucky is provided by Amtrak with rail service in four Kentucky cities. The Cardinal serves the cities of Maysville, South Shore (South Portsmouth), and Ashland en route between Chicago, IL and New York City, NY. The City of New Orleans provides service between Chicago and New Orleans, Louisiana, passing through Fulton, Kentucky. In addition, bus service is provided in Louisville, connecting Louisville to The Cardinal in Indianapolis, IN.

There are four tourist or excursion rail lines in Kentucky. They are Big South Fork Scenic Railway in Stearns, Bluegrass Scenic Railroad and Museum in Versailles, Kentucky Railway Museum in New Haven, and My Old Kentucky Dinner Train in Bardstown and Lexington. These rail lines provide a localized passenger service as entertaining tourist activities.

5.2.4-2 General System Planning, Funding, and Development

The Kentucky Statewide Rail Plan was last updated in 2002. This Plan developed specific goals and objectives for the KYTC's Railway Program, while identifying system-wide strategies and means to recognize future rail issues. This Plan can be accessed at: http://transportation.ky.gov/Railroads/Pages/Kentucky-Statewide-Rail-Plan.aspx. A new Rail Plan is anticipated in 2015 to develop goals for maintaining and promoting rail programs throughout the state. A new Kentucky Statewide Freight Plan is also anticipated in the fall of 2015.

Improvements to the railway network in Kentucky are most often funded by the private railroad corporations. The Kentucky legislature has provided some opportunities for matching private expenditures and providing tax credits for regional or short line railroads (Class II or Class III) for improvements to their rail infrastructure. Kentucky's 2012 budget included funds for short line railroads to improve safety at railroad crossings. While the KYTC is restricted by the Constitution to spend Highway Fund moneys only on roadways, highway access to railroads is evaluated to identify improvements that could be made to roadways to better meet the KYTC's goal of providing an integrated system for the dependable movement of people and freight.

Table 5.2.4 A shows the current railway system in Kentucky and how it compares to that of the surrounding states with regard to funding mechanisms. This information was provided by the *2011 States' Support of Non-Highway Modes of Transportation: Investigation and Synthesis* report by the KTC and can be found at the following link. http://www.ktc.uky.edu/projects/states-support-of-non-highway-modes-of-transportation-investigation-and-synthesis/.

Rail Mode*						
State	**Dedication of Fuel Tax Revenues to Highway Modes**	**State Agency**	**State-Supported Passenger Rail Service**	**State Infrastructure Bank**	**Most Recent State Rail Plan**	**Dedicated Trust Fund For Rail[1]**
Kentucky	Constitutional	Division of Planning[#]	No	No	2002	No
Illinois	No – Multimodal	Department of Public and Intermodal Transportation – Bureau of Railroads[##]	Yes	No	2010	Yes[###]
Indiana	Statutory	INDOT Rail Office	Yes	Yes, not active	2009	No
Missouri	Constitutional	Division of Multimodal Operations – Railroad Section	Yes	Yes, active	2011[####]	No
Ohio	Constitutional	Ohio Rail Development Commission[#####]	No	Yes, active	2010	No
Tennessee	No – Multimodal	Multimodal Transportation Resources Division – Office of Freight and Rail Transportation[**]	Yes	Yes, not active	2003	Yes[***]
Virginia	No – Multimodal	Department of Rail and Public Transportation	Yes	Yes, not active	2008	Yes
West Virginia	Constitutional	Public Service Commission – Rail Division	Yes	No	2009	No
North Carolina	No – Multimodal	NCDOT Rail Division	Yes	Yes, not active	2009	Yes
Michigan	No – Multimodal	Intermodal Policy Division[****]	Yes	Yes, active	2011	Yes
Texas	Other[*****]	TxDOT – Rail Division	Yes	Yes, active	2010	No

*Reference: *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the Kentucky Transportation Center (KTC) using 2009 data. #- Some of the KYTC rail responsibilities are handled by the Utilities and Rail Branch, as well as the Office of Transportation Delivery. ## – Illinois Commerce Commission has regulatory oversight. ###- No State trust fund; trust funds for high-speed rail and passenger rail have been created for federal funding. #### – The Missouri Plan is actually a Statewide Transportation Improvement Program that includes a chapter on rail projects, but is not a rail-specific planning document. A new state rail plan is underway. ##### - The Public Utilities Commission of Ohio handles safety and regulatory oversight. ** – Rail Safety Oversight Section, Office of Project Planning Division also has rail-related responsibilities. ***– The Short Line Rehabilitation Program. **** – Other agencies with roles in rail programs: Statewide Transportation Planning Division; Freight Services and Safety Division; Passenger Transportation; Transportation Planning; Finance and Administration; Office of High Speed Rail and Innovative Project Advancement. ***** – The Texas Constitution restricts use of fuel taxes to roadways and administration of traffic laws; a quarter of the revenues, however, are allocated to the Available School Fund.

Table 5.2.4 A - Railway Funding Comparison in Kentucky and Other States

5.2.4-3 KYTC and Rail Coordination

The Utilities and Rail Branch of the Division of Right-of-way administers the KYTC's Railroad Coordination Program and Railroad Crossing Safety Program. These programs provide the link between the KYTC and railroad companies when highway projects come in contact with rail facilities. This includes projects that are at-grade, over, or under railroad right-of-way and those projects that are adjacent to railroad right-of-way. When a road project adjoins or encompasses a railroad facility (such as a railroad track or railroad right-of-way), the owner of that facility becomes an active partner in the project's development. The KYTC coordinates the project's design as it impacts the railroad and compensates the railroad for the costs of their involvement in the project.

The Railroad Coordination program is managed by the Rail Coordinator within the KYTC Division of Right-of-way and Utilities. The Rail Coordinator is the KYTC's liaison to the various railroads in Kentucky, providing information about the KYTC's future projects to the railroad companies involved, while preparing and executing agreements that outline how a highway project may affect them. This is achieved through early and continual communication between the KYTC and the railroad companies. Prospective designs are provided to the railroads so that they may review and comment on how the project will impact their facilities. Once both parties are satisfied with the design, an agreement is executed to finalize the efforts. Once the project goes to construction, the Rail Coordinator also helps to address any issues or conflicts that may arise during construction.

