Kentucky State Primary Road System Criteria Study

FINAL

Prepared for:

Kentucky Transportation Cabinet
Division of Planning

Prepared by:

Wilbur Smith Associates
Lexington, Kentucky

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Executive Summary

The Kentucky State Primary Road System Criteria Study has been undertaken at the request of the Division of Planning, Kentucky Transportation Cabinet. Its purpose was to develop formal criteria that could be used by the Kentucky Transportation Cabinet for three applications:

- Develop a more appropriate classification of roads within the state system (e.g., changing a Rural Secondary to a State Secondary or Major Collector to Minor Arterial),
- Review existing state and local roads and streets to identify candidate roads for possible jurisdictional transfers to local government and/or abandonment, and
- Review highways being considered for designation as a part of the Kentucky State Primary Road System, particularly in response to requests from local governments.

Study Description

The following tasks were undertaken:

- Survey of 16 Adjacent, Peer, and Progressive States
- Literature Research of Data on Two Additional States
- Identification of Candidate Criteria and Criteria Scenarios
- Testing of Criteria Scenario Options
- Evaluation of Tests
- Conclusions and Recommendations

Study Goals

To accomplish the purpose of the study, the following goals were used for evaluating the alternative criteria:

- Criteria should be supported by and/or be consistent with practices in other states, especially those considered as “progressive” states.
- Criteria should utilize existing KYTC Highway Information System data to the maximum extent possible.
- Criteria should be supported by an analysis of available data.
- Criteria should be relatively simple to apply.

A secondary goal is that the selected criteria should identify the counties with a disproportionately high share of SPRS mileage.

Conclusions

Process for Changes, Additions, or Transfers

There are three primary processes involved in making changes and/or additions to the state highway system, as discussed in the “Recommendations” section of this Executive Summary. Each of these processes is somewhat separate and distinct from the other two, so different criteria should be applied in each process.

Criteria for State System

- The Federal Functional Classification System is the most common criterion that the study states use for state system designation, with 8 of 14 states using functional classification as at least one of the factors considered.
- Almost all of the states that have tried to use functional classification for determining jurisdictional responsibility have faced problems in implementing this initiative, primarily due to political controversy and difficult negotiations with local governments.
- Based on a comparison of the Federal Functional Classification guidelines and the legal description of the Kentucky State Primary Road System, as described in 603 KAR 3:030, there appears to be an almost direct correlation between the functional classification and SPRS categories.
- Other criteria considered included Dead Ends (or "Stubs"), One-Lane Roads, Average Daily Traffic, State System, Truck Weight Class, and Lane Width. State System and Weight Class were dismissed because they did not meet the study goals, and the other two met most, but not all, of the study goals and may be applicable in some cases.

Recommendations

1. Develop Policy Guidelines for SPRS Processes

It is recommended that the KYTC develop formal guidelines that will address the three separate processes for the Kentucky State Primary Road System (SPRS), that is:

- **Reviewing the state highway system to more appropriately classify roads in the state system and to identify roads that might potentially be transferred to a local government;**
- **Reviewing a request to add a local road to the state system; and**
- **Transferring "orphan" roads or road segments resulting from KYTC road construction**.

In developing these processes, it is recommended that the KYTC explore undertaking a cooperative effort with representatives of local governments, such as the Kentucky Association of Counties, the County Judge-Executives Association and the Kentucky League of Cities.

2. Use Functional Classification in Making Jurisdictional Decisions

The primary component recommended for making jurisdictional decisions should be the use of the Federal Functional Classification System, as described in the FHWA's *Highway Functional Classification System: Concepts, Criteria, and Procedures*.

3. Selection of Criteria Scenario Options

The selection of criteria scenario options should be different for the first two processes. That is, one set of criteria should be used to determine potential roads for removal from the state system, and a second, more restrictive set of criteria should be used in considering whether a local road should be added to the system.

- **In reviewing the SPRS for candidate roads for removal, it is recommended that the KYTC identify and review the non-continuous routes (dead ends, or stubs) and the one-lane roads for possible removal from the State Primary Road System, with the recognition that there may be some overlap between these options and other**

options. Eliminating non-continuous routes from the SPRS may be inappropriate in many cases, particularly in counties that border on or contain rivers and lakes and those in mountainous areas. Therefore, each of the routes will need to be carefully evaluated on a case-by-case basis.

- **In reviewing the SPRS for candidate roads for removal, it is recommended that Functional Classification be used as the primary criterion.** All roads functionally classified as Rural Local or Urban Local should be under local government jurisdiction, and not a part of the State Primary Road System.
- **Jurisdictional transfers from local to state government should only be made as a trade, preferably by continuing the current KYTC policy of striving for and exchange on a 2-mile-for-1-mile basis, if possible.** However, when circumstances warrant, the KYTC should consider negotiating with the local government for at least a 1-for-1 trade or better if a 2-for-1 trade is not possible,
- **It is recommended that additional criteria be used in reviewing local roads for possible inclusion into the SPRS, in combination with other special considerations.** Applying the following criteria would include the following requirements:
    - A Functional Classification review to determine if the classification is or should be a higher classification than Local;
    - Rural ADT ≥ 1,000 and Urban ADT ≥ 2,000, since ADT can be viewed as a measure of value and benefit to the area; and
    - Lane Width>10 feet, as an indicator of the cost to upgrade and maintain the road.
    - The road should be in compliance with the KYTC Access Management policy.
    - A review of the roadway should be undertaken to determine if there are any special circumstances that could add to the cost to improve or maintain the highway, e.g., rockfall or landslide areas, deficient bridges, poor pavement condition, special access or land use problems, etc.

4. Evaluation Matrix

A simple matrix has been developed and is recommended for use in the statewide SPRS road mileage and jurisdictional transfer reviews. The matrix provides guidelines for selected criteria that are customized to fit language in the Kentucky Revised Statutes (KRS 177.020) and descriptions for SPRS categories spelled out in Kentucky Administrative Regulations (603 KAR 3:030).

5. Adding a Newly Constructed Road to the State System

It is recommended that the KYTC establish a policy and procedures to accept a newly constructed state road into the SPRS either prior to or at the time the road is open to traffic. KYTC should also explore making a new road part of the State Primary Road System as part of the budgeting process, i.e., when funds are allocated for a project.

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Chapter 1. Introduction: Study Purpose and Description

The Kentucky State Primary Road System Criteria Study has been undertaken at the request of the Division of Planning, Kentucky Transportation Cabinet. The Division of Planning has the responsibility for making recommendations, preparing official documentation, and maintaining the records for the Kentucky State Primary Road System (SPRS), as well as other designated highway systems in the Commonwealth of Kentucky.

Study Purpose

The purpose of this study is to develop formal criteria that could be used by the Kentucky Transportation Cabinet for two applications:

- Develop a more appropriate classification of roads within the state system (e.g., changing a Rural Secondary to a State Secondary or Major Collector to Minor Arterial),
- Review existing state and local roads and streets to identify candidate roads for possible jurisdictional transfers to local government and/or abandonment, and
- Review highways being considered for designation as a part of the Kentucky State Primary Road System, particularly in response to requests from local governments.

Study Description

The study involves the following activities, which are discussed further in this chapter:

- Survey of Other States
- Literature Research
- Identification of Candidate Criteria
- Testing of Criteria Scenarios
- Analysis of Tests
- Conclusions and Recommendations

This report presents a summary of the findings, conclusions, and recommendations of the study. However, the chapters are not organized in the same format as the list of tasks above.

In addition, an **Appendix** to this report has been prepared as a separate document to provide KYTC with detailed backup information that was gathered during the study process.

Following is a discussion of the various study tasks and a reference to the chapter where each task is discussed in more detail.

Survey of Other States

In accordance with guidelines prepared by the KYTC, the study has gathered information on states in three categories, as follows:

- Adjacent states
- Peer states
- “Progressive” states

Further discussion on each category is presented below. Initially, it was decided that at least 14 states would be surveyed, although 16 states were eventually identified for surveys (see discussion in this section under “Progressive States”). A summary of relevant data for the 16 selected states is presented in **Table 1a-1c**.

Table 1a. Data Summary for Kentucky and for Adjacent, Peer, and Progressive States

State	Miles of Ownership						
	Rural		Urban				
	State Highway Agency	Total Public Roads	State Highway Agency	Total Public Roads	Total on State Maintained Road System	Total Public Roads (Rural Total and Urban Total)	% on State Road System
Arkansas	15,023	87,335	1,346	10,797	16,369	98,132	16.68%
California	11,421	83,286	3,780	85,484	15,201	168,770	9.01%
Florida	7,056	49,411	4,996	67,889	12,052	117,300	10.27%
Illinois	11,718	101,611	4,529	36,746	16,247	138,357	11.74%
Indiana	9,540	73,862	1,653	20,176	11,193	94,038	11.90%
Iowa	8,836	103,509	891	9,926	9,727	113,435	8.57%
Kentucky	25,057	67,105	2,423	11,808	27,480	78,913	34.82%
Louisiana	14,664	46,890	2,040	13,939	16,704	60,829	27.46%
Michigan	7,702	91,689	2,023	30,100	9,725	121,789	7.99%
Missouri	30,670	106,710	1,755	17,614	32,425	124,324	26.08%
Ohio	15,270	83,665	4,024	33,603	19,294	117,268	16.45%
Pennsylvania	32,102	85,460	7,833	34,526	39,935	119,986	33.28%
Tennesse	11,355	69,972	2,436	17,851	13,791	87,823	15.70%
Texas	68,686	218,536	10,660	82,230	79,346	300,766	26.38%
Virginia	49,274	51,654	7,668	19,065	56,942	70,719	80.52%
West Virginia	32,520	33,878	1,455	3,118	33,975	36,996	91.83%
Wisconsin	10,310	95,887	1,443	16,777	11,753	112,664	10.43%

Source: 2001 Highway Statistics - US Department of Transportation, Federal Highway Administration

Table 1b. Data Summary for Kentucky and for Adjacent, Peer, and Progressive States

State	General Measures											Travel Measures						
	2001 Net Land Area (Square Miles)			2001 Population				2000 Personal Income		1998 Gross State Product		Annual Vehicle-Mile of Travel					Lane-Miles	
	Rural	Urban	Percent Urban	Rural (1000)	Urban (1000)	% Urban	Total Per Square Mile	Amount (Billions of Dollars)	Per Capita	Amount (Billions of Dollars)	Per Capita	Rural		Urban		Total Per Capita	Rural	Urban
												Annual VMT (Millions)	% Trucks	Annual VMT (Millions)	% Trucks			
Arkansas	50,918	1,162	2.2	1,265	1,347	51.6	50	60	22,257	62	24,429	18,968	19.4	10,465	10.8	11,268	176,169	23,178
California	146,692	9,370	6	3,072	31,745	91.2	223	1093	32,275	1119	34,238	62,789	15.4	247,914	7	8,924	173,509	200,641
Florida	45,478	8,506	15.8	2,635	13,697	83.9	303	450	28,145	419	28,106	38,897	13.9	116,767	6.9	9,531	104,274	150,681
Illinois	51,484	4,104	7.4	2,829	9,677	77.4	225	401	32,259	426	35,294	30,763	14.5	72,275	9.2	8,239	206,855	82,094
Indiana	34,004	2,093	5.8	2,096	3,449	62.2	154	164	27,011	174	29,452	36,517	17.4	35,107	10	12,917	151,377	43,204
Iowa	56,733	1,120	1.9	1,185	1,741	59.5	51	78	26,723	85	29,710	19,132	15.8	10,884	8	10,258	210,374	22,739
Kentucky	38,340	1,393	3.5	2,134	1,959	47.9	103	98	24,294	107	27,199	26,639	16.4	19,619	8.1	11,302	137,633	25,954
Louisiana	41,429	1,597	3.7	1,387	2,945	68	101	104	23,334	129	29,567	22,240	17.2	18,937	11.7	9,505	96,309	31,454
Michigan	53,244	3,560	6.3	3,000	6,939	69.8	175	294	29,612	295	30,041	37,576	11.2	61,411	7.2	9,959	186,799	69,017
Missouri	66,705	2,193	3.2	2,061	3,569	63.4	82	154	27,445	163	29,974	31,588	16.2	36,044	8.2	12,013	216,482	37,404
Ohio	36,474	4,479	10.9	3,346	8,028	70.6	278	322	28,400	341	30,343	42,005	17.4	64,584	7.9	9,371	171,953	77,489
Pennsylvania	40,910	3,910	8.7	5,017	7,712	60.6	284	363	29,539	364	30,328	45,928	15.1	57,076	8.3	8,092	175,411	74,430
Tennesse	38,484	2,735	6.6	2,672	3,153	54.1	141	149	26,239	160	29,450	31,731	16.4	35,901	7.8	11,611	143,772	40,840
Texas	253,744	8,170	3.1	6,687	13,987	67.7	79	581	27,871	646	32,772	75,907	19.7	140,310	7.5	10,458	452,225	187,115
Virginia	37,118	2,480	6.3	2,269	4,919	68.4	182	221	31,162	231	34,026	32,425	14.2	41,320	6.5	10,259	109,010	44,047
West Virginia	24,231	433	1.8	1,268	533	29.6	73	40	21,915	40	22,075	14,381	14.4	5,333	13	10,946	69,341	6,778
Wisconsin	52,853	1,444	2.7	2,080	3,460	62.5	102	151	28,232	158	30,257	31,021	9.5	26,248	6.9	10,337	194,822	37,183

Source: 2001 Highway Statistics - US Department of Transportation, Federal Highway Administration

Table 1c. Data Summary for Kentucky and for Adjacent, Peer, and Progressive States

State	State Highway Agency Roadway System Measures																		
	Rural							Urban							Rural and Urban						
	Miles	Lane-Miles	DVMT	AADT / Lane	Percent of Statewide Total Rural			Miles	Lane-Miles	DVMT *	AADT** / Lane	Percent of Statewide Total Rural			Miles	Lane-Miles	DVMT *	AADT** / Lane	Percent of Statewide Total Rural		
					Miles	Lane-Miles	DVMT*					Miles	Lane-Miles	DVMT*					Miles	Lane-Miles	DVMT*
Arkansas	15,023	31,913	44,974	1,409	17.2	18.1	86.5	1,346	4,094	19,965	4,877	12.5	17.7	69.6	16,369	36,007	64,939	1,804	16.7	18.1	80.5
California	11,421	29,448	123,854	4,206	13.7	17	72	3,780	20,267	336,176	16,587	4.4	10.1	49.5	15,201	49,715	460,030	9,253	9	13.3	54
Florida	7,056	19,418	84,453	4,349	14.3	18.6	79.2	4,996	20,812	188,496	9,057	7.4	13.8	58.9	12,052	40,230	272,949	6,785	10.3	15.8	64
Illinois	11,718	26,868	58,318	2,171	11.5	13	69.2	4,529	14,936	106,309	7,118	12.3	18.2	53.7	16,247	41,804	164,627	3,938	11.7	14.5	58.3
Indiana	9,540	22,728	77,427	3,407	12.9	15	77.4	1,653	5,520	43,939	7,960	8.2	12.8	45.7	11,193	28,248	121,366	4,296	11.9	14.5	61.8
Iowa	8,836	20,816	36,414	1,749	8.5	9.9	69.5	891	3,268	14,288	4,372	9	14.4	47.9	9,727	24,084	50,702	2,105	8.6	10.3	61.7
Kentucky	25,057	53,536	64,453	1,204	37.3	38.9	88.3	2,423	7,104	44,327	6,240	20.5	27.4	82.5	27,480	60,640	108,780	1,794	34.8	37.1	85.8
Louisiana	14,664	31,834	55,039	1,729	31.3	33.1	90.3	2,040	6,470	41,283	6,381	14.6	20.6	79.6	16,704	38,304	96,322	2,515	27.5	30	85.4
Michigan	7,702	18,660	77,185	4,136	8.4	10	75	2,023	8,768	82,284	9,385	6.7	12.7	48.9	9,725	27,428	159,469	5,814	8	10.7	58.8
Missouri	30,670	64,401	76,378	1,186	28.7	29.7	88.3	1,755	5,535	55,016	9,940	10	14.8	55.7	32,425	69,936	131,394	1,879	26.1	27.5	70.9
Ohio	15,270	34,510	77,940	2,258	18.3	20.1	67.7	4,024	14,006	106,856	7,629	12	18.1	60.4	19,294	48,516	184,796	3,809	16.5	19.4	63.3
Pennsylvania	32,102	68,072	99,544	1,462	37.6	38.8	79.1	7,833	20,161	115,665	5,737	22.7	27.1	74	39,935	88,233	215,209	2,439	33.3	35.3	76.3
Tennesse	11,355	26,537	68,787	2,592	16.2	18.5	79.1	2,436	8,584	63,631	7,413	13.6	21	64.7	13,791	35,121	132,418	3,770	15.7	19	71.5
Texas	68,686	152,526	190,076	1,246	31.4	33.7	91.4	10,660	35,768	237,746	6,647	13	19.1	61.8	79,346	188,294	427,822	2,272	26.4	29.5	72.2
Virginia	49,274	104,164	87,279	838	95.4	95.6	98.2	7,668	18,766	71,537	3,812	40.2	42.6	63.2	56,942	122,930	158,816	1,292	80.5	80.3	78.6
West Virginia	32,520	66,480	37,046	557	96	95.9	94	1,455	3,409	11,938	3,502	46.6	50.3	81.7	33,975	69,889	48,984	701	91.8	91.8	90.7
Wisconsin	10,310	23,647	59,907	2,533	10.8	12.1	70.5	1,443	5,233	33,590	6,419	8.6	14.1	46.7	11,753	28,880	93,497	3,237	10.4	12.4	59.6

Source: 2001 Highway Statistics - US Department of Transportation, Federal Highway Administration

* DVMT = Daily Vehicle Miles of Travel, **AADT = Annual Average Daily Traffic

Through a series of telephone calls, contact persons in each of the 16 states were identified. Interviews were then conducted with these contacts by phone to get some basic information on the State Road System process and criteria in each of the states.

Each contact was also asked to complete a questionnaire sent to them by e-mail. Fourteen (14) of the 16 states returned the questionnaire. However, information from telephone interviews and online internet research is included in the report for all of the states.