> *"Encourage freight-train shipping as it is more cost-effective for the current facilities and the environment. It means less tractor-trailers on the highways which would conserve the roads."*
> Jefferson County Survey Participant

Another aspect of the Rail Coordination program is highway-railroad at-grade crossing surface rehabilitation. Just like road surfaces, the surface of a highway-railroad at-grade crossing will deteriorate over time, requiring maintenance and restoration. Under state statute, the crossing surfaces between the edges of the crossties are the responsibility of the owning railroad. The Rail Coordinator brings concerns of rough crossings to the attention of the owning railroad company so that those crossings may be improved. Occasionally, it is in the best interest of the state for the KYTC to be more actively involved in the rehabilitation of a highway-railroad at-grade crossing. This is particularly true in the case of high traffic roadways, due to the heavy usage and loading on the surface. In these instances, the KYTC may request a specific crossing surface be utilized. If a specialty surface is required, the KYTC may enter into a cost sharing agreement with the railroad to provide funds or materials for all or part of the crossing surface. These types of agreements are uncommon.

There are over 2,000 open, public at-grade highway-railroad crossings in Kentucky. There are even more highway-railroad at-grade crossings on private roadways that serve homes and businesses. These private highway-railroad at-grade crossings may include an agreement between the private landowner and the railroad, but the KYTC has no involvement with private crossings. Whether they are public crossings or private crossings, the surface of highway-railroad at-grade crossings is the responsibility of the owning railroad. In most cases, the railroad has permitted the roadway to cross the railroad right-of-way. When the KYTC is made aware of rough crossings, the concerns are passed along to the respective railroads so that they may address them.

"If a citizen knows of a rough crossing, the best course of action is to contact the associated railroad. Every crossing must have a small sign displayed listing the crossing's unique number (called a DOT number) along with a phone number. Citizens may call this telephone number to deliver the message of a rough crossing, noting the specific DOT number." KBT Stakeholder Meeting Member

5.2.4-4 KYTC Railroad Safety

The KYTC is a steward of Kentucky's State and Federal roadways, so safety is always a priority and concern. Crossings of vehicular traffic and trains are locations where safety is of particular concern. Nationally, warning devices at highway-railroad at-grade crossings are generally accepted to lessen the probability of accidents but they cannot prevent highway-railroad at-grade crossing accidents. If a crossing can be closed or if the movement of vehicles and trains can be separated, then these efforts improve public safety by reducing the potential for motor vehicle and train collisions.

The KYTC Railroad Safety Coordinators are responsible for maintaining an inventory of highway-railroad at-grade crossings on public roads throughout Kentucky. A detailed inventory of each of these crossings is gathered and used to assess the crossings for safety needs. The Railroad Safety Coordinators facilitate the programming of funds for identified safety improvement projects and oversee the execution of these projects.

Each open public at-grade crossing is inventoried every 3 years and the information for each crossing is kept in a Railroad Crossing Inventory database. This database uses a nationally recognized formula to calculate hazard using the field data gathered by the coordinators, which ultimately is used to determine which crossings receive safety devices. The number of cars, number of trains and number of crashes are factors considered in prioritizing crossings as part of this formula.

Closing crossings or separating vehicle-train movements is not always feasible. When these options are not practicable, the Railway-Highways Crossing Program (Section 130) can be utilized to facilitate the installation of warning devices at highway-railroad at-grade crossings. Information about this program can be found at http://safety.fhwa.dot.gov/xings/. Since 1973, Congress has provided dedicated limited federal funds for states through this program to implement safety improvement projects at highway-railroad at-grade crossings. Such improvements may include flashing lights, gates, other warning devices, and sometimes specialty surface material. The Section 130 Program may also be used to support states, localities, and railroads in closing crossings. At the current level of funding, Kentucky has the capacity to improve approximately 6 to 8 crossings a year.

5.2.4-5 Light Rail

Light rail or light rail transit (LRT) is typically an urban form of public transport with a “light” passenger capacity that operates primarily along exclusive rights of way and has vehicles capable of operating as a single train or as multiple units coupled together.

The Transit Authority of River City (TARC) in Louisville, the largest transit system in Kentucky has explored the concept of light rail and ridership. TARC stopped their light rail study, *Transportation Tomorrow* in 2004 due to funding and ridership hurdles in the study. Funding continues to be the major hurdle to proceeding through the next steps.

5.2.4-6 High Speed Rail

High-speed rail is a type of rail transport that operates at significantly faster speeds than traditional rail traffic and carries a heavier volume of traffic compared to light rail. High Speed Rail uses an integrated system of specialized rolling stock and dedicated tracks.

High-speed passenger rail could be convenient and would reduce travel time from remote areas in Eastern Kentucky to cities like Louisville and Lexington. At the current time, however, there are no plans for the Commonwealth to establish a high-speed passenger rail system.

While the KYTC is aware of the need for improved transportation facilities throughout Kentucky, the cost of high-speed passenger rail system infrastructure is extremely high and is even more expensive to operate and maintain. Kentucky, like much of the nation, faces a budget crisis and must continue to fund basic, vital services on limited funds.

Presently, all of the active rail lines in Kentucky are privately owned and used for moving freight with the exception of a few small tourist/recreational lines scattered throughout the state and Amtrak trains that run through Kentucky operate on freight rail tracks. Freight railroad companies are cautious about allowing passenger rail equipment to utilize their tracks due to the laws regulating them. In order to accommodate passenger rail, freight railroad companies will need to slow down their current operations and increase traffic on rail lines that are often congested and possibly already operating at capacity. In addition, the general condition of the existing rail lines in Kentucky often limits trains to traveling at a maximum of 15 miles per hour (mph), which is not competitive with automobile travel.

To achieve truly high-speed passenger rail service over 80 mph, dedicated passenger tracks would need to be constructed, requiring massive funds to purchase land and to build track. The KYTC has studied the high-speed passenger rail alternative several times in the past. Most recently in March 2012, the KYTC participated in a feasibility study that considered a high speed corridor from Nashville to Louisville. It concluded that capital costs for this corridor would be approximately $16 billion, while the yearly operating and maintenance costs would run in excess of $250 million. There is a common assumption that the construction of a high-speed passenger rail system would help the population save money on expenses such as gasoline, car payments, insurance, etc. Since the majority of state government funding comes from collecting taxes from citizens, the necessary funds to construct a sustainable high-speed passenger rail system would involve substantial tax increases. The same high initial and maintenance costs are also issues with light rail services in our major cities. At this time, the KYTC believes that state funds can be used more efficiently to assist the citizens of Kentucky with other modes of transportation and other mobility issues rather than high-speed or light rail systems. Additional discussion on high-speed passenger rail is provided within this chapter in the Public Transit Section.

5.2.4-7 Rail and other modes

Rail plays a significant role in the transportation of freight (aka goods) that benefits our citizens. The interfacing of railways with that of waterways and highways is critical to the vitality of our economy through added reliability and redundancy within our transportation system. **Figure 5.2.4 A** shows from a statewide level, the connection between railways and riverports within Kentucky, while **Figure 5.2.4 B** provides a graphical representation of the association between railways and Kentucky's Arterial Highway System from a statewide perspective in Kentucky.

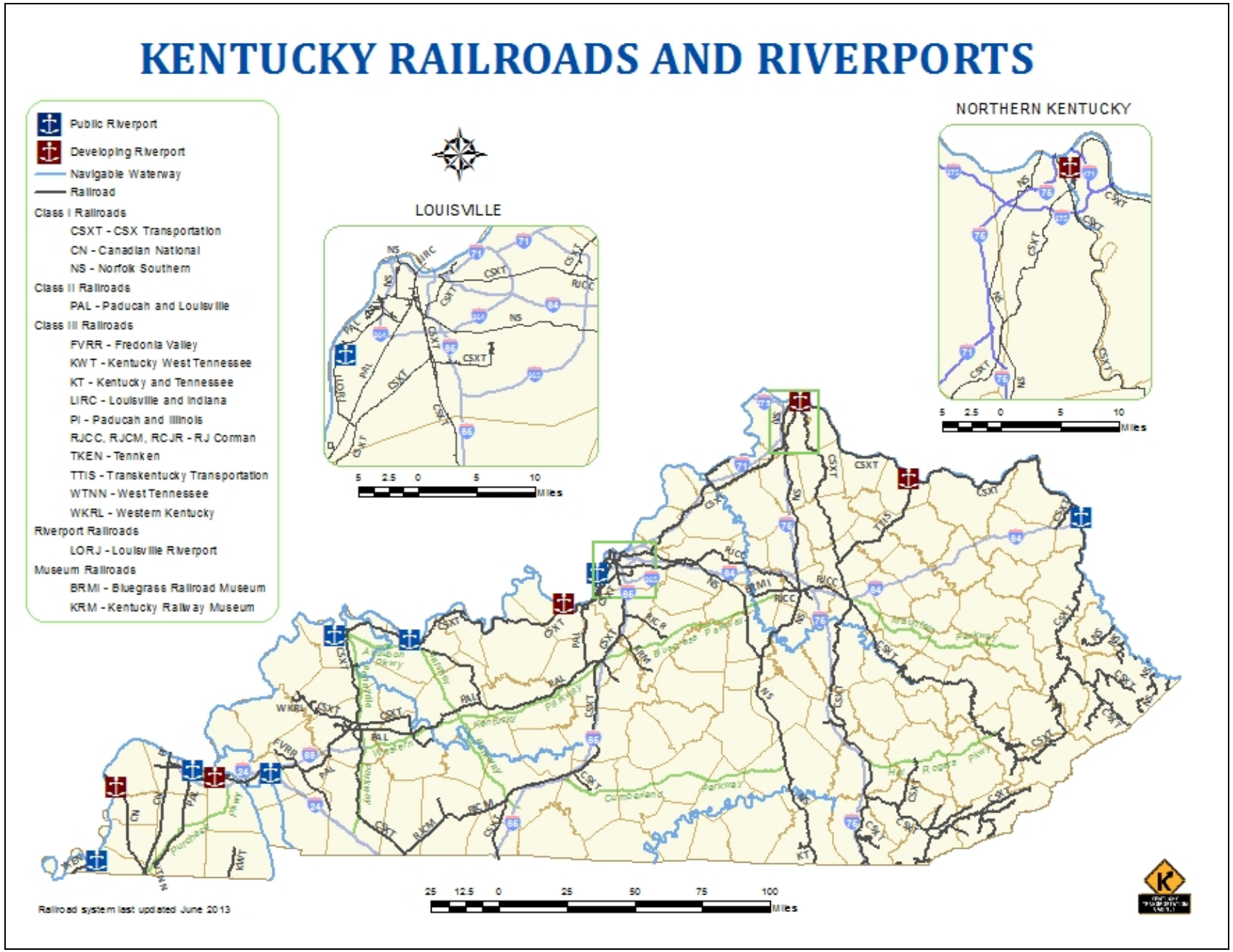

Figure 5.2.4 A – Kentucky Railway and Riverport Statewide Connectivity Map

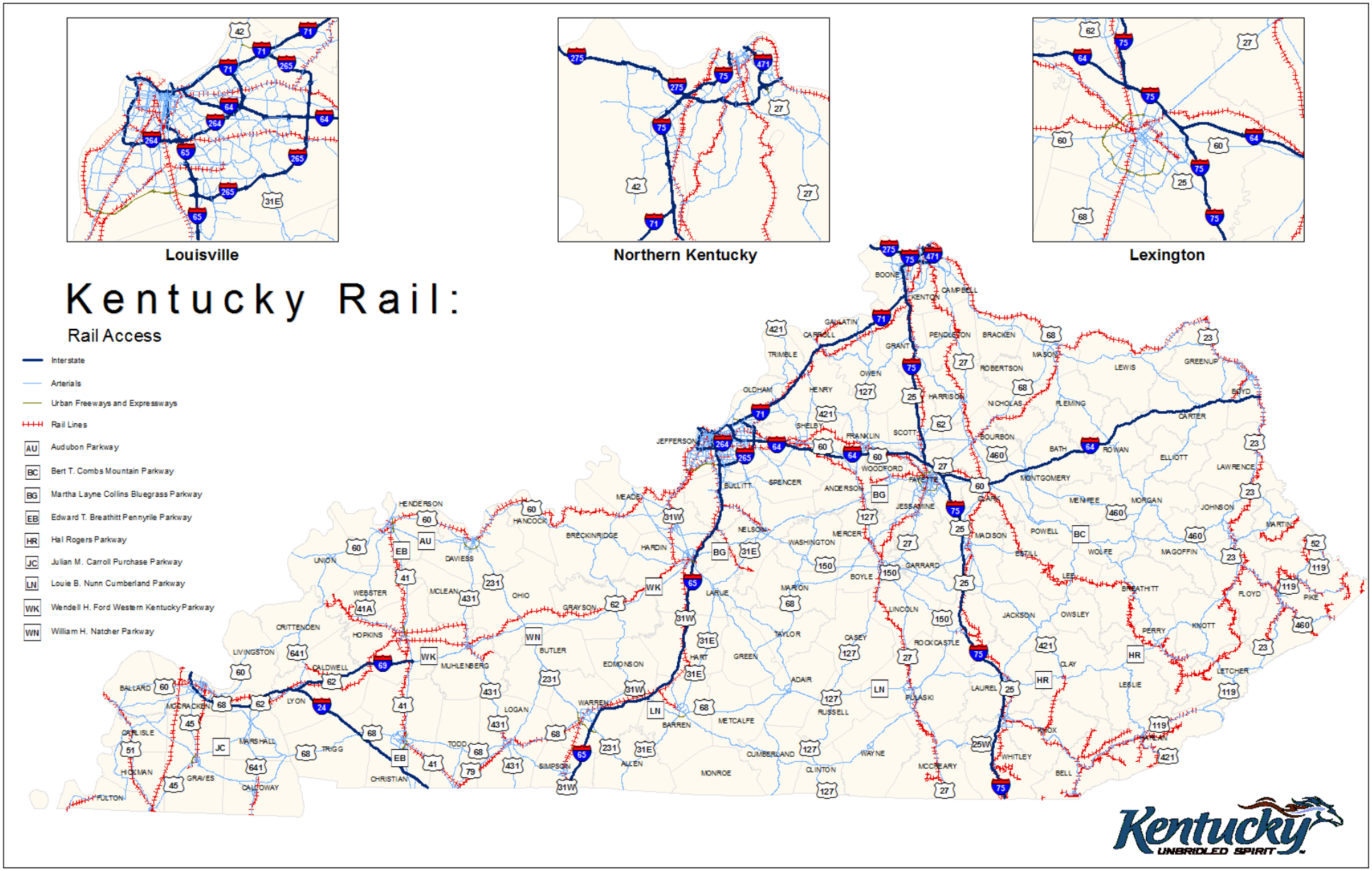

Figure 5.2.4 B – Kentucky Railway and Highway System Statewide Connectivity Map

5.2.4-8 References and Links

5.2.3-8.1 General Information

1. *Kentucky Statewide Rail Plan, 2002*: http://transportation.ky.gov/Railroads/Pages/Kentucky-Statewide-Rail-Plan.aspx.
2. Kentucky Short-line Railroad Assistance programs: http://transportation.ky.gov/Railroads/Pages/Shortline-Railroad-Assistance.aspx.
3. The KYTC Statewide Rail Program web page: http://transportation.ky.gov/Railroads/Pages/default.aspx .
4. AMTRAK Interactive Route Atlas: http://www.amtrak.com/interactive-route-atlas.
5. Association of American Railroads US Freight Railroad Industry Snapshot: https://www.aar.org/keyissues/Pages/Railroads-And-States.aspx#.Ue1jom3b18E.
6. Association of American Railroads Freight Railroads in Kentucky statistics: https://www.aar.org/keyissues/Documents/Railroads-States/Kentucky-2010.pdf.
7. United States Department of Transportation Rail Freight Shipments by state: http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/state_transportation_statistics/state_transportation_statistics_2011/html/table_03_04.html.
8. Federal Highway Administration Railway-Highways Crossing (Section 130) Program - http://safety.fhwa.dot.gov/xings/.

5.2.5 Waterways

"I think improvement of riverports for more river transportation will have a big impact on transportation cost for business and industry." Lyon County Survey Participant

5.2.5-1 Overview Navigable Waterways