Adjacent States: One KYTC goal was to determine how states in the same geographic region address this issue. Therefore, KYTC requested information about the seven (7) states sharing a boundary with Kentucky, as follows (in geographical order, west to east and north to south):

- Missouri
- Illinois
- Indiana
- Ohio
- West Virginia
- Virginia
- Tennessee

Peer States: Another desired KYTC goal was to compare Kentucky against one or more "peer" states, i.e., states that have similar characteristics to Kentucky. Data for all 50 states were compiled from the Federal Highway Administration Peer State Review tables from the 2002 Highway Statistics report, including:

- Socioeconomic data
- Systems data
- Traffic data

Based on this data, Arkansas and Louisiana were selected as representative "peer" states. Arkansas was selected based primarily on socioeconomic characteristics and terrain, and Louisiana was selected due to common socioeconomic, systems mileage, and traffic data characteristics.

Progressive States: Perhaps the primary goal of the study was to determine if any of the more progressive states had developed a detailed process and/or criteria for identifying which roads should or should not be on the state road system. Therefore, several states were selected for review based upon their reputations as typically progressive states in the area of transportation. Since only 14 states were required for the study, 5 additional states were to be included in this category. However, it was decided to include two additional progressive states, for a total of 16 states, for two reasons: (1) it would help ensure that information from a larger number of states would be available, in case surveys were not completed by all of the states; and (2) based on their reputations, it was decided that there were more than five "progressive" states that should be contacted.

The following seven (7) states were selected for review as progressive states:

- California
- Florida
- Iowa
- Michigan
- Pennsylvania
- Texas
- Wisconsin

Chapter 3 summarizes the input received from each of the adjacent, peer, and progressive states that responded to the survey, as well as input obtained through the telephone interviews.

In addition to the information presented in Chapter 3, all material received from or related to the 16 states considered throughout this process is included in an **Appendix** for this study, which is presented as a separate document.

Literature Research

Extensive efforts were made to locate reports and documents through contacts with the American Association of State Highway Officials and online searches of professional and company databases on the subject of this study. However, only two relevant references were identified:

1. *Arizona State Transportation Board Policies, Revised August 15, 2003*, Section 16, taken from *www.dot.state.az.us/podium/board/index.htm*, accessed via the Arizona Department of Transportation website.
2. "New York State's Approach to Highway Jurisdictional Realignment," *Transportation Research Record 698: Priority Programming, Finance, and Highway Investment Analysis*, Transportation Research Board, 1979.

A summary of these documents is included in **Chapter 3**.

As with the other states, literature research was undertaken to provide an overview of Kentucky and its state road system, including relevant sections of the Kentucky Revised Statutes and Kentucky Administrative Regulations. The overview of Kentucky is included in **Chapter 2**.

In addition, many of the surveyed states also provided additional documents explaining their processes and criteria, including legislation, regulations, guidelines, policy statements, and reports. These were reviewed and a summary of the information in these documents is included in the discussion of the state survey results in **Chapter 3**.

Finally, due to the probable application of the Federal Functional Classification System as one of the criteria that could be considered, a review was made of the FHWA Functional Classification Guideline, which are included in the **Appendix**.

Identification of Candidate Criteria

Following the receipt of the state survey responses and the literature research, possible State Primary Road System criteria were identified based on the following:

- Review of input from the state survey;
- Literature research;
- Review of Kentucky statutes and regulations;
- Comparison of Kentucky State Primary Road System with the Federal Highway Functional Classification System and the road systems, criteria, and processes used in other states; and
- Availability of road inventory data in the KYTC Highway Information System database.

The selected candidate criteria are presented and discussed in **Chapter 4**.

Testing of Criteria Scenarios

Using the candidate criteria, a number of scenarios and options were developed using various individual criteria and combinations of the selected criteria. Tests were then made of each of the criteria scenario options to determine the potential results for the removal of roads from the Kentucky State Primary Road System if the criteria scenarios were applied. Further discussion of the scenarios and the testing process is included in **Chapter 4**.

Analysis of Criteria Scenarios

After the tests were completed on the criteria scenario options, these were compared and evaluated to determine which seem to most closely meet the study goals. The results of this analysis are presented in **Chapter 4**.

An analysis was also made of Kentucky's 120 counties and Highway Districts to determine if any counties and Districts appear to have a disproportionately high share of state road system mileage. This information could be used in evaluating the criteria scenarios and to help determine if some state roads should be transferred to a local road system. The results of this analysis are presented in **Chapter 2**. Also, the impacts of the recommended criteria on mileage reductions by county were determined, as shown in **Chapter 4**.

Conclusions and Recommendations

The last step in the study is the development of study conclusions and recommendations, based on the information gathered throughout the study process. These are presented in **Chapter 5**. Included are recommendations regarding the criteria and process to be used by the Kentucky Transportation Cabinet in:

- Establishing the appropriate classification for roads within the state system
- Determining candidate roads for removal from the State Primary Road System, and
- Determining if a road should be added to the State Primary Road System.

To accomplish these, the primary study goals established for evaluating the alternative criteria scenario options area, based on KYTC direction, are as follows:

- Criteria should be supported by and/or be consistent with practices in other states, especially those considered as "progressive" states.
- Criteria should utilize existing KYTC Highway Information System data to the maximum extent possible.
- Criteria should be supported by an analysis of available data.
- Criteria should be relatively simple to apply.

A secondary goal is that the selected criteria should identify the counties with a disproportionately high share of SPRS mileage.

In addition to the formal conclusions and recommendations on proposed SPRS criteria, **Chapter 5** also provides additional comments on practices by other states and other related issues identified in the study that may be worthy of consideration in Kentucky.

Chapter 2. Kentucky's State Primary Road System

According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Kentucky Transportation Cabinet (KYTC) is responsible for 27,480 miles (35%) of Kentucky's 78,913 miles of public roadway;
- 25,057 miles (91%) of all state roads are classified as rural;
- 1,393 square miles (3.5%) of the 39,733 square miles of land in Kentucky are classified as urban;
- The population density is 103 persons per square mile; and
- 47.9% of the 4,093,000 population live in an urban area.

Legislation and Regulations

The authority for the creation of Kentucky's State Primary Road System (SPRS) lies with the Department of Highways as established by Kentucky Revised Statutes (KRS 177.020). For this study, the key portions of KRS 177.020 are as follows (underlines added for emphasis):

1. *The state primary road system shall consist of such public roads and city streets within the state as the Department of Highways determines shall be established, constructed, or maintained by the Department of Highways.*
2. *The department shall, in its discretion, determine which public roads, or city streets, shall be established, constructed, or maintained by it, and shall determine the type of construction or maintenance for that road or city street.*
3. *In the establishment of the state primary road system, the Department of Highways is authorized to select new routes, deviate from an existing route whenever it deems such deviation proper, eliminate from the state primary system roads or city streets which have been replaced as a proper part of the system by the construction of a new facility or the selection of a new route …*
4. *Prior to the advertisement for bids on any highway construction project, the Department of Highways shall meet with the fiscal court in the jurisdiction of the construction project for the purpose of advising the fiscal court of any state road or road segment which the department may seek to eliminate from the state primary road system upon completion of that highway construction project. The requirement of this subsection shall be in addition to the requirements of subsection (5) of this section.*
5. *The department shall notify the fiscal court of the county at least four (4) months before it eliminates a road, road segment, bridge, or street in that county from the state primary road system. Upon receiving notice, the fiscal court may reject title and notify the department that the road shall not become part of the county road system. If the fiscal court declines, the department shall give notice to all private persons entitled to a necessary access over this road of their rights under this chapter; and, by petition of any private party entitled to such access, the road shall be deemed a discontinued state road and shall be closed to public use but remain open in accordance with its condition and use for the access of the private parties involved. In the absence of such petition, title shall be transferred to the owner or owners of the tract or tracts of land to which the road originally belonged.*
6. *As used in this section, the term "rural secondary roads" shall mean such system of roads in this state which are usually considered farm to market roads and that were classified as part of the rural secondary road system by the Department of Highways on*

January 1, 1986 … in no case shall the rural secondary system, as defined in this subsection, be less than eleven thousand eight hundred (11,800) miles.

7. *The establishment, construction, or maintenance of the state primary road system shall be under the direction and control of the Department of Highways. The commissioner of highways is authorized to adopt regulations necessary to the administration of this authority.*

The State Primary Road System has been further defined in Kentucky Administrative Regulations (KAR) in 603 KAR 3:030, as follows (underlines added for emphasis):

NECESSITY, FUNCTION, AND CONFORMITY: KRS 177.020 authorizes the Department of Highways to establish, construct, reconstruct and maintain public roads as a part of the State Primary Road System as defined by KRS 177.020(1). This administrative regulation is adopted to establish and classify the State Primary Road System, as follows:

Section 1. As authorized by KRS 177.020 the following classification of roads is established as the State Primary Road System:

(1) State primary system.

(a) Interstate highways: those routes designated as interstate routes.

(b) Parkways (tollroads): those routes designated as parkways on which toll is paid.

(c) Other state primary highways: those routes which are considered to be long distance, high volume intrastate routes that are of statewide significance. The routes have mobility as their prime function and are distinguished by high traffic-carrying capacity. These routes link major urban centers within the state and/or serve as major interregional corridors.

(2) State secondary system. These highways are shorter distance routes of regional significance with both access to land use activity and mobility as their functions. They generally have less traffic-carrying capacity and a more impeded traffic flow than the state primary system highways. These routes serve the smaller cities and county seats within a region and link important traffic generators to most of the developed areas within the region.

(3) Rural secondary system. These roads are routes of subregional significance with access to land use activity as their prime function. These routes link locally important traffic generators with their service areas, are usually considered to be farm-to-market roads, urban arterial streets and other collector facilities.

(4) Supplemental roads. These roads are routes and unnumbered roadways which are being maintained by the Transportation Cabinet and which are not included in one (1) of the higher system classifications because they fail to meet the functional classification criteria of that system. These routes and roadways are generally of short distance and may begin and end without regard to road junctions.

Section 2. All roads or city streets or segments thereof adopted as a part of the state primary road system and all eliminations of such roads or city streets from said system shall be indicated by an official order which shall, upon being signed by the Commissioner, Department of Highways, or his designated representative, be kept on file in the Transportation Cabinet, Department of Highways, Frankfort, Kentucky 40622.

A map of the Kentucky State Primary Road System is included as one of the "existing conditions" exhibits in **Chapter 4**.

Overview of Counties and Highway Districts

Table 2 provides a detailed look at the population, land area, and total public and state system road mileage per county in Kentucky. Counties were also examined without consideration of the parkways and interstates, as shown in **Table 3**, under the principle that those highways primarily serve a statewide purpose that goes beyond county boundaries. Similarly **Table 4** and **Table 5** reveal population, land area, and roadway mileage per highway district, with and without consideration of parkways and interstates.

Table 6 and **Table 7** show the top ten counties and highway districts, respectively, with and without consideration of the interstates and parkways for the following:

- Total miles of roads on the State Primary Road System;
- Percentage of roads on the State Primary Road System;
- Miles of roads on the State Primary Road System per capita; and
- Miles of roads on the State Primary Road System per square mile of land area.

From this, the following observations were made:

- **With** consideration of the **interstates and parkways**:
  - **Hardin County** has the **most mileage** of roads on the State Primary Road System;
  - **Gallatin County** has the **highest percentage** of roads on the State Primary Road System;
  - **Hickman County** has the **most miles of roads per capita** on the State Primary Road System; and
  - **Campbell County** has the **most mileage per square mile** of land area on the State Primary Road System.
  - **District 2** has the **most mileage** of roads on the State Primary Road System;
  - **District 12** has the **highest percentage** of roads on the State Primary Road System;
  - **District 1** has the **most miles of roads per capita** on the State Primary Road System; and
  - **District 6** has the **most mileage per square mile** of land area on the State Primary Road System.
- **Without** consideration of the **interstates and parkways**:
  - **Pike County** has the most mileage of roads on the State Primary Road System;
  - **Harlan County** has the highest percentage of roads on the State Primary Road System;
  - **Hickman County** has the **most miles of roads per capita** of roads on the State Primary Road System; and
  - **Campbell County** has the **most mileage per square mile** on the State Primary Road System.
  - **District 2** has the most mileage of roads on the State Primary Road System;
  - **District 12** has the highest percentage of roads on the State Primary Road System;
  - **District 10** has the **most miles of roads per capita** of roads on the State Primary Road System per capita; and
  - **District 6** has the **most mileage per square mile** on the State Primary Road System per square mile of land area.