Construction of locks and dams on the nation's main rivers and tributaries began in the 1920's. The locks and dams are a crucial part of the approximately 12,000 miles of inland waterway transportation system we use across the nation. Originally developed with a primary focus on moving bulk goods to market at a significant savings to producers and consumers alike, other significant benefits have been realized over time. Increased recreation opportunities, flood control, hydroelectric power generation, and water supply for municipal and agricultural use are additional benefits waterways provide.

Kentucky has over 1,900 miles of USACE designated navigable waterways and the highest total of inland USACE designated navigable waterways for any state in the continental USA. Kentucky's waterways are a valuable transportation resource, providing a waterway link between the Great Lakes, Canada, Mexico and the Panama Canal. As noted in **Table 5.2.5 A** over 92 million tons of cargo, pre-dominantly coal and aggregates, were transported through Kentucky's waterways during 2011.

The Ohio River provides 664 miles of navigable waterways along the northern boundary of Kentucky and makes up a large portion of the federally-designated Marine Highway Corridor (MHC) M-70. Along Kentucky's boundary, the Mississippi River provides 63 miles of navigable waterways per USACE. Along the western boundary of Kentucky, the Mississippi River is a portion of MHC M-55 and the Tennessee River in Western Kentucky is a portion of MHC M-65. Designation in the Marine Highway System identifies an opportunity to alleviate freight-related congestion on existing parallel land routes,

Commodity	Tons	Value (Billions)
Coal	48,300,000	$1.75
Petroleum	7,341,000	$4.80
Aggregates	21,426,000	$0.20
Grains	3,748,000	$0.71
Chemicals	3,234,000	$2.20
Ores/Minerals	1,845,000	$0.34
Iron/Steel	3,011,000	$0.97
Others	3,639,000	$0.34
Total	92,544,000	$11.40
Source: U.S. Army Corps of Engineers (USACE) Waterborne Commerce Statistics 2011		

Table 5.2.5 A – Waterway Commodities

which leads to reduced emissions, energy conservation, improved safety, and reduced road maintenance costs.

The Marine Highway Corridors may also contribute to increased economic and commercial activity in the region by removing barriers to efficient freight transportation.

Figure 5.2.5 A denotes the equivalent units of rail and tractor-trailer (semi) traffic that one river barge is capable of moving. For more information on America's Marine Highway Program, please visit the following website at http://www.marad.dot.gov/ships_shipping_landing_page/mhi_home/mhi_home.htm#.

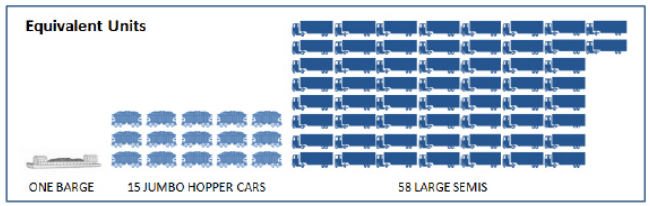

Figure 5.2.5 A – Freight Mode Equivalent Unit Comparison

5.2.5-2 Riverports

"Nothing duplicates the service that riverports are able to provide the communities within their region." KBT Stakeholder Meeting

Kentucky's numerous private and public riverports offer connectivity between navigable waterways, rail and major highway corridors; access to equipment to trans-load freight between the transportation modes; and storage facilities. Public riverports are established by authority granted through KRS 65.520; any governmental unit, alone or in unison may establish a public riverport with approval by the KYTC.

Figure 5.2.5 B depicts the locations of the seven operating public riverports and the five developing riverports along the navigable waterways network. Approximately 90% of Kentucky's population lives within 100 miles of a riverport. Riverports indeed have statewide reach and influence.

More information about Kentucky's riverports can be accessed at: http://transportation.ky.gov/Riverports/Pages/default.aspx.

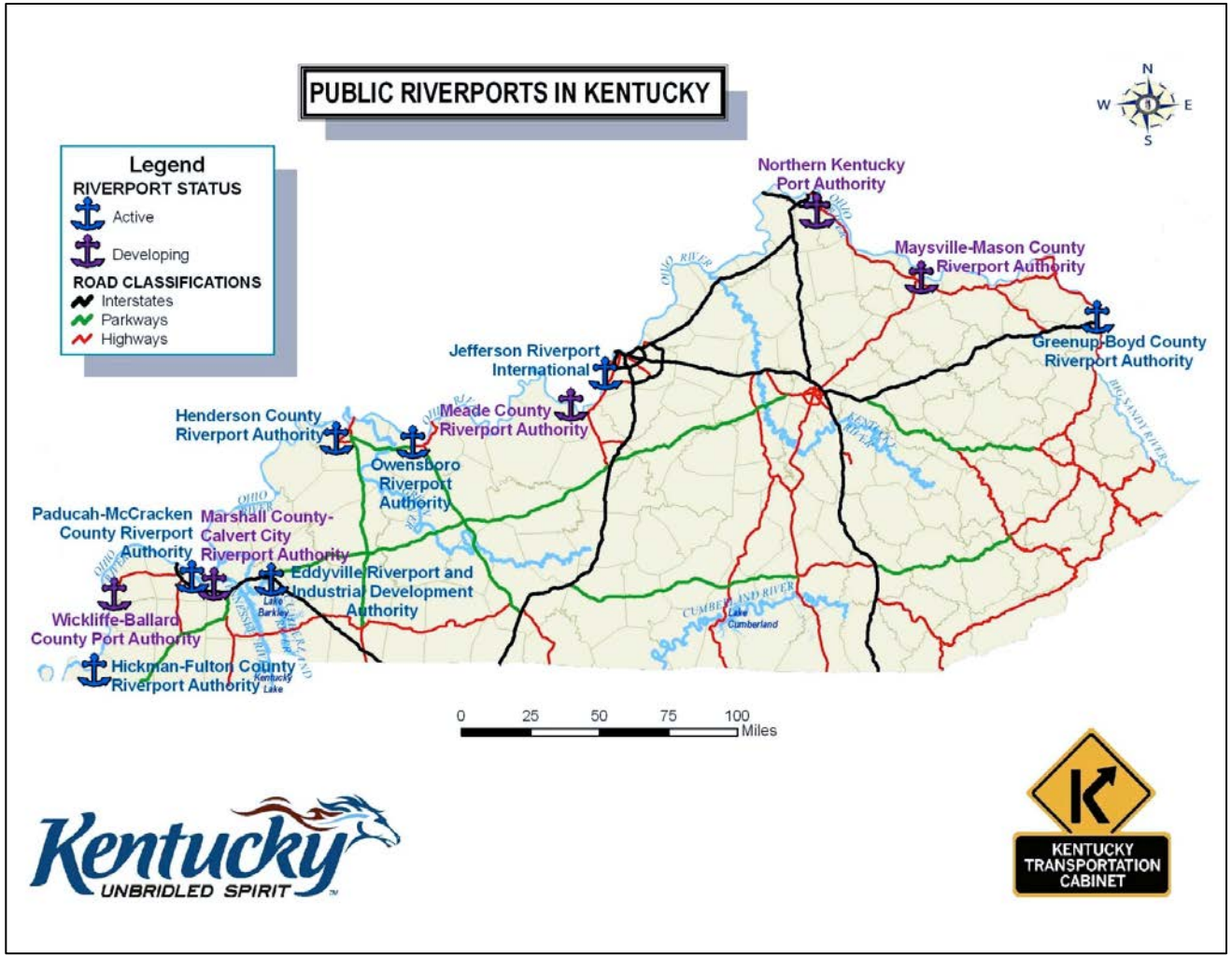

Figure 5.2.5 B – Public Riverports in Kentucky

5.2.5-3 Ferry Operations

Kentucky utilizes a ferry boat system to accommodate river crossings where construction of a bridge is not a feasible or desirable alternative. There are ten ferry boats operating within or along the state's borders, seven of which provide river crossings at no charge. Ferry boats are considered "moving bridges" by the KYTC, and provide crossings on the Ohio, Mississippi, Green, Kentucky, and Cumberland Rivers. Funding is provided by the KYTC to facilitate operation of seven of the ferry boats. The federal government provides funding and operation of the two ferry boats located in Mammoth Cave National Park. The Anderson Ferry, which crosses the Ohio River in northern Kentucky, is privately owned and operated. The ferry boats meet an important need as part of the Kentucky transportation system, and **Table 5.2.5 B** provides the ferry traffic counts for 2013.

Figure 5.2.5 B shows the current location of all the public ferry boats in Kentucky, while the following web link provides their ferry boat schedules: http://transportation.ky.gov/Ferries/Documents/FerryboatSchedule.pdf. For additional information on Kentucky ferry boat operations, see the web link at http://transportation.ky.gov/Ferries/Pages/default.aspx.