Table 2. County Information: Population, Land Area, and Road Mileage

County	County Name	Population	Land Area (sq. miles)	Total State Primary (miles)	% Primary vs. Total SPRS	State Secondary (miles)	% Secondary vs. Total SPRS	Rural Secondary (miles)	% Rural Secondary vs. Total SPRS	Supplemental (miles)	% Supplemental vs. Total SPRS	Unknown Class. (miles)	Total SPRS Miles	Total Public Roads (miles)	% SPRS vs. Public Roads	State miles per capita	Public miles per capita	State miles per sq mile	Public miles per sq mile
1	ADAIR	17245	406	53.327	19.0%	76.673	27.3%	120.626	42.9%	30.265	10.8%		280.891	845.891	33.21%	0.016	0.049	0.692	2.083
2	ALLEN	17800	346	28.384	14.1%	48.016	23.8%	116.602	57.7%	8.940	4.4%		201.942	687.530	29.37%	0.011	0.039	0.584	1.987
3	ANDERSON	19110	202	42.456	27.5%	48.041	31.1%	63.862	41.4%	0.007	0.0%		154.366	382.157	40.39%	0.008	0.020	0.764	1.892
4	BALLARD	8285	251	25.234	15.4%	49.350	30.2%	80.047	49.0%	8.818	5.4%		163.449	413.551	39.52%	0.020	0.050	0.651	1.648
5	BARREN	38035	491	78.631	23.0%	111.127	32.5%	150.490	44.0%	1.971	0.6%		342.219	1062.346	32.21%	0.009	0.028	0.697	2.164
6	BATH	11085	279	16.471	10.0%	79.007	48.0%	67.530	41.0%	1.642	1.0%		164.650	451.781	36.44%	0.015	0.041	0.590	1.619
7	BELL	30060	360	48.386	20.0%	100.944	41.7%	79.599	32.9%	13.211	5.5%		242.140	548.430	44.15%	0.008	0.018	0.673	1.523
8	BOONE	85990	246	36.274	15.0%	112.342	46.4%	77.545	32.0%	16.155	6.7%		242.316	768.626	31.53%	0.003	0.009	0.985	3.124
9	BOURBON	19360	291	52.622	28.8%	44.437	24.3%	85.908	46.9%	0.023	0.0%		182.990	383.646	47.70%	0.009	0.020	0.629	1.318
10	BOYD	49750	160	43.752	26.8%	56.496	34.6%	58.131	35.6%	5.121	3.1%		163.500	601.631	27.18%	0.003	0.012	1.022	3.760
11	BOYLE	27695	181	52.329	31.6%	42.135	25.5%	66.816	40.4%	4.097	2.5%		165.377	403.273	41.01%	0.006	0.015	0.914	2.228
12	BRACKEN	8280	203	21.454	12.8%	65.147	38.9%	66.854	40.0%	13.864	8.3%		167.319	361.712	46.26%	0.020	0.044	0.824	1.782
13	BREATHITT	16100	495	27.505	10.0%	76.195	27.8%	131.150	47.9%	38.951	14.2%		273.801	565.462	48.42%	0.017	0.035	0.553	1.142
14	BRECKINRIDGE	18650	572	49.408	14.5%	82.568	24.2%	169.396	49.7%	39.789	11.7%		341.161	890.414	38.31%	0.018	0.048	0.596	1.557
15	BULLITT	61235	299	40.848	19.6%	83.084	39.8%	82.924	39.7%	1.999	1.0%		208.855	703.874	29.67%	0.003	0.011	0.699	2.354
16	BUTLER	13010	428	17.968	7.2%	90.915	36.4%	139.734	55.9%	1.297	0.5%		249.914	747.190	33.45%	0.019	0.057	0.584	1.746
17	CALDWELL	13060	347	23.330	9.9%	75.851	32.2%	105.109	44.6%	31.501	13.4%		235.791	631.504	37.34%	0.018	0.048	0.680	1.820
18	CALLOWAY	34175	386	27.525	10.6%	65.507	25.3%	138.339	53.5%	27.293	10.6%		258.664	1077.640	24.00%	0.008	0.032	0.670	2.792
19	CAMPBELL	88615	151	112.885	48.9%	66.162	28.6%	50.125	21.7%	1.845	0.8%	0.011	231.028	581.979	39.70%	0.003	0.007	1.530	3.854
20	CARLISLE	5350	192	24.728	16.5%	46.061	30.7%	60.867	40.6%	18.367	12.2%		150.023	337.040	44.51%	0.028	0.063	0.781	1.755
21	CARROLL	10155	130	17.792	12.8%	57.758	41.4%	49.307	35.3%	14.652	10.5%		139.509	253.906	54.95%	0.014	0.025	1.073	1.953
22	CARTER	26890	410	67.148	21.7%	96.323	31.1%	116.139	37.5%	30.114	9.7%		309.724	949.730	32.61%	0.012	0.035	0.755	2.316
23	CASEY	15445	445	23.715	9.6%	94.491	38.1%	126.586	51.0%	3.287	1.3%		248.079	774.250	32.04%	0.016	0.050	0.557	1.740
24	CHRISTIAN	72265	721	90.823	18.9%	132.472	27.5%	209.390	43.5%	49.044	10.2%		481.729	1254.192	38.41%	0.007	0.017	0.668	1.740
25	CLARK	33145	254	35.109	19.1%	60.997	33.2%	82.989	45.2%	4.601	2.5%		183.696	457.384	40.16%	0.006	0.014	0.723	1.801
26	CLAY	24555	471	41.498	15.6%	86.678	32.6%	121.516	45.8%	15.854	6.0%		265.546	736.576	36.05%	0.011	0.030	0.564	1.564
27	CLINTON	9635	197	34.124	21.3%	35.448	22.1%	74.851	46.6%	16.095	10.0%		160.518	380.159	42.22%	0.017	0.039	0.815	1.930
28	CRITTENDEN	9385	362	30.512	16.7%	37.515	20.5%	111.613	61.1%	3.043	1.7%		182.683	573.183	31.87%	0.019	0.061	0.505	1.583
29	CUMBERLAND	7145	305	48.785	28.3%	19.479	11.3%	90.796	52.7%	13.330	7.7%		172.390	458.058	37.63%	0.024	0.064	0.565	1.502
30	DAVIESS	91545	462	68.734	19.6%	99.021	28.3%	154.396	44.1%	28.241	8.1%		350.392	1188.405	29.48%	0.004	0.013	0.758	2.572
31	EDMONSON	11645	302	22.658	14.2%	40.443	25.4%	88.121	55.4%	7.829	4.9%		159.051	459.809	34.59%	0.014	0.039	0.527	1.523
32	ELLIOTT	6750	234	18.890	12.0%	50.641	32.3%	71.030	45.2%	16.418	10.5%		156.979	451.804	34.74%	0.023	0.067	0.671	1.931
33	ESTILL	15305	254		0.0%	68.647	44.5%	73.010	47.4%	12.424	8.1%	0.023	154.104	464.104	33.20%	0.010	0.030	0.607	1.827
34	FAYETTE	260510	284	110.258	38.1%	77.556	26.8%	82.366	28.5%	3.479	1.2%	15.361	289.020	1316.847	21.95%	0.001	0.005	1.018	4.637
35	FLEMING	13790	351	30.911	12.6%	60.691	24.8%	98.852	40.4%	54.070	22.1%		244.524	539.135	45.35%	0.018	0.039	0.697	1.536
36	FLOYD	42440	394	53.415	17.1%	125.425	40.2%	125.488	40.2%	7.713	2.5%		312.041	769.141	40.57%	0.007	0.018	0.792	1.952
37	FRANKLIN	47685	210	79.185	34.6%	58.808	25.7%	79.040	34.5%	12.058	5.3%		229.091	507.088	45.18%	0.005	0.011	1.091	2.415
38	FULTON	7750	209	12.355	6.4%	63.479	33.1%	73.473	38.3%	42.409	22.1%		191.716	347.181	55.22%	0.025	0.045	0.917	1.661
39	GALLATIN	7870	98	21.571	17.9%	42.914	35.6%	48.820	40.5%	7.231	6.0%		120.536	182.508	66.04%	0.015	0.023	1.230	1.862
40	GARRARD	14790	231	29.841	21.6%	32.921	23.8%	71.233	51.4%	4.472	3.2%		138.467	373.467	37.08%	0.009	0.025	0.599	1.617
41	GRANT	22385	259	28.415	14.8%	70.972	36.9%	85.779	44.6%	7.207	3.7%	0.032	192.405	454.002	42.38%	0.009	0.020	0.743	1.753
42	GRAVES	37030	555	93.226	18.9%	103.512	21.0%	203.597	41.3%	92.784	18.8%	0.037	493.156	1188.269	41.50%	0.013	0.032	0.889	2.141
43	GRAYSON	24055	503	53.184	16.7%	113.679	35.7%	143.680	45.2%	7.546	2.4%		318.089	985.144	32.29%	0.013	0.041	0.632	1.959
44	GREEN	11520	288	26.677	15.2%	48.648	27.7%	100.131	57.1%		0.0%		175.456	598.456	29.32%	0.015	0.052	0.609	2.078
45	GREENUP	36890	346	61.963	25.7%	65.119	27.1%	108.973	45.3%	4.636	1.9%		240.691	864.621	27.84%	0.007	0.023	0.696	2.499
46	HANCOCK	8390	188	27.594	18.3%	25.361	16.8%	81.630	54.1%	16.292	10.8%		150.877	344.524	43.79%	0.018	0.041	0.803	1.833
47	HARDIN	94175	628	133.192	26.0%	196.151	38.3%	161.807	31.6%	21.285	4.2%		512.435	1359.820	37.68%	0.005	0.014	0.816	2.165
48	HARLAN	33200	467	77.823	24.8%	62.130	19.8%	145.105	46.3%	28.230	9.0%		313.288	568.288	55.13%	0.009	0.017	0.671	1.217
49	HARRISON	17985	309	19.472	11.4%	57.569	33.6%	83.702	48.8%	10.624	6.2%		171.367	539.867	31.74%	0.010	0.030	0.555	1.747
50	HART	17445	416	27.830	9.2%	112.619	37.3%	147.311	48.8%	13.934	4.6%		301.694	736.648	40.95%	0.017	0.042	0.725	1.771
51	HENDERSON	44830	440	59.024	19.2%	66.394	21.6%	143.407	46.6%	38.982	12.7%		307.807	836.380	36.80%	0.007	0.019	0.700	1.901
52	HENRY	15060	289	41.843	17.6%	56.828	24.0%	115.182	48.6%	23.271	9.8%		237.124	451.069	52.57%	0.016	0.030	0.820	1.561
53	HICKMAN	5260	244	20.035	9.7%	52.873	25.6%	86.666	41.9%	47.126	22.8%	0.024	206.724	415.754	49.72%	0.039	0.079	0.847	1.704
54	HOPKINS	46520	550	48.568	12.2%	128.544	32.2%	144.363	36.1%	77.892	19.5%		399.367	1060.567	37.66%	0.009	0.023	0.726	1.928
55	JACKSON	13495	346	50.504	26.4%	48.291	25.3%	90.092	47.1%	2.359	1.2%		191.246	725.540	26.36%	0.014	0.054	0.553	2.097
56	JEFFERSON	693605	385	190.050	39.4%	198.949	41.3%	73.810	15.3%	19.337	4.0%		482.146	3250.937	14.83%	0.001	0.005	1.252	8.444
57	JESSAMINE	39040	173	39.679	28.0%	35.107	24.8%	62.635	44.2%	4.292	3.0%	0.038	141.751	407.342	34.80%	0.004	0.010	0.819	2.355
58	JOHNSON	23445	261	52.672	21.0%	72.378	28.8%	94.532	37.6%	31.553	12.6%		251.135	499.202	50.31%	0.011	0.021	0.962	1.913
59	KENTON	151465	162	28.321	13.2%	111.190	51.6%	49.124	22.8%	26.651	12.4%		215.286	823.654	26.14%	0.001	0.005	1.329	5.084
60	KNOTT	17650	352	29.473	13.9%	82.009	38.7%	100.558	47.4%		0.0%		212.040	442.040	47.97%	0.012	0.025	0.602	1.256
61	KNOX	31795	387	31.568	13.9%	78.535	34.6%	101.807	44.8%	15.212	6.7%		227.122	680.922	33.36%	0.007	0.021	0.587	1.759
62	LARUE	13375	263	38.906	19.8%	50.585	25.7%	101.219	51.4%	6.200	3.1%		196.910	450.494	43.71%	0.015	0.034	0.749	1.713
63	LAUREL	52715	435	81.754	22.4%	103.830	28.5%	139.244	38.2%	39.658	10.9%	0.015	364.501	1102.776	33.05%	0.007	0.021	0.838	2.535
64	LAWRENCE	15570	418	34.152	14.2%	80.039	33.3%	115.960	48.2%	10.343	4.3%		240.494	608.494	39.52%	0.015	0.039	0.575	1.456
65	LEE	7915	209	14.845	12.1%	39.198	31.9%	64.137	52.2%	4.738	3.9%		122.918	457.787	26.85%	0.016	0.058	0.588	2.190

Table 2. County Information: Population, Land Area, and Road Mileage (continued)

66	LESLIE	12400	404	41.234	21.2%	50.698	26.1%	93.583	48.2%	8.589	4.4%		194.104	533.104	36.41%	0.016	0.043	0.480	1.320
67	LETCHER	25275	339	62.478	22.1%	98.980	35.1%	94.379	33.4%	26.400	9.4%		282.237	673.897	41.88%	0.011	0.027	0.833	1.988
68	LEWIS	14090	484	52.726	21.9%	82.832	34.4%	100.401	41.7%	4.754	2.0%		240.713	571.107	42.15%	0.017	0.041	0.497	1.180
69	LINCOLN	23360	336	51.509	22.0%	58.616	25.0%	101.057	43.1%	23.191	9.9%		234.373	664.373	35.28%	0.010	0.028	0.698	1.977
70	LIVINGSTON	9805	316	40.950	19.5%	41.239	19.6%	108.988	51.9%	18.850	9.0%	0.042	210.069	496.566	42.30%	0.021	0.051	0.665	1.571
71	LOGAN	26575	555	88.665	23.4%	39.551	10.4%	160.055	42.2%	90.857	24.0%		379.128	954.852	39.71%	0.014	0.036	0.683	1.720
72	LYON	8080	215	59.978	34.9%	25.774	15.0%	73.616	42.8%	12.570	7.3%		171.938	467.460	36.78%	0.021	0.058	0.800	2.174
73	MCCRACKEN	65515	251	84.799	25.4%	97.941	29.3%	112.084	33.6%	38.861	11.6%	0.055	333.740	816.206	40.89%	0.005	0.012	1.330	3.252
74	MCCREARY	17080	427	34.172	17.1%	43.399	21.7%	107.721	54.0%	14.298	7.2%		199.590	779.690	25.60%	0.012	0.046	0.467	1.826
75	MCLEAN	9940	254	11.573	5.5%	68.795	32.7%	81.377	38.7%	48.726	23.2%		210.471	434.691	48.42%	0.021	0.044	0.829	1.711
76	MADISON	70870	440	53.394	17.2%	117.181	37.9%	114.577	37.0%	24.425	7.9%	0.015	309.592	893.574	34.65%	0.004	0.013	0.704	2.031
77	MAGOFFIN	13330	309	37.995	18.4%	79.518	38.4%	86.590	41.8%	2.866	1.4%		206.969	573.969	36.06%	0.016	0.043	0.670	1.858
78	MARION	18210	346	15.512	7.9%	89.052	45.1%	91.703	46.5%	1.122	0.6%		197.389	520.648	37.91%	0.011	0.029	0.570	1.505
79	MARSHALL	30125	304	124.133	39.2%	44.512	14.0%	111.794	35.3%	36.607	11.5%		317.046	831.943	38.11%	0.011	0.028	1.043	2.737
80	MARTIN	12580	230	26.031	18.9%	41.948	30.5%	68.134	49.5%	1.540	1.1%		137.653	267.653	51.43%	0.011	0.021	0.598	1.164
81	MASON	16800	241	57.952	27.9%	42.473	20.5%	73.822	35.6%	33.120	16.0%		207.367	442.248	46.89%	0.012	0.026	0.860	1.835
82	MEADE	26350	308	22.852	9.3%	84.256	34.1%	105.340	42.7%	34.399	13.9%		246.847	553.345	44.61%	0.009	0.021	0.801	1.797
83	MENIFEE	6555	203	19.386	16.0%	45.303	37.4%	56.399	46.6%		0.0%		121.088	314.088	38.55%	0.018	0.048	0.596	1.547
84	MERCER	20815	250	58.153	30.9%	47.089	25.0%	79.482	42.2%	3.414	1.8%	0.017	188.155	450.892	41.73%	0.009	0.022	0.753	1.804
85	METCALFE	10035	290	28.272	14.7%	63.245	32.8%	95.533	49.6%	5.739	3.0%		192.789	567.934	33.95%	0.019	0.057	0.665	1.958
86	MONROE	11755	330		0.0%	74.889	37.5%	109.773	54.9%	15.262	7.6%		199.924	623.447	32.07%	0.017	0.053	0.606	1.889
87	MONTGOMERY	22555	198	34.592	22.4%	45.315	29.3%	64.939	42.0%	9.823	6.4%		154.669	353.529	43.75%	0.007	0.016	0.781	1.785
88	MORGAN	13950	381	62.720	23.6%	46.570	17.5%	97.086	36.6%	59.017	22.2%		265.393	673.393	39.41%	0.019	0.048	0.697	1.767
89	MUHLENBERG	31840	474	50.030	16.1%	94.853	30.5%	143.584	46.1%	22.912	7.4%		311.379	852.002	36.55%	0.010	0.027	0.657	1.797
90	NELSON	37475	422	65.781	21.7%	103.748	34.3%	131.008	43.3%	1.970	0.7%		302.507	730.575	41.41%	0.008	0.019	0.717	1.731
91	NICHOLAS	6815	196	12.211	9.7%	28.499	22.6%	66.904	53.0%	18.531	14.7%		126.145	307.145	41.07%	0.019	0.045	0.644	1.567
92	OHIO	22915	593	46.097	13.8%	119.664	35.9%	148.288	44.5%	19.327	5.8%		333.376	957.376	34.82%	0.015	0.042	0.562	1.614
93	OLDHAM	46180	189	22.500	12.6%	77.093	43.2%	78.727	44.1%		0.0%		178.320	494.768	36.04%	0.004	0.011	0.943	2.618
94	OWEN	10545	352		0.0%	98.911	40.3%	91.853	37.4%	54.838	22.3%		245.602	473.832	51.83%	0.023	0.045	0.698	1.346
95	OWSLEY	4860	198	14.307	12.3%	43.667	37.6%	55.494	47.8%	2.520	2.2%		115.988	346.586	33.47%	0.024	0.071	0.586	1.750
96	PENDLETON	14390	280	23.761	13.6%	44.743	25.7%	87.927	50.4%	17.918	10.3%		174.349	481.349	36.22%	0.012	0.033	0.623	1.719
97	PERRY	29390	342	61.875	22.7%	105.295	38.7%	95.513	35.1%	9.713	3.6%		272.396	717.875	37.94%	0.009	0.024	0.796	2.099
98	PIKE	68735	787	82.142	17.3%	160.052	33.7%	219.881	46.3%	12.975	2.7%		475.050	1323.525	35.89%	0.007	0.019	0.604	1.682
99	POWELL	13235	180	27.685	17.9%	49.455	31.9%	71.734	46.3%	6.103	3.9%		154.977	385.977	40.15%	0.012	0.029	0.861	2.144
100	PULASKI	56215	661	87.731	21.2%	116.781	28.2%	193.867	46.8%	15.831	3.8%		414.210	1681.937	24.63%	0.007	0.030	0.627	2.545
101	ROBERTSON	2265	100	1.357	1.7%	32.219	39.2%	38.580	46.9%	10.073	12.2%		82.229	152.434	53.94%	0.036	0.067	0.822	1.524
102	ROCKCASTLE	16580	317	46.953	19.9%	59.993	25.4%	116.327	49.3%	12.820	5.4%		236.093	651.093	36.26%	0.014	0.039	0.745	2.054
103	ROWAN	22095	280	38.843	22.5%	54.059	31.4%	69.825	40.5%	9.638	5.6%		172.365	516.618	33.36%	0.008	0.023	0.616	1.845
104	RUSSELL	16315	253	43.343	22.0%	47.620	24.2%	94.890	48.1%	11.233	5.7%		197.086	627.619	31.40%	0.012	0.038	0.779	2.481
105	SCOTT	33060	285	36.514	14.9%	107.248	43.6%	73.604	30.0%	28.311	11.5%	0.027	245.704	504.553	48.70%	0.007	0.015	0.862	1.770
106	SHELBY	33335	384	56.379	20.8%	72.351	26.6%	131.046	48.3%	11.756	4.3%		271.532	589.851	46.03%	0.008	0.018	0.707	1.536
107	SIMPSON	16405	236	18.358	10.2%	69.206	38.4%	87.772	48.7%	4.972	2.8%		180.308	508.077	35.49%	0.011	0.031	0.764	2.153
108	SPENCER	11765	185	2.741	1.9%	60.378	41.2%	66.769	45.6%	16.694	11.4%		146.582	314.811	46.56%	0.012	0.027	0.792	1.702
109	TAYLOR	22925	269	18.954	9.3%	57.394	28.0%	107.036	52.2%	21.481	10.5%		204.865	600.230	34.13%	0.009	0.026	0.762	2.231
110	TODD	11970	376	25.028	12.0%	48.187	23.1%	109.762	52.6%	25.498	12.2%		208.475	581.475	35.85%	0.017	0.049	0.554	1.546
111	TRIGG	12595	443	40.553	17.3%	39.163	16.7%	123.219	52.6%	31.507	13.4%		234.442	791.106	29.63%	0.019	0.063	0.529	1.786
112	TRIMBLE	8125	148	20.304	19.0%	29.908	28.0%	52.591	49.2%	4.135	3.9%		106.938	259.219	41.25%	0.013	0.032	0.723	1.751
113	UNION	15635	345	39.256	13.8%	49.098	17.3%	114.351	40.2%	81.862	28.8%		284.567	597.149	47.65%	0.018	0.038	0.825	1.731
114	WARREN	92520	545	105.843	25.9%	101.850	24.9%	179.368	43.9%	21.429	5.2%		408.490	1307.001	31.25%	0.004	0.014	0.750	2.398
115	WASHINGTON	10915	300	45.721	22.6%	28.604	14.1%	117.692	58.2%	10.193	5.0%		202.210	468.473	43.16%	0.019	0.043	0.674	1.562
116	WAYNE	19925	459	26.806	11.8%	50.674	22.4%	121.631	53.7%	27.538	12.2%		226.649	680.549	33.30%	0.011	0.034	0.494	1.483
117	WEBSTER	14120	334	11.322	4.4%	87.249	33.9%	120.884	46.9%	38.025	14.8%		257.480	616.849	41.74%	0.018	0.044	0.771	1.847
118	WHITLEY	35865	440	55.867	19.8%	90.739	32.1%	106.944	37.8%	29.078	10.3%		282.628	870.356	32.47%	0.008	0.024	0.642	1.978
119	WOLFE	7065	222	54.240	31.3%	53.215	30.7%	61.657	35.5%	4.373	2.5%		173.485	452.485	38.34%	0.025	0.064	0.781	2.038
120	WOODFORD	23210	190	49.841	28.9%	53.160	30.9%	66.695	38.7%	2.490	1.4%		172.186	336.034	51.24%	0.007	0.014	0.906	1.769