The federal government has provided some funding to assist ferry operators with capital projects through the Ferry Boat Formula Grant Program. More information about this federal program is available at http://www.fhwa.dot.gov/map21/guidance/guidefbp.cfm.

5.2.5-4 System Planning, Funding, and Development

The U.S. Army Corps of Engineers is responsible for the planning, construction, and operation of the lock and dam infrastructure on the nation's navigable waterways. Funding for these responsibilities comes from the barge industry and the federal budget.

Unlike Kentucky's highway system, the KYTC has no legislative authority over waterways or riverports. The KYTC is constitutionally constrained to spend Highway Funds on roadways and cannot expend funds directly on inland waterways infrastructure. The KYTC routinely evaluates highway access to riverports, rail lines, and intermodal facilities to identify improvements that could be made that meet the KYTC's goal of providing an integrated system for the dependable movement of people and freight.

Kentucky Ferry Boat Traffic Counts							
2013	Augusta	Cave In Rock	Dorena Hickman	Reeds	Rochester	Turkey Neck Bend	Valley View
Vehicles Moved	38,185	135,922	14,391	10,661	21,192	70,645	79,931

Table 5.2.5 B – Ferry Boat Operations in Kentucky

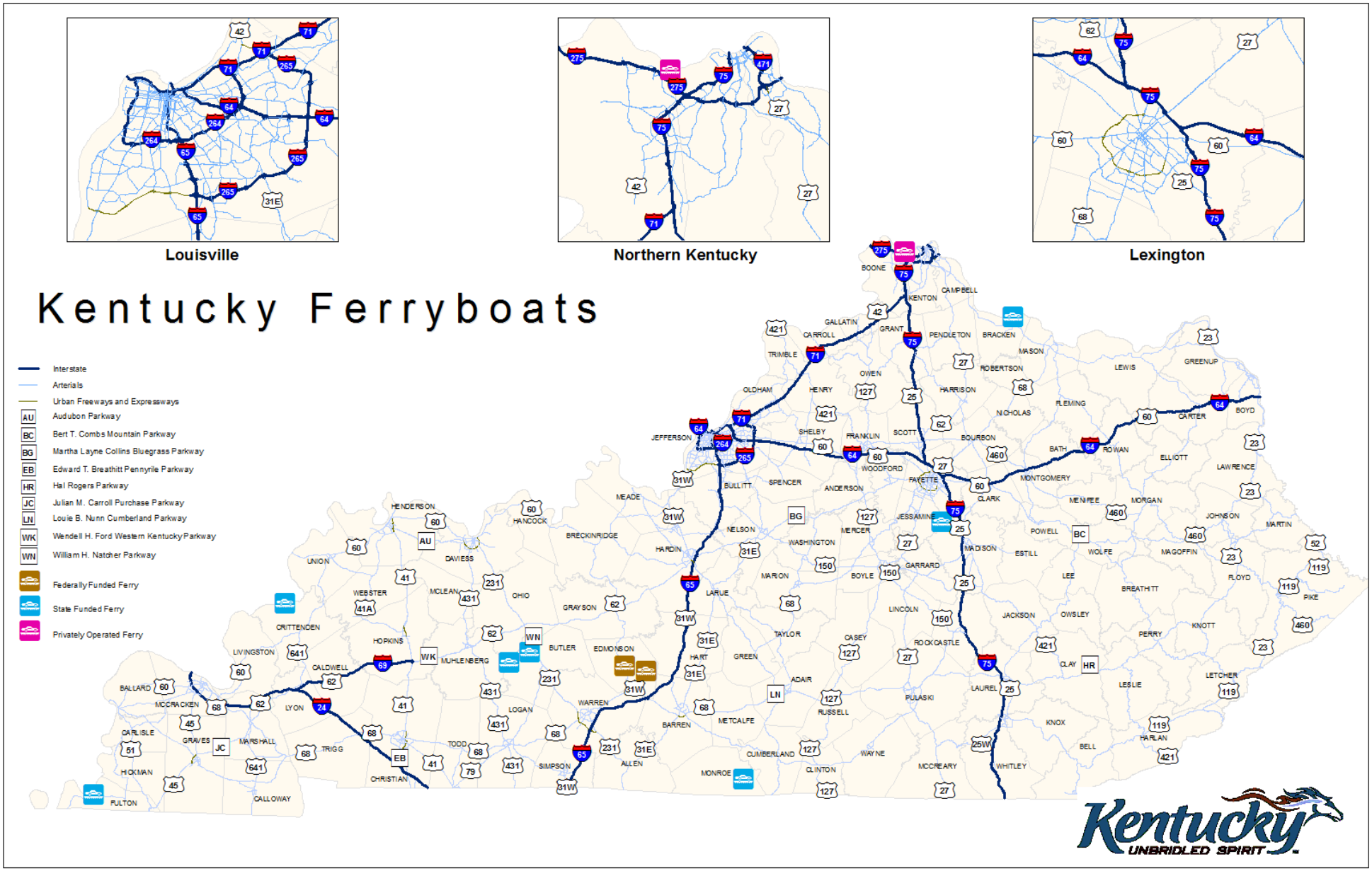

Figure 5.2.5 B - Ferry Boat Locations in Kentucky

Further assistance from the KYTC could be considered in the form of support for consistent and sustained legislative funding to maintain existing inland waterways infrastructure.

The *2008 Kentucky Riverport Improvement Project* study made recommendations to provide a comprehensive and wide-reaching plan of action to enable Kentuckians to compete in regional, national, and global markets. It also provided a plan to improve the quality of life through better utilization of the state's water transportation assets, especially its riverports. This study recommended education of policymakers and the general public regarding the importance of Kentucky's public riverports and their influence on the state's economy. The Kentucky Legislature implemented three of the study's recommendations by creating the Water Transportation Advisory Board (WTAB) in 2011, creating a funding mechanism for public riverport capital improvements, and creating a funding mechanism for marketing assistance for the purpose of promoting Kentucky's riverport services. The WTAB advises transportation officials, the Cabinet for Economic Development, the Kentucky Governor's Office, the Kentucky Legislature, and other governmental policymakers concerning matters affecting waterways. As of the 2013 session, the Kentucky General Assembly has twice appropriated funding for riverport improvement grants tasking the WTAB with prioritizing the funds for optimum utilization.