Table 3. County Information: Population, Land Area, and Road Mileage

County	County Name	Population	Land Area (sq. miles)	Interstates (miles)	Parkways (miles)	Other State Primary Roads (miles)	Total State Primary Road System (miles)	Total State Primary Road System minus Interstates and Parkways (miles)	Total Public Roads (miles)	% SPRS (excluding Interstates and Parkways) vs. Public Roads	State miles (excluding Interstates and Parkways) per capita	Public miles per capita	State miles (excluding Interstates and Parkways) per sq mile	Public miles per sq mile
1	ADAIR	17245	406		21.632	31.695	280.891	259.259	845.891	30.65%	0.015	0.049	0.639	2.083
2	ALLEN	17800	346			28.384	201.942	201.942	687.530	29.37%	0.011	0.039	0.584	1.987
3	ANDERSON	19110	202		15.017	27.439	154.366	139.349	382.157	36.46%	0.007	0.020	0.690	1.892
4	BALLARD	8285	251			25.234	163.449	163.449	413.551	39.52%	0.020	0.050	0.651	1.648
5	BARREN	38035	491	13.777	25.415	39.439	342.219	303.027	1062.346	28.52%	0.008	0.028	0.617	2.164
6	BATH	11085	279	16.471		0.000	164.650	148.179	451.781	32.80%	0.013	0.041	0.531	1.619
7	BELL	30060	360			48.386	242.140	242.140	548.430	44.15%	0.008	0.018	0.673	1.523
8	BOONE	85990	246	33.983		2.291	242.316	208.333	768.626	27.10%	0.002	0.009	0.847	3.124
9	BOURBON	19360	291			52.622	182.990	182.990	383.646	47.70%	0.009	0.020	0.629	1.318
10	BOYD	49750	160	10.695		33.057	163.500	152.805	601.631	25.40%	0.003	0.012	0.955	3.760
11	BOYLE	27695	181			52.329	165.377	165.377	403.273	41.01%	0.006	0.015	0.914	2.228
12	BRACKEN	8280	203			21.454	167.319	167.319	361.712	46.26%	0.020	0.044	0.824	1.782
13	BREATHITT	16100	495			27.505	273.801	273.801	565.462	48.42%	0.017	0.035	0.553	1.142
14	BRECKINRIDGE	18650	572			49.408	341.161	341.161	890.414	38.31%	0.018	0.048	0.596	1.557
15	BULLITT	61235	299	33.517		7.331	208.855	175.338	703.874	24.91%	0.003	0.011	0.586	2.354
16	BUTLER	13010	428		17.968	0.000	249.914	231.946	747.190	31.04%	0.018	0.057	0.542	1.746
17	CALDWELL	13060	347	2.547	16.154	4.629	235.791	217.090	631.504	34.38%	0.017	0.048	0.626	1.820
18	CALLOWAY	34175	386			27.525	258.664	258.664	1077.640	24.00%	0.008	0.032	0.670	2.792
19	CAMPBELL	88615	151	22.562		90.323	231.028	208.466	581.979	35.82%	0.002	0.007	1.381	3.854
20	CARLISLE	5350	192			24.728	150.023	150.023	337.040	44.51%	0.028	0.063	0.781	1.755
21	CARROLL	10155	130	17.792		0.000	139.509	121.717	253.906	47.94%	0.012	0.025	0.936	1.953
22	CARTER	26890	410	32.147		35.001	309.724	277.577	949.730	29.23%	0.010	0.035	0.677	2.316
23	CASEY	15445	445			23.715	248.079	248.079	774.250	32.04%	0.016	0.050	0.557	1.740
24	CHRISTIAN	72265	721	23.543	21.095	46.185	481.729	437.091	1254.192	34.85%	0.006	0.017	0.606	1.740
25	CLARK	33145	254	14.780		20.329	183.696	168.916	457.384	36.93%	0.005	0.014	0.665	1.801
26	CLAY	24555	471		25.336	16.162	265.546	240.210	736.576	32.61%	0.010	0.030	0.510	1.564
27	CLINTON	9635	197			34.124	160.518	160.518	380.159	42.22%	0.017	0.039	0.815	1.930
28	CRITTENDEN	9385	362			30.512	182.683	182.683	573.183	31.87%	0.019	0.061	0.505	1.583
29	CUMBERLAND	7145	305			48.785	172.390	172.390	458.058	37.63%	0.024	0.064	0.565	1.502
30	DAVIESS	91545	462		18.269	50.465	350.392	332.123	1188.405	27.95%	0.004	0.013	0.719	2.572
31	EDMONSON	11645	302	2.628		20.030	159.051	156.423	459.809	34.02%	0.013	0.039	0.518	1.523
32	ELLIOTT	6750	234			18.890	156.979	156.979	451.804	34.74%	0.023	0.067	0.671	1.931
33	ESTILL	15305	254			0.000	154.104	154.104	464.104	33.20%	0.010	0.030	0.607	1.827
34	FAYETTE	260510	284	35.421		74.837	289.020	253.599	1316.847	19.26%	0.001	0.005	0.893	4.637
35	FLEMING	13790	351			30.911	244.524	244.524	539.135	45.35%	0.018	0.039	0.697	1.536
36	FLOYD	42440	394			53.415	312.041	312.041	769.141	40.57%	0.007	0.018	0.792	1.952
37	FRANKLIN	47685	210	19.050		60.135	229.091	210.041	507.088	41.42%	0.004	0.011	1.000	2.415
38	FULTON	7750	209		10.855	1.500	191.716	180.861	347.181	52.09%	0.023	0.045	0.865	1.661
39	GALLATIN	7870	98	21.571		0.000	120.536	98.965	182.508	54.23%	0.013	0.023	1.010	1.862
40	GARRARD	14790	231			29.841	138.467	138.467	373.467	37.08%	0.009	0.025	0.599	1.617
41	GRANT	22385	259	28.415		0.000	192.405	163.990	454.002	36.12%	0.007	0.020	0.633	1.753
42	GRAVES	37030	555		58.894	34.332	493.156	434.262	1188.269	36.55%	0.012	0.032	0.782	2.141
43	GRAYSON	24055	503		31.216	21.968	318.089	286.873	985.144	29.12%	0.012	0.041	0.570	1.959
44	GREEN	11520	288			26.677	175.456	175.456	598.456	29.32%	0.015	0.052	0.609	2.078
45	GREENUP	36890	346			61.963	240.691	240.691	864.621	27.84%	0.007	0.023	0.696	2.499
46	HANCOCK	8390	188			27.594	150.877	150.877	344.524	43.79%	0.018	0.041	0.803	1.833
47	HARDIN	94175	628	42.323	55.845	35.024	512.435	414.267	1359.820	30.46%	0.004	0.014	0.660	2.165
48	HARLAN	33200	467			77.823	313.288	313.288	568.288	55.13%	0.009	0.017	0.671	1.217
49	HARRISON	17985	309			19.472	171.367	171.367	539.867	31.74%	0.010	0.030	0.555	1.747
50	HART	17445	416	27.830		0.000	301.694	273.864	736.648	37.18%	0.016	0.042	0.658	1.771
51	HENDERSON	44830	440		30.826	28.198	307.807	276.981	836.380	33.12%	0.006	0.019	0.630	1.901
52	HENRY	15060	289	16.870		24.973	237.124	220.254	451.069	48.83%	0.015	0.030	0.762	1.561
53	HICKMAN	5260	244		4.940	15.095	206.724	201.784	415.754	48.53%	0.038	0.079	0.827	1.704
54	HOPKINS	46520	550		48.568	0.000	399.367	350.799	1060.567	33.08%	0.008	0.023	0.638	1.928
55	JACKSON	13495	346			50.504	191.246	191.246	725.540	26.36%	0.014	0.054	0.553	2.097
56	JEFFERSON	693605	385	96.831		93.219	482.146	385.315	3250.937	11.85%	0.001	0.005	1.001	8.444
57	JESSAMINE	39040	173			39.679	141.751	141.751	407.342	34.80%	0.004	0.010	0.819	2.355
58	JOHNSON	23445	261			52.672	251.135	251.135	499.202	50.31%	0.011	0.021	0.962	1.913
59	KENTON	151465	162	19.424		8.897	215.286	195.862	823.654	23.78%	0.001	0.005	1.209	5.084
60	KNOTT	17650	352			29.473	212.040	212.040	442.040	47.97%	0.012	0.025	0.602	1.256
61	KNOX	31795	387			31.568	227.122	227.122	680.922	33.36%	0.007	0.021	0.587	1.759
62	LARUE	13375	263	5.438		33.468	196.910	191.472	450.494	42.50%	0.014	0.034	0.728	1.713
63	LAUREL	52715	435	28.170	10.593	42.991	364.501	325.738	1102.776	29.54%	0.006	0.021	0.749	2.535
64	LAWRENCE	15570	418			34.152	240.494	240.494	608.494	39.52%	0.015	0.039	0.575	1.456
65	LEE	7915	209			14.845	122.918	122.918	457.787	26.85%	0.016	0.058	0.588	2.190

Table 3. County Information: Populations, Land Area, and Road Mileage (continued)

66	LESLIE	12400	404		15.097	26.137	194.104	179.007	533.104	33.58%	0.014	0.043	0.443	1.320
67	LETCHER	25275	339			62.478	282.237	282.237	673.897	41.88%	0.011	0.027	0.833	1.988
68	LEWIS	14090	484			52.726	240.713	240.713	571.107	42.15%	0.017	0.041	0.497	1.180
69	LINCOLN	23360	336			51.509	234.373	234.373	664.373	35.28%	0.010	0.028	0.698	1.977
70	LIVINGSTON	9805	316	5.868		35.082	210.069	204.201	496.566	41.12%	0.021	0.051	0.646	1.571
71	LOGAN	26575	555			88.665	379.128	379.128	954.852	39.71%	0.014	0.036	0.683	1.720
72	LYON	8080	215	31.672	7.167	21.139	171.938	133.099	467.460	28.47%	0.016	0.058	0.619	2.174
73	MCCRACKEN	65515	251	27.867		56.932	333.740	305.873	816.206	37.47%	0.005	0.012	1.219	3.252
74	MCCREARY	17080	427			34.172	199.590	199.590	779.690	25.60%	0.012	0.046	0.467	1.826
75	MCLEAN	9940	254			11.573	210.471	210.471	434.691	48.42%	0.021	0.044	0.829	1.711
76	MADISON	70870	440	35.361		18.033	309.592	274.231	893.574	30.69%	0.004	0.013	0.623	2.031
77	MAGOFFIN	13330	309			37.995	206.969	206.969	573.969	36.06%	0.016	0.043	0.670	1.858
78	MARION	18210	346			15.512	197.389	197.389	520.648	37.91%	0.011	0.029	0.570	1.505
79	MARSHALL	30125	304	17.733	21.994	84.406	317.046	277.319	831.943	33.33%	0.009	0.028	0.912	2.737
80	MARTIN	12580	230			26.031	137.653	137.653	267.653	51.43%	0.011	0.021	0.598	1.164
81	MASON	16800	241			57.952	207.367	207.367	442.248	46.89%	0.012	0.026	0.860	1.835
82	MEADE	26350	308			22.852	246.847	246.847	553.345	44.61%	0.009	0.021	0.801	1.797
83	MENIFEE	6555	203			19.386	121.088	121.088	314.088	38.55%	0.018	0.048	0.596	1.547
84	MERCER	20815	250		3.972	54.181	188.155	184.183	450.892	40.85%	0.009	0.022	0.737	1.804
85	METCALFE	10035	290		14.954	13.318	192.789	177.835	567.934	31.31%	0.018	0.057	0.613	1.958
86	MONROE	11755	330			0.000	199.924	199.924	623.447	32.07%	0.017	0.053	0.606	1.889
87	MONTGOMERY	22555	198	11.387		23.205	154.669	143.282	353.529	40.53%	0.006	0.016	0.724	1.785
88	MORGAN	13950	381			62.720	265.393	265.393	673.393	39.41%	0.019	0.048	0.697	1.767
89	MUHLENBERG	31840	474		22.251	27.779	311.379	289.128	852.002	33.94%	0.009	0.027	0.610	1.797
90	NELSON	37475	422		30.430	35.351	302.507	272.077	730.575	37.24%	0.007	0.019	0.645	1.731
91	NICHOLAS	6815	196			12.211	126.145	126.145	307.145	41.07%	0.019	0.045	0.644	1.567
92	OHIO	22915	593		46.097	0.000	333.376	287.279	957.376	30.01%	0.013	0.042	0.484	1.614
93	OLDHAM	46180	189	22.500		0.000	178.320	155.820	494.768	31.49%	0.003	0.011	0.824	2.618
94	OWEN	10545	352			0.000	245.602	245.602	473.832	51.83%	0.023	0.045	0.698	1.346
95	OWSLEY	4860	198			14.307	115.988	115.988	346.586	33.47%	0.024	0.071	0.586	1.750
96	PENDLETON	14390	280			23.761	174.349	174.349	481.349	36.22%	0.012	0.033	0.623	1.719
97	PERRY	29390	342		8.062	53.813	272.396	264.334	717.875	36.82%	0.009	0.024	0.773	2.099
98	PIKE	68735	787			82.142	475.050	475.050	1323.525	35.89%	0.007	0.019	0.604	1.682
99	POWELL	13235	180			27.685	154.977	154.977	385.977	40.15%	0.012	0.029	0.861	2.144
100	PULASKI	56215	661		16.460	71.271	414.210	397.750	1681.937	23.65%	0.007	0.030	0.602	2.545
101	ROBERTSON	2265	100			1.357	82.229	82.229	152.434	53.94%	0.036	0.067	0.822	1.524
102	ROCKCASTLE	16580	317	22.641		24.312	236.093	213.452	651.093	32.78%	0.013	0.039	0.673	2.054
103	ROWAN	22095	280	19.710		19.133	172.365	152.655	516.618	29.55%	0.007	0.023	0.545	1.845
104	RUSSELL	16315	253		15.269	28.074	197.086	181.817	627.619	28.97%	0.011	0.038	0.719	2.481
105	SCOTT	33060	285	36.514		0.000	245.704	209.190	504.553	41.46%	0.006	0.015	0.734	1.770
106	SHELBY	33335	384	30.879		25.500	271.532	240.653	589.851	40.80%	0.007	0.018	0.627	1.536
107	SIMPSON	16405	236	18.358		0.000	180.308	161.950	508.077	31.88%	0.010	0.031	0.686	2.153
108	SPENCER	11765	185			2.741	146.582	146.582	314.811	46.56%	0.012	0.027	0.792	1.702
109	TAYLOR	22925	269			18.954	204.865	204.865	600.230	34.13%	0.009	0.026	0.762	2.231
110	TODD	11970	376			25.028	208.475	208.475	581.475	35.85%	0.017	0.049	0.554	1.546
111	TRIGG	12595	443	12.441		28.112	234.442	222.001	791.106	28.06%	0.018	0.063	0.501	1.786
112	TRIMBLE	8125	148	0.722		19.582	106.938	106.216	259.219	40.98%	0.013	0.032	0.718	1.751
113	UNION	15635	345			39.256	284.567	284.567	597.149	47.65%	0.018	0.038	0.825	1.731
114	WARREN	92520	545	39.428	21.801	44.614	408.490	347.261	1307.001	26.57%	0.004	0.014	0.637	2.398
115	WASHINGTON	10915	300		5.540	40.181	202.210	196.670	468.473	41.98%	0.018	0.043	0.656	1.562
116	WAYNE	19925	459			26.806	226.649	226.649	680.549	33.30%	0.011	0.034	0.494	1.483
117	WEBSTER	14120	334		11.322	0.000	257.480	246.158	616.849	39.91%	0.017	0.044	0.737	1.847
118	WHITLEY	35865	440	33.049		22.818	282.628	249.579	870.356	28.68%	0.007	0.024	0.567	1.978
119	WOLFE	7065	222			54.240	173.485	173.485	452.485	38.34%	0.025	0.064	0.781	2.038
120	WOODFORD	23210	190	11.263	12.338	26.240	172.186	148.585	336.034	44.22%	0.006	0.014	0.782	1.769

Table 4. Highway District Information: Population, Land Area, and Road Mileage

District	Population	Land Area (sq. miles)	Total State Primary (miles)	% Primary vs. Total SPRS	State Secondary (miles)	% Secondary vs. Total SPRS (State Primary Road System)	Rural Secondary (miles)	% Rural Secondary vs. Total SPRS	Supplemental (miles)	% Supplemental vs. Total SPRS	Unknown Class. (miles)	Total SPRS Miles	Total Public Roads (miles)	% SPRS vs. Public Roads	State miles per capita	Public miles per capita	State miles per sq mile	Public miles per sq mile
1	233355	3728	584.028	20.0%	666.926	22.9%	1284.303	44.1%	378.235	13.0%	0.158	2913.650	7755.899	37.57%	0.229	0.573	9.627	24.804
2	371060	4708	476.351	14.3%	947.302	28.5%	1446.779	43.5%	452.804	13.6%	-	3323.236	8773.639	37.88%	0.144	0.355	7.978	20.494
3	249750	3899	413.807	16.4%	687.429	27.3%	1237.210	49.1%	183.794	7.3%	-	2522.240	7499.661	33.63%	0.137	0.403	6.413	19.085
4	295095	4315	498.017	16.6%	967.304	32.2%	1376.323	45.9%	157.919	5.3%	-	2999.563	7894.247	38.00%	0.140	0.369	7.652	20.068
5	916990	2089	453.850	24.4%	637.399	34.3%	680.089	36.6%	89.250	4.8%	-	1860.588	6571.617	28.31%	0.062	0.144	7.028	22.381
6	419945	2290	311.302	15.7%	759.927	38.3%	729.616	36.8%	181.058	9.1%	0.043	1981.946	5073.869	39.06%	0.146	0.309	10.411	25.750
7	584160	2979	594.788	25.6%	711.187	30.6%	915.106	39.3%	89.434	3.8%	15.458	2325.973	6262.698	37.14%	0.078	0.189	9.472	25.006
8	198945	3806	450.465	19.0%	603.174	25.5%	1148.352	48.5%	167.888	7.1%	-	2369.879	7543.619	31.42%	0.140	0.419	6.439	19.620
9	204955	2981	400.867	19.8%	616.140	30.4%	831.607	41.0%	178.044	8.8%	-	2026.658	5695.820	35.58%	0.133	0.353	7.048	20.089
10	127705	2793	320.558	17.2%	607.063	32.6%	792.770	42.6%	140.705	7.6%	0.023	1861.119	4951.726	37.59%	0.165	0.451	6.736	18.364
11	234085	3310	428.634	20.6%	621.845	29.9%	877.890	42.2%	152.191	7.3%	0.015	2080.575	5765.992	36.08%	0.080	0.229	5.008	13.993
12	205695	2781	340.363	17.8%	660.831	34.6%	818.932	42.9%	90.524	4.7%	-	1910.650	4583.952	41.68%	0.075	0.171	4.967	11.410