To help gain a great understanding of funding issues facing waterways in Kentucky, **Table 5.2.5 C** shows how Kentucky compares to the surrounding states and others with regards to funding, taxes, etc. This table also provides a breakdown of funding issues as noted from the *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* developed by the KTC for KBT.

5.2.5-5 References and Links

5.2.5-5.1 General Information

1. *Kentucky Riverport Improvement Project,* 2008, and *Kentucky Water Transportation Corridors Public Riverport Development and Intermodal Access*, 2000, may be accessed at: http://transportation.ky.gov/Riverports/Pages/Riverport-Studies.aspx.
2. The KYTC Ferries web page: http://transportation.ky.gov/Ferries/Pages/default.aspx.
3. *Toward a Full Accounting of the Beneficiaries of Navigable Waterways* 2011, Center for Transportation Research, university of Tennessee: http://www.nationalwaterwaysfoundation.org/study/BeneficiariesofNavigableWaterways14Jan11Ver.pdf.
4. U.S. Dept. o f Transportation Federal Highway Administration, Ferry Boat Program Discretionary Grant Program: http://www.fhwa.dot.gov/discretionary/fbd2012info.htm.
5. U.S. Dept. of Transportation Maritime Administration, America's Marine Highway Program: http://www.marad.dot.gov/ships_shipping_landing_page/mhi_home/mhi_home.htm#.
6. Water Transportation Advisory Board web page: http://transportation.ky.gov/Riverports/Pages/Water-Transportation-Advisory-Board.aspx.
7. Waterborne Commerce Statistics Center: http://www.iwr.usace.army.mil/About/TechnicalCenters/WCSCWaterborneCommerceStatisticsCenter.aspx.

Waterways Mode[+]							
State	**Dedication of Fuel Tax Revenues to Highway Modes**	**State Agency**	**Financial Support^**	**Bonding Authority#**	**Dedicated Funding**	**Technical and/or Marketing Support**	**Public Port Authority**
Kentucky	Constitutional	DOT	Trust Fund Grants*	Yes	No	Trust Fund Grant* Advisory Board	Local
Illinois	No–Multimodal	None	Revolving Loan	Yes	Yes	None	Local
Indiana	Statutory	State Port Authority	Non-Recourse Bonds	Yes	No	Port Authority Marketing	State & Local
Missouri	Constitutional	DOT	Trust Fund Grants** Revolving Loan	Yes	No	Marketing Grants	Local
Ohio	Constitutional	DOT	State Infrastructure Loan	Yes	No	ODOT Technical Staff	Local
Tennessee	No–Multimodal	DOT	Fuel Tax Investment into Grants & Loans	Yes	Yes	Advisory Board	Local
Virginia	No–Multimodal	State Port Authority	Tax Credits	Yes	Yes	Port Authority Technical Studies	State
West Virginia	Constitutional	State Port Authority (Under DOT)	Revolving Loan	Yes	No	State-wide Education Program	State
Alabama	Constitutional	State Port Authority	Special Appropriations	Yes	No	Port Authority Marketing	State
Minnesota	Constitutional	DOT	Revolving Loan	Yes	No	MnDOT Technical Staff	Local
Oklahoma	No–Multimodal	DOT	---	Yes	Yes	State-wide Education Program	Local
Oregon	Constitutional	Economic Development	Revolving Loan Trust Fund Grants	Yes	No	Trust Fund Grants	Local

[+]Reference: *2011 State's Support of Non-Highway Modes of Transportation: Investigation and Synthesis* by the Kentucky Transportation Center (KTC) using 2009 data.
^ - Infrastructure /Capital Improvements.; # - Bonding Authority Vested in Public Ports.; * - Trust Funds are currently unfunded by State Legislature.; ** - Grants allow operational and administrative cost to be funded.

Table 5.2.5 C - Waterway Funding Comparison in Kentucky and Other States

5.2.6 Bicycle and Pedestrian Facilities

> *"We need either wider shoulders and/or bike lanes on more roadways. Kentucky is moving and people are becoming more active in their lives. Runners/walkers/ bikers need a safe place to go."* Fayette County Survey Participant

5.2.6-1 Bicycle and Pedestrian Transportation

Bicycling and walking are basic forms of transportation for all Kentuckians. These active transportation modes are important to the success of the transportation system and have related benefits that can improve our quality of life. All travelers are pedestrians at some point during their trip, even if it is only between their vehicle and a building. It is the policy of the KYTC to enhance operational efficiency, promote program goals, and enrich the quality of life through the development of a pedestrian and bicycle network within our Commonwealth. Increased levels of bicycling and walking transportation can result in significant benefits in terms of health, physical fitness, the environment, and congestion.

Per Kentucky Revised Statutes (KRS) 189.010, bicycles are legal vehicles and, as such, are permitted on all roadways except where they are specifically prohibited (e.g., parkways and interstates). Bicycles can safely share the roadways with motor vehicles when appropriate consideration is made during the planning, design, construction, and maintenance of new or reconstructed roadways. Bicycle traffic should be expected on all roadways (except interstate highways and other fully controlled access highways), but each location merits a different type of accommodation.

The bicycle transportation system is composed of many facility types: shared roadways (bicycle and motorized vehicles share the road), bicycle lanes (a part of the roadway), multiuse paths (which may also accommodate pedestrians), bicycle paths (separated from the roadway), and off road trail systems (which may also accommodate horses, ATVs, and pedestrians). We work with communities and local governments to maximize potential for proper facilities for both bicyclists and pedestrians. The majority of the dedicated bicycle and pedestrian transportation facilities are located in Kentucky's metropolitan regions, although this system is continually expanding into Kentucky's rural and recreational areas. The KYTC continues to develop better, more efficient ways to build and manage the existing highway system to achieve maximum performance for all road users. The KYTC maintains information and resources on the development and operation of pedestrian and bicycle facilities at http://transportation.ky.gov/Bike-Walk.