Table 5. Highway District Information Excluding Parkway and Interstate Mileage

District	Population	Land Area (sq. miles)	Interstates (miles)	Parkways (miles)	Other State Primary Roads (miles)	Total State Primary Road System (miles)	Total State Primary Road System minus Interstates and Parkways (miles)	Total Public Roads (miles)	% SPRS (excluding Interstates and Parkways) vs. Public Roads	State miles (excluding Interstates and Parkways) per capita	Public miles per capita	State miles (excluding Interstates and Parkways) per sq mile	Public miles per sq mile
1	233355	3728	95.581	103.850	384.597	2913.650	2714.219	7755.899	35.00%	0.012	0.033	0.728	2.080
2	371060	4708	26.090	214.582	235.679	3323.236	3082.564	8773.639	35.13%	0.008	0.024	0.655	1.864
3	249750	3899	74.191	80.138	259.478	2522.240	2367.911	7499.661	31.57%	0.009	0.030	0.607	1.923
4	295095	4315	75.591	123.031	299.395	2999.563	2800.941	7894.247	35.48%	0.009	0.027	0.649	1.829
5	916990	2089	220.369	-	233.481	1860.588	1640.219	6571.617	24.96%	0.002	0.007	0.785	3.146
6	419945	2290	143.747	-	167.555	1981.946	1838.199	5073.869	36.23%	0.004	0.012	0.803	2.216
7	584160	2979	144.726	31.327	418.735	2325.973	2149.920	6262.698	34.33%	0.004	0.011	0.722	2.102
8	198945	3806	22.641	53.361	374.463	2369.879	2293.877	7543.619	30.41%	0.012	0.038	0.603	1.982
9	204955	2981	79.023	-	321.844	2026.658	1947.635	5695.820	34.19%	0.010	0.028	0.653	1.911
10	127705	2793	-	8.062	312.496	1861.119	1853.057	4951.726	37.42%	0.015	0.039	0.663	1.773
11	234085	3310	61.219	51.026	316.389	2080.575	1968.330	5765.992	34.14%	0.008	0.025	0.595	1.742
12	205695	2781	-	-	340.363	1910.650	1910.650	4583.952	41.68%	0.009	0.022	0.687	1.648

Table 6. County Rankings: Total Miles, % SPRS, SPRS Miles Per Capita, and SPRS Miles per Square Mile

	Including Interstates and Parkway Mileage				Without Interstates and Parkway Mileage			
Rank	Total Miles on SPRS	% Roads on SPRS	Miles of Road Per Capita	Miles of Road Per Square Mile Land	Total Miles on SPRS	% Roads on SPRS	Miles of Road Per Capita	Miles of Road Per Square Mile Land
1	Hardin	Gallatin	Hickman	Campbell	Pike	Harlan	Hickman	Campbell
2	Graves	Fulton	Robertson	McCracken	Christian	Gallatin	Robertson	McCracken
3	Jefferson	Harlan	Carlisle	Kenton	Graves	Robertson	Carlisle	Kenton
4	Christian	Carroll	Fulton	Jefferson	Hardin	Fulton	Wolfe	Gallatin
5	Pike	Robertson	Wolfe	Gallatin	Pulaski	Owen	Cumberland	Jefferson
6	Pulaski	Henry	Cumberland	Franklin	Jefferson	Martin	Owsley	Franklin
7	Warren	Owen	Owsley	Carroll	Logan	Johnson	Fulton	Johnson
8	Hopkins	Martin	Owen	Marshall	Hopkins	Henry	Owen	Boyd
9	Logan	Woodford	Elliott	Boyd	Warren	Hickman	Elliott	Carroll
10	Laurel	Johnson	Livingston	Fayette	Breckingridge	Breathitt	McLean	Boyle

Table 7. District Rankings: Total Miles, % SPRS, SPRS Miles Per Capita, and SPRS Miles per Square Mile

	Including Interstates and Parkway Mileage				Without Interstates and Parkway Mileage			
Rank	Total Miles on SPRS	% Roads on SPRS	Miles of Roads Per Capita	Miles of Road Per Square Mile Land	Total Miles on SPRS	% Roads on SPRS	Miles of Road Per Capita	Miles of Road Per Square Mile Land
1	2	12	1	6	2	12	10	6
2	4	6	10	1	4	10	1	5
3	1	4	6	7	1	6	8	1
4	3	2	2	2	3	4	9	7
5	8	10	4	4	8	2	4	12
6	7	1	8	9	7	1	3	10
7	11	7	3	5	11	7	12	2
8	9	11	9	10	9	9	11	9
9	6	9	11	8	12	11	2	4
10	12	3	7	3	10	3	6	3
11	10	8	12	11	6	8	7	8
12	5	5	5	12	5	5	5	11

District Compositions:

District 1: Ballard, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, McCracken, Trigg

District 2: Caldwell, Christian, Daviess, Hancock, Henderson, Hopkins, McLean, Muhlenburg, Ohio, Union, Webster

District 3: Allen, Barren, Butler, Edmondson, Logan, Metcalfe, Monroe, Simpson, Todd, Warren

District 4: Breckinridge, Grayson, Green, Hardin, Hart, Larue, Marion, Meade, Nelson, Taylor, Washington

District 5: Bullitt, Henry, Franklin, Jefferson, Oldham, Shelby, Spencer, Trimble

District 6: Boone, Bracken, Campbell, Carroll, Galatin, Grant, Harrison, Kenton, Owen, Pendleton, Robertson

District 7: Anderson, Bourbon, Boyle, Clark, Fayette, Garrard, Jessamine, Madison, Mercer, Montgomery, Scott, Woodford

District 8: Adair, Casey, Clinton, Cumberland, Lincoln, McCreary, Pulaski, Rockcastle, Russell, Wayne

District 9: Bath, Boyd, Carter, Elliott, Fleming, Greenup, Lewis, Mason, Nicholas, Rowan

District 10: Breathitt, Estill, Lee, Magoffin, Menifee, Morgan, Owsley, Perry, Powell, Wolfe

District 11: Bell, Clay, Harlan, Jackson, Knox, Laurel, Leslie, Whitley

District 12: Floyd, Johnson, Knott, Lawrence, Letcher, Martin, Pike

Chapter 3. State Review

This chapter provides a summary of: (1) the literature review of information on two states not included in the state survey and (2) the results of research into the state system classification practices of the 16 states included in the study, including survey responses and/or interviews.

Literature Research

Arizona

According to information accessed through the Arizona Department of Transportation website, ***www.dot.state.az.us/podium/board/index.htm***, the authority for the designation and transfer of state routes in Arizona rests with the Arizona Transportation Board under Arizona Revised Statutes (ARS 28-304/305). The Board has a series of policies which address transportation issues in the state, including a "Transfer of State Routes Policy" that reads as follows:

> "It is the policy of the Board that the State Highway System consist primarily of routes necessary to provide a statewide network to serve the ever-changing environment with regard to the statewide and regional movement of people and goods. Routes primarily providing land access and local movement of people and goods should be the responsibility of local governments. The Transportation Board will seek to transfer these routes to other jurisdictions."

The policy goes on to say that the transfers "will be carried out in cooperation with local jurisdictions in full recognition of their financial capabilities."

Under this policy, the Arizona Department of Transportation (ADOT) is required to maintain and update biennially a list of state roads that do not serve as integral parts of the State Highway System (SHS), operating under the following policies:

- For routes that do not serve a need as a part of the SHS, but provide access to significant state or national facilities: ADOT will not normally seek to transfer or abandon these routes, but will do so if an appropriate jurisdiction can be found to operate the route; improvements to these routes will normally be made only when a local jurisdiction agrees to take over the route.
- For routes that are not necessary for a network of state routes and serve no significant statewide interest: ADOT will actively work to transfer these routes to other jurisdictions; ADOT will normally provide only minimal maintenance and safety improvements to these routes; others will be considered when an agreement is made to transfer the route to another jurisdiction.

Also under this policy, the priorities for roads to be transferred are as follows:

1. Routes for which local governments have expressed interest in acquiring;
2. Routes for which ADOT is constructing a bypass or alternate route;
3. Existing business routes not necessary for system continuity;
4. Other routes as ADOT construction and maintenance activities result in opportunities to transfer or as requested improvements provide opportunity to negotiate transfers.

New York

Following is a summary of a report entitled "New York State's Approach to Highway Jurisdictional Realignment" in the *Transportation Research Record 698: Priority Programming,*

Finance, and Highway Investment Analysis, 1979, published by the Transportation Research Board.

Due to information gained in a review of the State of New York's Federal Functional Classification System in 1976, the state undertook an effort to focus attention on the assignment of highway jurisdictional responsibilities. In this study, they identified some short-term objectives and long-range goals. Three of the relevant short-term objectives were to:

- Develop a fair and equitable solution for all jurisdictions,
- Develop a cooperative and open state-local realignment process, and
- Improve the continuity, efficiency, and effectiveness of state and local highway systems.

The long-range goals were to:

- Establish logical and systematic assignments of highway jurisdiction,
- Provide each level of government with resources to maintain and improve its highways, and
- Ensure the residents of all levels of government are treated equitably with regard to service and resources.

Based on these goals and objectives, New York opted for a two-phase approach of system realignment. The first phase was aimed at realigning the state highway system outside of cities through a short-term trading effort, primarily between the state and counties, with little or no financial impact. The second phase would address three tasks:

- Extending continuous state routes through cities, since few state routes (except for expressways) were continuous through cities;
- Developing adequate state highway-aid programs to assist local government; and
- Realigning highway systems at the municipal level as appropriate.

Outside of cities, Functional Classification was to be used as the primary basis for identifying appropriate exchanges of routes. However, no specific dividing line between state and local government jurisdiction within a county was to be established. Instead, the split would be determined by the extent of the existing state system within that county to ensure that the financial impact on all levels of government would be minimal.

During the jurisdictional realignment process, transfers in rural areas were to be developed on a lane-kilometer for lane-kilometer basis with the presumption that the costs of highway maintenance and improvement relate directly to the length and width of the roadway. However, adjustments would be made to account for a number of other factors that influence costs

Within cities, Functional Classification was also to be used as the primary tool for realignment, but transfers in cities were not to be developed on a lane-kilometer exchange basis.

At the time of the report, the process had not been completed. However, jurisdictional transfers had been made of many state highway routes with minor collector and local functional classification for county highway routes having arterial and major collector classifications and city street routes having arterial classification.

The study concluded that "the use of functional classification as the principal tool in highway system realignment is quite appropriate." However, there were situations where assignments of some roads (e.g., collectors) were split between the state and the local jurisdiction. Financial impacts were also key issues. Therefore, it was not always equitable or possible to make transfers on a one-for-one basis.

In considering potential cost impacts, the study concluded that a detailed needs analysis was not required and that field inspections of proposed transfer routes would be sufficient to estimate cost-related differences.

State Review

The information provided in this section is based primarily on material provided by representatives of the 16 state transportation agencies surveyed or interviewed during the study process. The level of detail varies, depending on the amount of information provided. Also, in some cases, opinions and unofficial comments have been provided, so some of the information does not necessarily constitute the official opinions or formally adopted policies of the state transportation agencies.

Of the 16 states selected for this study, 14 completed and returned a survey questionnaire. Several states also provided additional backup information or online references to obtain information on state statutes, regulations, policies, guidelines, maps, reports, and other documents. Copies of the completed survey questionnaires and other documents have been compiled in an **Appendix**, an extensive separate companion document to this report, for those who wish more detail on any or all of the states.

Two states, Indiana and Ohio, did not respond to the formal survey, and Virginia did not provide answers to all of the questions on the survey form. However, relevant information has been provided on these states, as well as the other states, from telephone interviews, the U.S. Department of Transportation's 2001 Highway Statistics report, and internet sites for each state government and state DOT.

Arkansas

Arkansas was chosen as a peer state because some of its socioeconomic characteristics and its terrain are similar to Kentucky's. According to the U.S. Department of Transportation's 2001 Highway Statistics report:

- The Arkansas State Highway and Transportation Department (AHTD) maintains 16,369 miles (16.68%) of Arkansas' 98,132 miles of public roadway;
- 15,023 miles (92%) of all state maintained roads are classified as rural;
- 1,162 square miles (2.2%) of the 52,080 square miles of land in Arkansas are classified as urban;
- The population density is 50 persons per square mile; and
- 51.6% of the 2,612,000 population live in an urban area.

Arkansas Code 27-67-201 declares Arkansas state highways to be those primary, secondary, and connecting roads designated by the State Highway Commission, including those portions of roads extending into or through incorporated towns and cities. The commission is empowered to make "necessary changes and additions" to the state highway system; however, it does not "have the authority to eliminate any part of the highway system."

The AHTD has an informal policy to accept no additional mileage into the state system except due to construction or reconstruction of state highways. However, upon request by a local government, the AHTD will consider an exchange on a mile-for-mile basis. Also, there are some transfers for lower order roads to locals if they will take over maintenance after an improvement is made.

The AHTD does not have formal criteria to determine what roads will or will not be added to the state system. However, Arkansas does have informal criteria for this purpose. The Highway Commission generally considers the following in reviewing a route for the state highway system:

- Similar mileage
- Similar maintenance responsibility
- Maintenance and improvement costs (considers geometrics of roadway)
- Road condition
- Amount of travel
- Functional classification
- Connectivity, i.e., no stubs

There is no direct relationship between Arkansas' state road system and the Federal functional highway classification system, although it is one of the informal criteria used when reviewing a request for adding a local road to the state system.

Arkansas Code 27-67-202, 27-67-204, and 27-67-205, summarized in the following paragraphs, defines some special circumstances for designating specific types of roads on the state system, including:

- Designated truck routes through cities and towns;
- Vehicular roads located within the geographical boundaries of all existing state parks;
- The most used roads and highways connecting established state highways with state parks; and
- The principal vehicular road leading to each municipal airport in this state, which is located outside the city limits of a municipality and which:
    - Has one (1) or more hard-surfaced runways at least two thousand feet (2,000') in length;
    - Provides fueling services for aircraft; and
    - Provides overnight tie-down facilities for aircraft.

The state road system does not have categories that are comparable to Kentucky's categories of State Primary, State Secondary, Rural Secondary, and Supplemental Roads. Arkansas does not have multiple state road systems (e.g., farm-to-market or commercial highway systems).

The AHTD is currently developing a Primary Highway Network with a higher level of improvements or maintenance that will include the following:

- National Highway System (NHS) routes
- Principal arterials
- Critical service routes (parallel freeways)
- Other high-traffic routes (an ADT of 2,000 vehicles per day to generate enough revenue to maintain).

The Arkansas Highway Commission may accept a new road onto the state system and open it up to traffic prior to releasing the contractor from his/her contract obligations or "final inspection".

California

California was chosen as one of the seven progressive states. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The California Department of Transportation (CALTRANS) maintains 15,201 miles (9.01%) of California's 168,770 miles of public roadway;
- 11,421 miles (75%) of all state maintained roads are classified as rural;

- 9,370 square miles (6.0%) of the 156,062 square miles of California land are classified as urban;
- The population density is 223 persons per square mile; and
- 91.2% of the 34,817,000 population live in an urban area.

California has a two-tiered state highway system. The first is set forth in California Streets and Highways Code, Article 3, Sections 300-635. This system represents an older planning concept from prior decades (pre-Interstate). The preamble reads: "The state highway system shall consist of the routes described in this article. It is the intent of the Legislature, in enacting this article, that the routes of the state highway system serve the states heavily traveled rural and urban corridors, that they connect the communities and regions of the state, and that they serve the state's economy by connecting centers of commerce, industry, agriculture, mineral wealth, and recreation."

The second tier is called the California Freeway and Expressway (F&E) System, established by Article 2, Streets and Highways Code, Sections 250 to 257. This system was identified during the earlier Interstate planning era and is comprised of both the Interstates and state routes that were identified to be improved or completed to freeway or expressway standards. For the most part, only the Interstates were completed. The bulk of the remaining F&E system was not completed, primarily due to funding, but also because of an anti-highway backlash in California.

In an internal report prepared by CALTRANS staff on the Freeway & Expressway System, circa 2001 (see **Appendix**), the following were put forth to define the "basic criteria for a State highway system":

- Provide a statewide trunk system to which smaller county and city routes would connect;
- Connect all county seats;
- Traverse timber, agricultural and mineral mining areas;
- Connect population centers; and
- Be located along the easiest traversable paths …

The two California highway systems, the F&E System and a system of Interregional and Intercounty routes, are identified in Sections 164.10 and 164.20 of the Streets and Highways Code. The latter category is tied to a funding stipulation that appears to be unique to California whereby 25% of all dollars in the "State Highway Account" are under control of CALTRANS and the state administration, and 75% of the funds are under the control of regional agencies.

The overall function of the Interregional Road System (IRRS) is to ensure interregional mobility of people and goods throughout the state, connecting economic centers, urbanized areas, and communities. Guidelines for interregional routes on this system are as follows:

- Must be functionally classified as principal or minor arterials;
- Carry a major portion of trips entering, traveling through, or leaving the state;
- Serve corridor movements of substantial statewide, interstate, and international significance;
- Connect all metropolitan areas and those urban areas with a population of 25,000 and over; and
- Connect, or serve by passing near, all urban areas over 5,000 population, most population concentrations over 2,500, and all county seats not otherwise served.

Similarly, "intercounty IRRS routes" should meet the following guidelines:

- Must be functionally classified principal or minor arterials;

- Provide connection to, or serve by passing near, those Federal or state-owned parks which generate travel equivalent to population concentrations over 2,500; and
- Provide traffic service through scenic corridors that are of major statewide or national significance, and where the predominant travel in the corridor is due to the scenic attraction.

Currently, the Department's Project Development and Procedures Manual (Division of Design) includes detailed steps for processes to bring a route into the state system (traversable routes) or remove it (relinquished routes). However, California's state highway system is essentially built – with few proposals being made for additional routes to be constructed as state routes, routes to be removed from the state system, or county routes to be brought into the system. When these situations do occur, they are typically quite political and may be contentious. An attempt to remove some routes approximately seven years ago was defeated in the legislature. The department is working internally on updated guidance (including policy recommendations) in these areas.

Florida

Florida is considered a progressive state in the transportation area. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Florida Department of Transportation (FDOT) maintains 12,052 miles (10.27%) of the 117,300 miles of public roadway in Florida;
- 7,056 miles (59%) of all state maintained roads are classified as rural;
- 8,506 square miles (15.8%) of the 53,984 square miles of land in Florida are classified as urban;
- The population density is 303 persons per square mile; and
- 83.9% of the 16,332,000 population live in an urban area.

At one time, Florida was one of three states with its own state functional classification system that played a role in the state highway system, but that has since been rescinded by statute. Section 335.04, Florida Statutes, found in the **Appendix**, describes the state functional classification of roads. This Statute was rescinded in 1995 and was replaced by 335.0415, also found in the **Appendix**, which establishes the State Highways System as it is today. Florida has never used the Federal functional classification system as part of its criteria for state system roads.

In 1990, the Florida legislature established the Florida Intrastate Highway System (FIHS) as a subset of the State Highways System. The FIHS is an interconnected statewide system of limited access facilities and controlled access facilities and is comprised of Interstate highways, the Florida Turnpike System, other interregional and intercity limited access facilities, and selected expressways and major arterial highways, either existing or proposed for improvement to defined FIHS standards (see FIHS report in the **Appendix**). Some characteristics of the FIHS are as follows:

- Serves high-speed and high-volume traffic movements;
- Represents only 3% of Florida's roads but carries 32% of all traffic;
- Carries 70% of all truck traffic using the State Highway System;
- Incorporates the use of ITS technologies; and
- Includes provisions for through travel, buses, passenger rail service, and high occupancy vehicles, where appropriate.

Florida does not have formal criteria to decide what roads will or will not be added to the state road system; however, Florida does have informal criteria that is used in recommending or deciding which roads will or will not be part of the state system. After July 1, 1995, any transfer of road jurisdiction affecting the State Highway System must be by mutual agreement with the affected governmental entity and approved by the Department Secretary. The transfer process is described in *Florida DOT's Public Road Jurisdiction, Transfer Process, and Numbering Handbook*, dated May 10, 2002, which is included in the **Appendix**.

Transfers to and from the State Highway System are based on consideration of criteria including, but not limited to, the following:

- National defense needs
- Travel to and through urban areas
- Access to intermodal facilities including, but not limited to, airports, seaports, major terminals, and transfer points
- Access to regional public facilities
- Disaster preparedness and emergency evacuation
- Other criteria deemed appropriate by the affected entities

The relative priority of each of the criteria is determined by the affected governmental entities for each transfer.

Florida will open a new or improved route to traffic before final inspection, but waits for construction acceptance before requesting approval from the Department Secretary to place the road on the state system.

Illinois

Illinois is one of seven states adjacent to Kentucky. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Illinois Department of Transportation (IDOT) maintains 16,247 miles (11.74%) of the 138,357 miles of public roadway in Illinois;
- 11,718 miles (72%) of all state maintained roads are classified as rural;
- 4,104 square miles (7.4%) of the 55,588 square miles of land in Illinois are classified as urban;
- The population density is 225 persons per square mile; and
- 77.4% of the 12,506,000 population live in an urban area.

Chapter 605 of the Illinois Compiled Statutes (ILCS), Section 5/2-101 provides a description of Illinois' state highway system. Illinois categorizes roadways by the Primary and Supplementary systems. The Primary system consists of Interstates, US, and Illinois marked routes. The Supplementary system consists of unmarked routes. References to these systems usually differentiate them as the "marked" routes and the "unmarked" routes. Further information is included in the **Appendix**.

Illinois DOT policy at present is that new roads will not be accepted into the state system, through jurisdictional transfers (JTs) from local government. IDOT is currently trying to initiate JTs to turn the ownership of unmarked roads over to local governments. Illinois does not have any formal criteria for accepting new roads into the state system, but IDOT is currently working on establishing some criteria, not for taking new roads in, but for determining which roads should be eliminated.

Illinois has only informal criteria to designate which roads should be designated as state routes. Illinois considers each road individually as to whether it serves state needs or local needs. Factors considered include:

- Highway system continuity
- The benefit to the traveling public
- Functional classification
- Traffic volumes

According to the IDOT survey response, geographical criteria are considered including "rural vs. urban" and ensuring that service is provided statewide.

Illinois may open the road to traffic and accept the road into the state system when a new road is essentially completed except for some minor finishing work, but before the contractor has been fully released from his contract obligations. In cases where both the state and another entity are involved with the construction project, either the state or the other entity may accept the roadway into its system prior to final inspection, depending upon the terms of the joint agreement.

Indiana

Indiana is one of the states adjacent to Kentucky. Indiana was one of two states that did not return the survey questionnaire; therefore, the information provided here is based on a brief telephone interview with an Indiana DOT representative and research from secondary sources.

According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Indiana Department of Transportation (INDOT) maintains 11,193 miles (11.90%) of the 94,038 miles of public roadway in Indiana;
- 9,540 miles (85%) of all state maintained roads are classified as rural;
- 2,093 square miles (5.8%) of the 36,097 square miles of land in Indiana are classified as urban;
- The population density is 154 persons per square mile; and
- 62.2% of the 5,545,000 population live in an urban area.

The State Highway System is established by Indiana Code, Title 8, Article 23, Chapter 2 states the following (underline for emphasis):

> *(a) The state highway system shall be designated by the department. The total extent of the state highway system may not exceed twelve thousand (12,000) miles. The state highway system consists of the principal arterial highways in Indiana and includes the following:*
>
> *(1) A highway to the seat of government in each county.*
>
> *(2) Connecting arteries and extensions through municipalities.*
>
> *(b) In determining the highways or sections of highways that are a part of the state highway system, the department shall consider the following:*
>
> *(1) The relative importance of each highway to county or municipal government.*
>
> *(2) Existing business and land use.*
>
> *(3) The development of natural resources, industry, and agriculture.*
>
> *(4) The economic welfare of Indiana.*
>
> *(5) The safety and convenience of highway users.*

(6) The financial capacity of the state to reconstruct, construct, and maintain the highways selected to desirable standards.

(c) The state highway system shall be classified for purposes of management, establishment of standards, and priority for use of funds and resources. Classification of the system may conform to the department's designation of the state's federal aid system.

Indiana has established an Asset Distribution System consisting of the following:

- Interstate
- NHS
- Non-NHS state hwy system
- Unnumbered state-maintained facilities (900 series)

According to an IDOT representative, they have also established or are in the processing of establishing a State Mobility System, based largely on functional classification and traffic. The Indiana DOT is trying to transfer "unnumbered" roads and/or those without significant traffic volume to local governments. There is a statutory process for getting local governments to accept new roads after construction.

Iowa

Iowa was chosen for the study as a progressive state. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Iowa Department of Transportation (Iowa DOT) maintains 9,727 miles (8.57%) of the 113,435 miles of public roadway in Iowa;
- 8,836 miles (91%) of all state maintained roads are classified as rural;
- 1,120 square miles (1.9%) of the 57,853 square miles of land in Iowa are classified as urban;
- The population density is 51 persons per square mile; and
- 59.5% of the 2,926,000 population live in an urban area.

Iowa statute 306.3(6) defines the state highway system, stating that *"Primary roads"* or *"primary road system"* means those roads and streets both inside and outside the boundaries of municipalities, which are under department jurisdiction.

In 1970, the Iowa state legislature defined a State Functional Classification System that tied jurisdiction of roadways to particular functional classifications. Throughout the 70s, many roads under state jurisdiction were identified by functional classification as belonging under local jurisdiction. However, due to local opposition to this initiative, legislation was passed in 1980 requiring that a jurisdictional transfer had to be agreed to by both parties. This effectively stopped any significant numbers of transfers for almost 25 years.

In 2002, the Iowa DOT, county engineers association, League of Cities, and local chapter of the American Public Works Association began discussions on how to improve the operation and efficiency of the highway system in the state. Legislation was proposed and passed effective July 1, 2003, that transferred 711 miles of state highways to local government along with a transfer of state highway funds. As the legislation was pending, 152 miles of state highways were transferred by separate agreement. This had the effect of aligning jurisdictional responsibility with the State Functional Classification System established in the 1970s, even though that system no longer existed in statute.

As a result, IDOT does not anticipate a need to transfer any roads between the state and locals, except when new roads are built on new alignment. In those cases, jurisdictional agreements will be negotiated prior to new road construction.

Transfers of jurisdiction are under the discretionary authority of the Transportation Commission. While Iowa has no formal criteria to designate state routes, they do have informal criteria to evaluate jurisdictional responsibility, including:

- Average trip length;
- Annual Average Daily Traffic (AADT);
- Truck AADT;
- Service to educational, health care, and economic centers;
- Area coverage; and
- Others.

The Department also has one other legislatively designated subset of the state highway system called the 'Commercial and Industrial Network'. This network is approximately a 2,300 mile system and, when combined with the Interstate System, is identical to the National Highway System in Iowa. The DOT also stratifies the remaining primary highways into two other categories called Area Development Routes and Access Routes.

Iowa DOT may accept a new road onto the state system and open it up to traffic prior to releasing the contractor from his/her contract obligations or "final inspection".

Louisiana

Louisiana was included in this study as a peer state because its socioeconomic and road characteristics are similar to Kentucky. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Louisiana Department of Transportation and Development (LA DOTD) maintains 16,704 miles (27.46%) of the 60,829 miles of public roadway in Louisiana;
- 14,664 miles (88%) of all state maintained roads are classified as rural;
- 1,597 square miles (3.7%) of the 43,026 square miles of land in Louisiana are classified as urban;
- The population density is 101 persons per square mile; and
- 68% of the 4,332,000 population live in an urban area.

The Louisiana state highway system is based purely on the Federal Highway Administration (FHWA) functional classification as described in Louisiana RS 48:191 (included in the **Appendix)**.

Code 48:191 states that the total length of the twelve functional systems shall not exceed sixteen thousand six hundred seventy-five (16,675) miles. It also states that any additional length allowed is at the sole discretion of the secretary of transportation. The location of all highways in the functional classification systems may be altered and amended by the secretary of transportation as necessary in order to obtain federal aid for road construction in Louisiana.

The basic systems and process used for the functional systems are comprehensively defined in the federal (FHWA) guideline "Highway Functional Classification Concepts, Criteria and Procedures" revised in March 1989, found in the **Appendix**.

Louisiana RS 48:224.1 and the Louisiana DOTD Engineering Directives and Standards Manual (EDSM) I.1.1.19, both found in the **Appendix**, address the transfer and exchange of public roads, through the following process:

- The first step is the receipt of a proper resolution submitted by a parish or municipal governing authority to the secretary of transportation indicating its conditions, willingness, and desire to incorporate and assume the maintenance of a road on the state highway system into the parish or municipal road system, with the approval by a majority of the legislative delegation from such parish or municipality. The secretary then may at his/her discretion accept the resolution and remove the road from the state highway system, and it shall become a part of the parish or municipal road system.
- Similarly, upon receipt of a proper resolution to exchange and assume the maintenance of one or more roads on the parish or municipal road system for one or more roads on the state highway system, with the approval by a majority of the legislative delegation from such parish or municipality, the secretary may at his/her discretion accept the resolution, incorporate said roads into and remove said roads from the state highway system, and the state roads shall become a part of the parish or municipal road system.

The Louisiana DOTD does not consider acceptance of urban or rural locals into the state system by exchange or transfer unless:

- The rural local is in a corridor identified by the LA DOTD as a future corridor for a rural arterial or rural major collector, or
- The urban local is in a corridor identified by the LA DOTD as a future urban extension or a rural arterial or collector.

Another key issue in Louisiana is the statutory limit of 16,675 miles for the state system. This is sometimes used as the basis for rejecting applications to deny requests to add a local road to the system.

When a new road is evaluated for inclusion, LA DOTD applies the following criteria:

- Functional class
  - No transfers of a functionally classified Local road for another Local road
  - No rural minor collectors (unless it is identified as a possible major collector in the future)
  - Goal for the state system is to provide mobility, not access
- Informal criteria for evaluating road condition
  - Improvement costs to increase the road to state standards
  - Maintenance costs
  - Has determined that the comparison of cost/mile is correlated to ADT (linear relationship), such that a 2,000 vehicle per day ADT is the threshold at which the cost/benefit relationship is viable for acceptance into the state system

LA DOTD does not accept a newly constructed road into the state system until the final inspection has taken place.

Michigan

Michigan was chosen as a progressive state. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Michigan Department of Transportation (MDOT) maintains 9,725 miles (7.99%) of the 121,789 miles of public roadway in Michigan;
- 7,702 miles (79%) of all state maintained roads are classified as rural;
- 3,560 square miles (6.3%) of the 56,804 square miles of land in Michigan are classified as urban;
- The population density is 175 persons per square mile; and
- 69.8% of the 9,939,000 population live in an urban area.

Michigan's criteria for acceptance into the state system are informal at present, but there was an attempt in 1997 and 1998 to implement a new system, referred to as the "rationalization process." The basic premise of "rationalization" was that the function of a road should be the determining factor in assigning its jurisdiction, using the Federal functional highway classification system. According to this premise, at one end of the hierarchy are the freeways, which has the function of providing maximum mobility for both commercial and other traffic and should, therefore, be under state authority. At the other end of the Federal functional classification hierarchy are "local" roads, i.e., the low-volume, rural roads and neighborhood, residential streets which have the function of providing access to adjacent property and which would be rightfully placed under local authority. Thus, the primary goal of the rationalization process was to address functions between the extremes of freeway and "local" road.

To test this process, a rationalization pilot project was undertaken to focus on transfers of responsibilities among the state, six counties and five cities. Approximately 152 total miles were involved in the pilot project, including both local-to-state and state-to-local transfers.

The results of the rationalization pilot led MDOT to believe that state responsibilities should focus on roads with an arterial function. Based on travel characteristics and local information, MDOT staff identified many routes all over the state which had a functional classification of Collector, but which actually functioned as Arterials. Thus, a statewide review was proposed with its focal point being the upgrade of many of the collectors to arterial routes, based on traffic volumes, service to traffic generators, operating characteristics, and so forth.

Ultimately, the rationalization process proved to be politically unpopular, and it was abandoned in 1999. A discussion of the rationalization effort is found in the **Appendix**.

In brief, following the lack of success of the "rationalization" project, Michigan is satisfied with the trunkline system as it exists today, with only minor changes being considered. The criteria that led to the MDOT's current system can be viewed in retrospect as having matched functional classification criteria. All rural principal arterials are state trunkline; most rural minor arterials are state trunkline; and selected urban principal arterials and urban minor arterials are state trunkline (including, but not limited to those routes which form continuations of rural arterials through urban areas). Thus, the criteria for high-level arterials would suffice to describe the criteria for Michigan's state trunkline system.

Currently, roads are added to the Michigan state trunkline system by two means: new construction and jurisdictional transfer from county or municipal jurisdiction. In the case of new construction, only arterial routes are built. In the case of jurisdictional transfers, only arterial routes are considered for transfer unless a collector route is needed to form continuity with an existing trunkline collector route (such routes are a minority).

The process for jurisdictional transfer as a means to add to the state trunkline system involves negotiation between the local jurisdiction and the appropriate MDOT region to identify terms and conditions of transfer, the drafting of a Memorandum of Understanding (MOU), the approval of the State Transportation Commission and the State Administrative Board, and establishing an

effective date of transfer represented by signature of the local jurisdiction and the director of MDOT on the final MOU.

MDOT may accept a new road onto the state system and open it up to traffic prior to releasing the contractor from his/her contract obligations or "final inspection".

Missouri

Missouri was included as one of the states adjacent to Kentucky. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Missouri Department of Transportation (MoDOT) maintains 32,425 miles (26.08%) of the 124,324 miles of public roadway in Missouri;
- 30,670 miles (95%) of all state maintained roads are classified as rural;
- 2,193 square miles (3.2%) of the 68,898 square miles of land in Missouri are classified as urban;
- The population density is 82 persons per square mile; and
- 63.4% of the 5,630,000 population live in an urban area.

Under Missouri statute RSMo 226.005, 226.008, and 226.020, oversight of all highway-related activities is under the authority of the Director of Transportation and the State Highways and Transportation Commission.

Missouri statutes narrowly define the state highway system to specific routes by county in RSMo 227.020 (see **Appendix**). Missouri does not have formal criteria to designate roads on its state system. Each route is evaluated on its own merit. In general, the only time that this comes up is due to a construction project. Often, when a new road is built, some part of the old road is given to the local entity.

MoDOT rarely takes additional roads into the system. When this does occur, information is collected on the assets that will be taken over and an analysis is done to see the impact it will have. Informal criteria used in this evaluation include maintenance cost, safety concerns, etc. Ultimately the Highway Commission has the authority to make a decision, based on MoDOT staff recommendations.

MoDOT will open a new route up to traffic prior to releasing the contractor from his/her contract obligations or "final inspection." The process for adding such a route onto the state system begins at this time.

Ohio

Ohio is one of the states adjacent to Kentucky. However, Ohio was one of two states that did not return a survey questionnaire. Therefore, the information provided here is based in part on a brief telephone interview with an Ohio Department of Transportation (ODOT) representative and further research of secondary sources.

According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Ohio Department of Transportation (ODOT) maintains 19,294 miles (16.5%) of the 117,268 miles of public roadway in Ohio;
- 15,270 miles (79%) of all state maintained roads are classified as rural;
- 4,479 square miles (10.9%) of the 40,953 square miles of land in Ohio are classified as urban;
- The population density is 278 persons per square mile; and

- 70.6% of the 11,374,000 population live in an urban area.

Historically, the Ohio public road system began with a system of roads categorized as township roads, county roads, inter-county roads, and national highways. Over time, the inter-county roads and national highways came to comprise the state highway system.

Today, the Ohio system consists of:

- Interstates,
- National Highway System, and
- State highways to centers of population.