5.2.6-2 Pedestrian and Bicycle Planning

Bicycle and pedestrian safety is of the utmost priority for the KYTC. The underlying principle of bicycle and pedestrian planning is to provide a strategy for a system that allows a choice in modes of transportation and a reasonable balance in accommodations. In 2002, the KYTC developed and adopted a Pedestrian and Bicycle Travel Policy that provides policy and guidance for incorporating pedestrian and bicycle accommodations on all new or reconstructed state-maintained roadways and requires consideration of bicycle and pedestrian transportation when planning the resurfacing of roadways-including shoulders. This policy can be found at the following link: http://transportation.ky.gov/Bike-Walk/Documents/Task%20Force%20FINAL%20June%2018_02%20policy%20rec%20to%20Sec%20Codell.PDF. Where guidance from local governments is available, their bicycle and pedestrian visions are incorporated.

Most of the Metropolitan Planning Organization (MPO) areas in Kentucky have their own bicycle/pedestrian plans, as do some regional and local planning agencies. The KYTC works with communities and local governments to help identify opportunities for bicycle and pedestrian accommodations, but it is the responsibility of the local community to develop and update bicycle and pedestrian plans for connectivity, logical termini, and long-term maintenance. The KYTC provides an inventory of existing bicycle and pedestrian plans within Kentucky under the Programs heading at http://transportation.ky.gov/bike-walk/Pages/Local-Info.aspx as well as a list of local entities that have created a bicycle and pedestrian plan under the Organization heading at the same link.

The KYTC has a full-time Pedestrian and Bikeway Coordinator to help ensure that all pedestrian/bikeway policies are implemented. The coordinator provides technical assistance to state and local health, transportation, tourism, and enforcement agencies as requested. This assistance includes pedestrian and bikeway project planning, design, construction, maintenance, and safety information, research, and program guidance. The coordinator facilitates the implementation of the Americans with Disability Act (ADA) by providing guidance on preferred design elements and best practices.

"People in this area would gladly use bicycles to get to and from work if bicycle lanes were available to keep them safe from harm. This would greatly save on energy and improve health of our community."
Mercer County Survey Participant

The KYTC has developed a Bicycle Level of Service (BLOS) analysis to better review and recommend routes for bicyclists on cross-state recreational touring road routes. These routes provide connectivity and may be included in local or regional bicycle networks. Some of these routes are part of a national bicycle corridor plan (Unites States Bicycle Route System). The BLOS also helps identify segments for improvements to local bicycle travel.

"Bike facilities can do a lot: reduce congestion and help with clean air and exercise. They should be a much larger piece of our transportation infrastructure." Daviess County Survey Participant

The Kentucky Bicycle and Bikeway Commission (KBBC) was formed by the Kentucky legislature in 1992 (KRS 174.125). The Governor's office designates seven citizens to represent the interests of bicyclists in advising the KYTC on all matters pertaining to bicycles, bikeways, and their use, extent, and location; assist the bicycle and bikeway program in the exercise of its duties within the KYTC; and promote the best interests of the bicycling public, within the context of the total transportation system, to governing officials and the public at large. The KBBC oversees the Paula Nye Memorial Grant Program which is funded by the Share the Road license plate fees and is located at the following link http://transportation.ky.gov/Bike-Walk/Documents/PaulaNye_Memorial_BicyclePedestrian_Education%20Grant%202013.pdf. The Nye Grant supports programs pertaining to bicycle and pedestrian safety through the development of curriculum, training aids, and/or educational programs or projects directly related to bicycle safety and the health, recreational, economic, social, cultural, and other benefits arising from bicycling and walking.

5.2.6-3 References and Links

5.2.6-3.1 General Information

1. 2012 AASHTO Guide for Bicycle Facilities / http://aashtodesign.com/search/2012-aashto-bicycle-guide.
2. 1999 AASHTO guide for Pedestrian Facilities / http://aashtodesign.com/search/aashto-pedestrian-guide.
3. PEDSAFE, Pedestrian Countermeasure Selection System: http://www.walkinginfo.org/pedsafe/.
4. Designing Sidewalks and Trails for Access: http://www.fhwa.dot.gov/environment/sidewalk2/pdf.htm.
5. ITE Design and Safety of Pedestrian Facilities: http://safety.fhwa.dot.gov/ped_bike/docs/designsafety.pdf.
6. Pedestrian Facilities User Guide- Providing Safety and Mobility: http://drusilla.hsrc.unc.edu/cms/downloads/PedFacility_UserGuide2002.pdf.
7. An Analysis of Factors Contributing to "Walking Along Roadway" Crashes: Research Study and Guidelines for Sidewalks and Walkways: http://drusilla.hsrc.unc.edu/cms/downloads/WalkingAlongRoadways_Study_Guidelines.pdf.
8. Evaluation of Safety, Design, and Operation of Shared Use Paths: http://drusilla.hsrc.unc.edu/cms/downloads/Eval_SharedUsePaths_Final.pdf.

5.2.6-3.2 Education

- Safety Materials:

1. Safety material available for print: http://transportation.ky.gov/Bike-Walk/Pages/Safety.aspx.
2. Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: http://drusilla.hsrc.unc.edu/cms/downloads/Effects_Un_MarkedCrosswalks_Summary.pdf.

- Health Impacts of Having a Walkable Community:

1. http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/factsheets/health.
2. http://www.cdc.gov/nceh/publications/factsheets/ImpactoftheBuiltEnvironmentonHealth.pdf.
3. http://www.cdc.gov/transportation/recommendation.htm.

- Economic Impacts of Having a Walkable Community:

1. http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/factsheets/economic-revitalization.
2. http://people.hofstra.edu/geotrans/eng/ch7en/conc7en/ch7c1en.html.
3. http://www.sctainfo.org/reports/Economic_Impacts_of_Walking_%26_Bicycling/Economic_Impacts_of_Walking_%26_Bicycling_January_2013.pdf.
4. http://www.americantrails.org/resources/economics/NCouterbanks.html.

- Cycling and Pedestrian Improvements / Cost:

1. http://katana.hsrc.unc.edu/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf.
2. http://katana.hsrc.unc.edu/cms/downloads/Costs-for-Pedestrian-Bicycle-Infrastructure-Improvements.xlsx.
3. http://www.pedbikeinfo.org/data/library/casestudies_details.cfm?id=4876.
4. http://activeliving.org/.
5. http://www.homewyse.com/costs/cost_of_concrete_sidewalks.html.
6. http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped_Districts/04-Generic-Cost-Estimating-Tool.pdf.
7. http://www.ktc.uky.edu/research/multmodal-transportation/.