Ohio Revised Code, Title 55, under RC 5501.11(A), authorizes ODOT to "establish state highways on existing roads, streets, and new locations …" Also, RC 5511.01 addresses "changes or additions" but seems to primarily emphasize changes due to construction. There are specific requirements regarding notification of local officials and conducting public meetings before any changes or additions are made. One key point is that this statute stipulates that the total increase in state mileage shall not exceed 200 miles per year (see **Appendix**).

In a telephone interview with a representative of the Ohio DOT, it was learned that Ohio rarely adds any new roads, except for new sections added due to construction, and it does not take any new roads for political reasons. When a new road is considered, the following informal criteria are applied:

- No dead ends
- Traffic volumes
- Planning process, which categorizes the road as to potential funding

Through the planning process, roads for the state highway system appear to be divided into three categories:

- Priority System, which has two components:
    - All Functional Class (FC) 1, 11, and 12 roads (Interstate, Urban Freeways and Expressways) in cities with a population of 5,000 or more, as defined by the 2000 Census, and
    - All National Highway System (NHS) routes and all FC 1, 11, and 12 roads outside these cities.
- Urban Paving System, which includes all non-Priority state routes in cities with a population of 5,000 or more, as defined by the 2000 Census. There are no urban paving system routes outside these city boundaries.
- General System, which includes all state routes that do not fall into one of the previous categories. There are no general system routes in cities, as they are defined above.

Pennsylvania

Pennsylvania was chosen for the study as a progressive state. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Pennsylvania Department of Transportation (PENNDOT) maintains 39,935 miles (33.28%) of the 119,986 miles of public roadway in Pennsylvania;
- 32,102 miles (80%) of all state maintained roads are classified as rural;
- 3,910 square miles (8.7%) of the 44,820 square miles of land in Pennsylvania are classified as urban;

- The population density is 284 persons per square mile; and
- 60.6% of the 12,729,000 population live in an urban area.

Since the introduction of the Federal-Aid System in the 1990s, the Department's Office of Chief Counsel has issued an opinion that a local highway is any highway that does not fall into a higher functional classification under the FHWA's manual entitled *Highway Functional Classification Concepts, Criteria and Procedures*.

Therefore, Pennsylvania does not have statutory language for its state road system. All roads are classified based on the Federal Highway Administration (FHWA) functional classification. There is an established formal process for local officials, planning agencies, FHWA, or PENNDOT to recommend a revision (see **Appendix**).

During the 1930s, thousands of miles of road were adopted into Pennsylvania's state road system to help get the farm products to market. In 1981, the Pennsylvania Legislature passed a law allowing for the transfer of state highways to municipalities (see Pennsylvania Consolidated Statutes, Title 75, Chapter 92 in the **Appendix**). This law allowed PENNDOT to transfer state highways designated by the Department as "functionally-local highways." The main focus of this program has been to transfer those roads functioning as local roads to local governments, with the belief that "local roads" should be owned by local government. This transfer program also allows for the transfer of roads that receive Federal-Aid to municipalities.

Pennsylvania will open a new or improved roadway to traffic before the final inspection, as long as safety is not compromised. The designation as a state route would already be in place, as that is done in the budgeting phase, prior to construction.

Tennessee

Tennessee is one of the states adjacent to Kentucky. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Tennessee Department of Transportation (TDOT) maintains 13,791 miles (15.70%) of the 87,823 miles of public roadway in Tennessee;
- 11,355 miles (82%) of all state maintained roads are classified as rural;
- 2,735 square miles (6.6%) of the 41,219 square miles of land in Tennessee are classified as urban;
- The population density is 141 persons per square mile; and
- 54.1% of the 5,825,000 population live in an urban area.

Under Tennessee Code, Title 54, the Commissioner of Transportation has the authority to designate state routes. Tennessee does not have state road categories similar to Kentucky, nor does it have multiple state systems.

TDOT has no formal criteria to decide which roads should be designated for the state system. Most of the time, a request is made and the only responsibility is to prepare the official paperwork to accept the road into the system. According to comments in a telephone interview, staff has been asked to provide a review of the request sometimes in the past, but that has not happened for quite a while. In their reviews, they would usually review the road for such things as pavement condition, number of bridges, and traffic. In a review, TDOT staff might look at parallel roads for redundancy, but this is not usually done.

In response to questions, it was learned TDOT does not consider the functional classification of the roadway; however, TDOT's policy is to functionally classify state routes as 'collector' or above in urban areas and as 'major collector' or above in rural areas.

One special circumstance is that, when a bypass is to be built, they usually try to get a commitment for the local community to assume responsibility for the "old road" that passes through the town.

TDOT accepts a new road into the state system and opens it up to traffic prior to releasing the contractor from his/her contract obligations or "final inspection".

Texas

Texas is included in the study as a progressive state. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Texas Department of Transportation (TxDOT) maintains 79,346 miles (26.38%) of the 300,766 miles of public roadway in Texas;
- 68,686 miles (87%) of all state maintained roads are classified as rural;
- 8,170 square miles (3.1%) of the 261,914 square miles of land in Texas are classified as urban;
- The population density is 79 persons per square mile; and
- 67.7% of the 20,674,000 population live in an urban area.

Authority for planning and making policies for the location, construction, and maintenance of a comprehensive system of state highways and public roads rests with the Texas Transportation Commission in accordance with Texas statutes, Transportation Code, Title 6, Section 201.103. In addition, Section 201.104 gives the Commission the power to designate any county road as a farm-to-market road.

The state system consists of Interstates, US highways, and state highways, which could be comparable to Kentucky's system of Primary roads, as well as the farm-to-market roads, which could be comparable to Kentucky's system of Secondary roads. The Texas state road system has no relationship to the federal functional classification system.

Texas does not have formal or informal criteria to incorporate most roads into the state system. It does, however, have formal criteria for the Farm-to-Market (FM) system. FMs must:

- Be located outside areas with a population of 5,000 or more,
- Carry 500 vehicles per day,
- Be on a U.S. postal route, and
- Be on a school bus route.

TxDOT does not open a new or improved route to traffic until after the final inspection is complete.

Virginia

Virginia is located adjacent to Kentucky. The returned survey questionnaire from Virginia was only partially complete and, therefore, some of the desired information was not available for this report.

According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Virginia Department of Transportation (VDOT) maintains 56,942 miles (80.52%) of the 70,719 miles of public roadway in Virginia;
- 49,274 miles (86.5%) of all state maintained roads are classified as rural;

- 2,480 square miles (6.3%) of the 39,598 square miles of land in Texas are classified as urban;
- The population density is 182 persons per square mile; and
- 68.4% of the 7,188,000 population live in an urban area.

Virginia's State Highway System is comparable to the Kentucky State Primary System; however, Virginia also includes frontage roads which may be comparable to Kentucky's Supplemental roads. Virginia statutes 33.1-25 and 33.1-67 establish two legal highway systems in the Commonwealth of Virginia, a "primary system of highways" called the State Highway System and a "secondary system of highways."

The secondary system includes all "public roads, causeways, bridges, landings and wharves in not included in the State Highway System, including roads and community roads leading to and from public school buildings, streets, causeways, bridges, landings and wharves in incorporated towns of 3,500 inhabitants or less …" These roads should be "connecting links" between:

- Roads in the secondary system in the counties, and
- Roads in the secondary system and roads in the primary system of state highways, not to exceed two miles in any one town.

Roads in Virginia's secondary system are established by the county governments and are typically constructed by land developers. The counties may request that the VDOT accept responsibility for maintaining the secondary roads.

The criteria for Virginia's State Highway System are established by statute, but criteria for the secondary system are at the discretionary authority of the Commonwealth Transportation Board.

In accordance with Virginia statute 33.1-26, the Transportation Board is hereby authorized to establish "an arterial network" within the State Highway System that would include highways that meet the following criteria:

(1) Supplement and complement the Interstate System to form a complete network of through highways to serve both interstate and principal intrastate traffic flow;

(2) Carry a sufficient volume of traffic by 1975 to warrant a minimum of four lanes;

(3) Carry a substantial volume of heavy trucks and buses and through traffic;

(4) Serve as the principal routes of major traffic corridors;

(5) Provide reasonable connections to or between the major cities and towns in the Commonwealth; and

(6) Have been declared by resolution of the Commonwealth Transportation Board to be portions of the arterial network of the State Highway System.

Existing highways and streets, even though established as turnpikes, toll projects, revenue bond projects, or streets of cities and towns may be included in the arterial network of highways established by this section.

Criteria for the secondary system are based on criteria in the Virginia Administrative Code, otherwise known as the Subdivision Street Requirements. Under these requirements, new streets must include the following:

- *Be available for unrestricted public use;*
- *Provide an actively public service sufficient to warrant maintenance at public expense; and*

- *Have been fully and properly constructed on a dedicated right of way to a standard adequate to sustain the traffic volume anticipated when the land served has been fully developed.*

In addition, the applicant is required to be bonded for an extended period to guarantee that the road will not require any major repairs or maintenance.

Generally, the state maintains the secondary and local roads throughout the state. However, Virginia has a system of "independent cities" with a population of 30,000 or more that are separate from and have no overlapping boundaries with the counties. These independent cities maintain their own streets with state funding support, except that the State maintains primary roads that pass through these cities.

In addition, two counties in Virginia have elected to maintain their own roads, which is a legal option for counties in the state.

The Virginia survey response did not provide any information on how the Virginia DOT handles accepting a new road into the system after a construction project is completed and the new road is open to traffic.

West Virginia

West Virginia is one of the states adjacent to Kentucky. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The West Virginia (WVDOT) maintains 33,975 miles (91.83%) of the 36,996 miles of public roadway in West Virginia;
- 32,520 miles (96%) of all state maintained roads are classified as rural;
- 433 square miles (1.8%) of the 24,664 square miles of land in West Virginia are classified as urban;
- The population density is 73 persons per square mile; and
- 29.6% of the 1,801,000 population live in an urban area.

West Virginia maintains the majority of all of the public roads in the state, particularly in the rural areas. A review of the current West Virginia state system of roads reveals that, in rural areas, the state system appears to include all roads except for some national forest roads, some road and streets in communities with a population less than 5,000, and West Virginia turnpike routes, which are the responsibility of the Turnpike Authority.

In urban areas, state routes primarily include only those that pass through communities with a population greater than 5,000 (similar to the Federal functional classification concept of "connecting links"). Most of the other roads and streets in these communities appear to be the responsibility of the municipal government.

WV Code 17-4-1 and 17-4-2, found in the **Appendix**, define West Virginia's state system. The authority and control over the state system rests with the Commissioner of Highways. The state road system consists of five (5) categories functionally classified as follows:

(1) Expressway – Serves major intrastate and interstate travel, including federal interstate routes

(2) Trunkline – Serves major city to city travel

(3) Feeder – Serves community to community travel or collects and feeds traffic to the higher systems or both

(4) State local service – Localized arterial and spur roads which provide land access and socioeconomic benefits to abutting properties

(5) Park and forest – Serves travel within state parks, state forests, and public hunting and fishing areas.

West Virginia has formal criteria that must be met for a road to be incorporated in the state highway system (e.g., subdivision streets or access roads to new development). Criteria include standards that must be met related to right-of-way, drainage, roadway dimensions, and utilities, as shown in the formal guidelines included in the **Appendix**. At present, West Virginia's informal policy is to disapprove any such requests, if possible.

West Virginia also has a Coal Resources Travel System (CRTS). To be eligible for incorporation on the CRTS, a route must meet specific criteria and carry 50,000 tons of coal per year, as described further in the **Appendix**.

When a new road is essentially completed, but the contractor has not been fully released from his/her contract obligations, WVDOT opens the road to traffic, but does not accept it into the state system until after the final inspection.

Wisconsin

Wisconsin was included in the study as a progressive state. According to the U.S. Department of Transportation's 2001 Highway Statistics:

- The Wisconsin Department of Transportation (WisDOT) maintains 11,753 miles (10.43%) of the 112,664 miles of public roadway in Wisconsin;
- 10,310 miles (88%) of all state maintained roads are classified as rural;
- 1,444 square miles (2.7%) of the 54,297 square miles of land in Wisconsin are classified as urban;
- The population density is 102 persons per square mile; and
- 62.5% of the 5,540,000 population live in an urban area.

Section 84.02, Wisconsin Statutes, governs the establishment and alteration of the State Trunk Highway (STH) System. The STH system is subdivided into Corridors 2020 routes and non-Corridors 2020 routes. The Corridors 2020 system is further split into Backbone and Connector routes

Wisconsin's State Trunk Highway (STH) System essentially represents the 12 classifications in the FHWA Functional Classifications system, with detailed criteria refined and customized for Wisconsin (see *Functional Classification Criteria* report in **Appendix**). The system is used for rural routes as a guide for jurisdiction. That is, all rural arterials should be state jurisdiction, all rural collectors should be county jurisdiction, and all rural locals should be local (town) jurisdiction.

The Corridors 2020 system consists of 1,500 miles of multilane divided Backbone highways and 1,900 miles of 2-lane or 4-lane Connectors. The Corridors 2020 designation was developed using the following factors: Service to Manufacturing counties, Service to Recreation/Tourism counties, Service to Agricultural counties, Service to Forestry counties, Service to top 2 categories of places under a Place Classification process, Service to Population Centers, High Traffic Volume routes, and High Truck Volume routes. The resulting Corridors 2020 system serves (within 10 miles) all places with a population greater than 5,000.

Wisconsin does not have an accepted relationship between functional classification and jurisdictional responsibility in urban areas. Instead, it becomes a matter of negotiation between WisDOT and the affected community.

Connecting Highways are local streets over which the State Trunk Highway is routed. In those cases, the state provides special financial aid to help a local municipality cover the costs related

to the state highway travel over that route. Not all urban STHs are Connecting Highways; however, the designation is mutually agreed to between the DOT and the particular municipality.

When a new road is essentially completed, but the contractor has not been fully released from his/her contract obligations, WisDOT will open the road to traffic, but will not accept it into the state system until after the final inspection.

Findings

Through the survey and research, a wealth of information has been provided on the 16 states selected for review. The following sections present a summary of the salient points gleaned from this information. However, a large amount of documentation has been obtained from the states (see **Appendix**), and there may be additional details that could assist in expanding on the issues in the following discussion.

Making Changes

The first point to address is whether changes should be made to the state highway system, except for additions made through highway construction or reconstruction. The states reviewed in this study appear to have addressed this in a variety of different ways. Some of these are included here:

- At least two states have elected to maintain virtually all of the state's roads, with a few special exceptions, and each of these two states has created a formal process for accepting roads into the system.
- Many of the other states in the study currently have formal or informal policies to restrict or minimize the addition of new roads to the state system, except for those added due to construction.
- Most of the other states also appear to be seeking ways of transferring state roads to local jurisdiction.
- Most of those states that do accept local roads into the system usually require at least a transfer of roads, i.e., the state will accept a suitable local road if the local government agrees to accept an existing state road in that jurisdiction identified by the state as serving no statewide or regional purpose.
- Some states have imposed statutory limits on the total mileage that can be on the state system or the number of miles that can be added to the state system.
- One state, after being virtually stalemated on making system changes for over two decades, recently participated in a formal cooperative process with representatives of local governments and other interests to negotiate a logical jurisdictional alignment of the state's public roads

Process for Changes, Additions, or Transfers

There appear to be three primary processes that are involved in making changes and/or additions to the state highway system, as follows:

- State System Review: Reviewing the state highway system to determine if some roads do not properly belong on that system and should be transferred to local governments (or private use).
- Requests for Jurisdictional Transfers: Responding to local government requests to add an existing local road, which could also include a defined process for local governments to make such a request.

- Jurisdictional Transfers due to Construction: Transferring portions of roads or segments to local governments that are no longer needed for route continuity due to new state construction.

Each of these is somewhat separate and distinct from the other two, and most states appear to apply different criteria for each process.

Table 8 summarizes the formal and informal criteria considered by the adjacent, peer, and progressive states, when applicable, in determining what roads should be on the state system or whether a local road should be added to the state system.

- Functional Classification System: From **Table 8**, it can be seen that the most common criteria that the states use for state system designation is the Federal Functional Classification of the highway or street, with 8 of the 16 states in the study using functional classification as at least one of the factors considered. In fact, a few of these states use the Functional Classification system categories as the main mechanism to define their state highway systems and to designate jurisdictional responsibility. This is also supported by the two states discussed in the literature research.

  Based on this review of state input, there appears to be a general consensus that jurisdictional responsibility should be based primarily on the purpose of the road and the significance of areas served. Both of these are addressed in the Federal Functional Classification System designation process, as described in the Federal Highway Administration's functional classification guidelines, which are included in the **Appendix**.

  On the other hand, almost all of the states that have tried to use functional classification for determining jurisdictional responsibility appear to have faced problems in implementing this initiative, primarily due to political controversy and difficult negotiations with local governments. Two states in the study actually abandoned functional classification as an indicator, largely because of these reasons. However, as described previously, another state had the same types of problems, but finally participated in a comprehensive review in full cooperation with representatives of local governments. In some cases, it appears that success occurred only after additional funding was provided to local governments that assumed an increase in their local road mileage.

- Traffic Volumes: As shown in the matrix in **Table 8**, the second most used criterion (7 of 16) that is the Average Daily Traffic (ADT), which is another indicator of the type of service provided and the importance for a given road.

- Other Criteria: Other prominent criteria used by at least of four of the 16 states are Improvement Costs, Connectivity, and Maintenance Costs.

- Special Criteria: In addition, a few states use other special criteria to determine if a local road should be added to the state system, including:
  - Whether the road is on a school bus route, with verification from the Highway District
  - Whether the road is on a U.S. postal route, with verification from the Highway District
  - Whether the road is a farm-to-market road
  - Whether the road is a continuous route that passes through an urban area.
  - Truck traffic.
  - Access to tourism areas.
  - Whether the road is a scenic byway.

Table 8. Criteria Used for State Highway System Designation and/or Jurisdictional Transfers

	Arkansas	California	Florida	Illinois	Indiana	Iowa	Louisiana	Michigan	Missouri	Ohio	Pennsylvania	Tennessee	Texas	Virginia	West Virginia	Wisconsin	SUM
FHWA Functional Class Guidelines	1	1		1			1	1			1				1	1	8
AADT	1	1		1		1				1			1	1			7
Improvement Cost	1				1		1		1	1							5
Connectivity	1		1							1				1			4
Maintenance Cost	1						1		1	1							4
Travel to and through Urban Areas		1	1		1									1			4
Area Coverage					1	1											2
Continuity				1											1		2
Road Condition	1											1					2
Rural/Urban				1									1				2
Service to Educational (i.e., bus route)						1							1				2
Truck AADT						1								1			2
Access to Intermodal Facilities			1														1
Access to Regional Public Facilities			1														1
Annual Coal Haul															1		1
Average Trip Length						1											1
Benefit to Public				1													1
Disaster Prepardness and Emergency Evacuation			1														1
Geometrics	1																1
National Defense Needs			1														1
NHS							1										1
Population Density													1				1
Service to Healthcare						1											1
Service to Economic Centers						1											1
Safety									1								1
Service for Tourism		1															1
US Postal Route													1				1

Cost Considerations

Cost is a major consideration in issues related to assigning jurisdictional responsibility and making jurisdictional transfers for both the state and the local government.

For those concerned about added cost impacts on the state system, most states appear to have addressed the issue in the following ways:

- State Responsibility for All Public Roads: Assuming responsibility for all or most of the public road system, and retaining all or most of the road fund revenues, rather than allocating them to local governments.
- Formal Policy: Establishing a formal or informal state policy that seeks to assign roads to the appropriate level of responsibility, using formal or informal criteria to aid in making that decision, and thereby reducing the amount of state road system mileage.
- Exchange: For jurisdictional transfers, requiring at least a mile-for-mile transfer of roads (i.e., if a local government wants the state to assume responsibility for a road, then the local government must assume responsibility for a similar state road of equal length).
- Formal Process: For jurisdictional transfer requests, establishing a transfer process that includes cost analysis or a surrogate for cost, such as road width, traffic volumes, etc.

Cost is also a factor for local government officials, who are usually unable and/or unwilling to assume additional road mileage that would impose an additional financial burden on limited local budgets. In some states, this issue has been addressed as follows:

- State Responsibility for All Public Roads: Assigning the states the responsibility for all or most of the public road system, and in turn allowing the state DOT to use all or most of the road fund revenues, rather than allocating them to local governments for their use.
- Improvements: Negotiating the transfer to a local government after major improvements have been made to the road.
- Funding: Providing additional funds to local governments for assuming responsibility of the additional mileage, either through the statutory process or through a special funding allocation from the state transportation agency.
- Urban vs. Rural: Distinguishing between urban and rural governments for transfers and or system responsibility, since urban areas generally have more revenue opportunities.

Adding a Newly Constructed Road to the State System

Kentucky does not currently accept newly constructed routes into the state system at the time they are open to traffic, but only after final inspection and approval. This often causes problems in maintaining data and charging maintenance and operations expenditures. One of the questions on the state questionnaire was aimed at determining how other states handle this situation.

Of the thirteen (13) states that completed this question on the survey questionnaire, twelve (12) will open a new road to traffic when it is essentially complete, except for some minor finishing work, before the contractor has been fully released from his contract obligations. Of these states, seven (7) will adopt acceptable routes into the state system at that time.

Of special note, at least one state indicated that the new route is made a part of the state system as part of the budgeting process, i.e., when funds are allocated for a project.

Chapter 4. Scenario Development and Analysis

For this task, it is important to understand the distinctions in three of the terms used in this chapter. The following definitions apply:

- **Criteria:** Highway characteristics (e.g., lane widths or system designation)
- **Option:** An iteration of a set of criteria, applying different values for one or more of the criteria used in the scenario
- **Scenario:** A group of options, using iterations of the same criteria

Potential criteria, options, and scenarios that could be used to designate highways for Kentucky's State Primary Road System have been identified, based on the following:

- Input from state surveys on the use and success of criteria by Peer, Adjacent, and Progressive States,
- Information gathered through the literature search,
- Consistency with Kentucky statutes and regulations,
- Availability of data to KYTC,
- Comparison of the Kentucky SPRS with the Federal Functional Highway Classification System and systems, processes, and criteria in other states, and
- Input from the Kentucky Transportation Cabinet.

The seven (7) individual **criteria** used in the development of the **scenarios** include the following:

1. Dead Ends or "Stubs"
2. One-Lane Roads
3. Federal Functional Classification
4. Average Daily Traffic (ADT)
5. State System Designation
6. Truck Weight Class
7. Lane Width

Table 9 shows the number and percentage of SPRS miles and **Figures 1 through 7** show which State Primary Road System roads in Kentucky meet selected values for the seven individual criteria listed above. **Table 10** is included as a reference to aid in matching a county name with the county identification numbers shown on these and other state maps in this document.

Eleven **scenarios** with **one to five criteria** in each have been developed in this study. Iterations of the **criteria** in each **scenario** resulted in forty-six (46) **options** tested for reviewing the Kentucky State Primary Road System. These are discussed later in this section.

N

Note: See Table 9 for County Names.

"Stubs" - Route segments that do not provide connectivity to other routes in the state system.

25 0 25 50 Miles

"Stub" Segment on Kentucky State Primary Road System

Kentucky State Primary Road System Route

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FIGURE 1.
Kentucky State Primary Road System Criteria Study
STUBS
(Option 33 - Scenario 5A)

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

One Lane Road

Kentucky State Primary Road System Route

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FIGURE 2.
Kentucky State Primary Road System Criteria Study
ONE LANE ROADS
(Option 41 - Scenario 10A)

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

Rural Interstate
Rural Principal Arterial
Rural Minor Arterial
Rural Major Collector
Rural Minor Collector
Rural Local

Urban Interstate
Urban Freeways & Expressways
Urban Principal Arterial
Urban Minor Arterial Street
Urban Collector Street
Urban Local

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FIGURE 3.
Kentucky State Primary Road System Criteria Study
FUNCTIONAL CLASSIFICATION

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

0 - 299
300 - 499
500 - 999
1000 - 1999
2000 - 4999
5000 - 200000

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FIGURE 4.
Kentucky State Primary Road System Criteria Study
2003 AVERAGE DAILY TRAFFIC
(vehicles per day)

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

State Primary
State Secondary
Rural Secondary
Supplemental Road

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FIGURE 5.
Kentucky State Primary Road System Criteria Study
STATE SYSTEM DESIGNATION

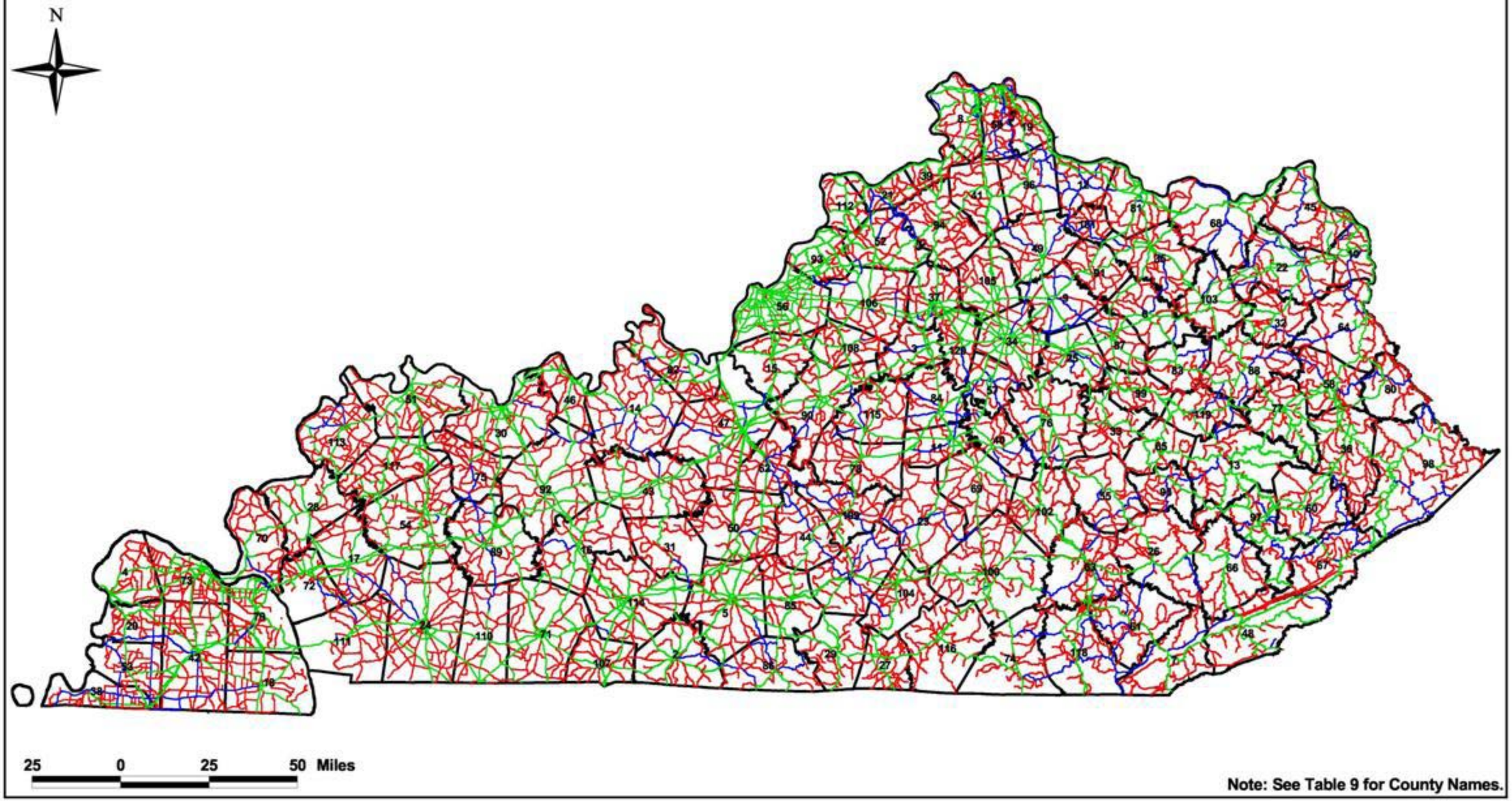

FIGURE 6.
Kentucky State Primary Road System Criteria Study
WEIGHT CLASS

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

< 9'
9'
10'
11' - 12'
> 13'

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FIGURE 7.
Kentucky State Primary Road System Criteria Study
LANE WIDTH

Table 9. Existing Conditions in Kentucky for Selected Criteria

Criteria	Miles	Percent of State System
Total State Mileage	27,480.00	100. 0%
“Dead Ends” or “Stubs”	1,578.60	5.7%
One-Lane Roads	43.21	0.2%
Rural Locals	4,477.39	16.3%
Urban Locals	117.16	0.4%
Rural and Urban Locals	4,594.55	16.7%
ADT < 300	5,201.39	18.9%
ADT < 500	8,654.17	31.5%
ADT < 1000	13,686.49	49.8%
ADT < 2000	17,857.07	65.0%
State Designated Supplemental Roads	2,264.31	8.2%
Weight Class A	16,310.48	59.3%
Lane Width < 9 feet	5,237.43	19.1%
Lane Width < 10 feet	16,464.96	59.9%

Table 10. County Numbers for Kentucky Counties

County Number	County Name		County Number	County Name		County Number	County Name
1	Adair		41	Grant		81	Mason
2	Allen		42	Graves		82	Meade
3	Anderson		43	Grayson		83	Menifee
4	Ballard		44	Green		84	Mercer
5	Barren		45	Greenup		85	Metcalfe
6	Bath		46	Hancock		86	Monroe
7	Bell		47	Hardin		87	Montgomery
8	Boone		48	Harlan		88	Morgan
9	Bourbon		49	Harrison		89	Muhlenberg
10	Boyd		50	Hart		90	Nelson
11	Boyle		51	Henderson		91	Nicholas
12	Bracken		52	Henry		92	Ohio
13	Breathitt		53	Hickman		93	Oldham
14	Breckinridge		54	Hopkins		94	Owen
15	Bullitt		55	Jackson		95	Owsley
16	Butler		56	Jefferson		96	Pendleton
17	Caldwell		57	Jessamine		97	Perry
18	Calloway		58	Johnson		98	Pike
19	Campbell		59	Kenton		99	Powell
20	Carlisle		60	Knott		100	Pulaski
21	Carroll		61	Knox		101	Robertson
22	Carter		62	Larue		102	Rockcastle
23	Casey		63	Laurel		103	Rowan
24	Christian		64	Lawrence		104	Russell
25	Clark		65	Lee		105	Scott
26	Clay		66	Leslie		106	Shelby
27	Clinton		67	Letcher		107	Simpson
28	Crittenden		68	Lewis		108	Spencer
29	Cumberland		69	Lincoln		109	Taylor
30	Daviess		70	Livingston		110	Todd
31	Edmonson		71	Logan		111	Trigg
32	Elliott		72	Lyon		112	Trimble
33	Estill		73	McCracken		113	Union
34	Fayette		74	McCreary		114	Warren
35	Fleming		75	McLean		115	Washington
36	Floyd		76	Madison		116	Wayne
37	Franklin		77	Magoffin		117	Webster
38	Fulton		78	Marion		118	Whitley
39	Gallatin		79	Marshall		119	Wolfe
40	Garrard		80	Martin		120	Woodford

Comparison of Criteria against Study Goals

Two of the criteria, dead ends and one-lane roads, are treated differently from the other five criteria.

Dead Ends or Stubs

The first criterion is a special case and has not been compared against the study goals. This consists of the identification and review of non-continuous routes, i.e., "dead end" or "stub" segments. These segments do not provide connectivity to other routes in the state system and, therefore, may not provide a state purpose. While the stubs may not connect to a state route in some cases, the stub links may provide connectivity to local routes. However, for this study, connectivity to local routes was not considered, with the assumption that a connecting road that is part-state and part-local should be reviewed to determine if any part of the state road should remain on the SPRS or if the local segment should be added to the SPRS.

One-Lane Roads

Like the stubs, the second criterion is a special case and has not been compared against the study goals. This includes the identification and review of one-lane roads, which may not be appropriate for inclusion in the SPRS since it seems unlikely that a one-lane road would serve a statewide purpose.

The last five of the seven individual criteria have been compared against the study goals, listed in Chapter 1 and repeated here for convenience:

- GOAL 1: Criteria should be supported by and/or be consistent with practices in other states, especially those considered as "progressive" states.
- GOAL 2: Criteria should utilize existing KYTC Highway Information System data to the maximum extent possible.
- GOAL 3: Criteria should be supported by an analysis of available data.
- GOAL 4: Criteria should be relatively simple to apply.

In addition to these basic goals, a supplemental goal is that the recommended criteria, scenarios, or options could potentially result in a significant number of jurisdictional transfers of state roads in counties with a disproportionately high share of SPRS mileage. Once a scenario has been selected for further consideration, it will be tested to see if it meets this supplemental goal.

Table 11 presents an evaluation matrix showing a comparison of how well criteria 3 through 7 meet the four study goals listed above. This is discussed further in the following sections.

TABLE 11. EVALUATION MATRIX OF INDIVIDUAL CRITERIA VS. STUDY GOALS

STUDY GOAL	Functional Classification	Average Daily Traffic (ADT)	State System	Weight Class	Lane Widths
Supported by and/or consistent with practices in other states	8 of 14 states surveyed	7 of 14 states surveyed	2 of 12 states surveyed	No	No
Utilizes existing KYTC HIS data	Yes	Yes	Yes	Yes	Yes
Can be adequately identified and/or evaluated using available data	Yes	Yes	Major problems	Major problems	Yes, but some minor problems
Relatively simple to apply	Yes	Some problems	Yes	No	Yes

Functional Classification

Using Functional Classification as one of the criteria appears to meet all of the four study goals.

The Federal Functional Classification System defines the purpose of the road. It establishes a hierarchal structure to assess whether the purpose of the road is to provide mobility, access, or some combination of the two. According to FHWA guidelines, some of the major factors to be considered in the functional classification are population and economic centers, type of traffic generators, traffic flow data, route continuity, connectivity, geographic barriers, route spacing, trip length, and type or level of access.

At the high end of the functional classification system are roads with the primary purpose of providing mobility between regions, cities, or major developed areas. These are those classified as (1) Interstates and Other Expressways and (2) Other Principal Arterials. At the other extreme are functionally classified Local roads, which have the primary purpose of providing access to properties in an area. Between these groups are Minor Arterials, which primarily provide mobility but also some minor access, and Collectors, which primarily provide access but also some minor levels of mobility between the Locals and the Arterials.

Intuitively, this system should also be an indicator for the appropriate level of government to assume responsibility for maintenance and operations on a given road, since the basis for such a decision would be the type of service, or purpose, that the road provides. In other words, roads which provide mobility should be at a higher level of governmental responsibility than those that only provide access. Those that primarily provide local access, i.e., Rural and Urban Locals, should fall under the jurisdictional responsibility of local governments. The amount of SPRS miles functionally classified as Local roads are shown in **Table 9**.

The use of Functional Classification is supported by the state data gathered in this study, which indicates that 8 of the 16 states included in the study used Functional Classification as either the primary basis or at least one of the criteria used for assigning jurisdictional responsibility.

Thus, using Functional Classification as a criterion for making decisions about the SPRS meets Goal 1, i.e., consistency with the practices of other states.

The use of Functional Classification also meets Goals 2, 3, and 4, since the Functional Classification of roads is readily available, appears to eliminate a reasonable level of mileage based on the data shown in **Table 9**, and can be easily applied.

Average Daily Traffic (ADT)

Using ADT as a criterion appears to meet three of the four study goals, with some reservations on one of those goals.

The amount of traffic on the roadway gives an indication of its importance to the area and could be viewed as a surrogate for the benefit provided by the roadway. Seven of the 16 states included in this study indicate that the ADT is an important criterion

for deciding which roads should be on the state system and/or whether a local road should be taken into the state system, on request. Therefore, its use as a criterion for state system designation meets Goal 1.

The use of ADT also meets Goals 2 and 4 in that ADT data is readily available and would be simple to apply.

However, using ADT may not adequately meet Goal 3. The analysis and application of ADT data is not always straightforward, so it should be used with caution.

First, there is a wide variation in terrain, population, economic conditions, travel patterns, and other factors that affect the amount of traffic on roads in Kentucky, not only between urban and rural areas, but also among the various geographic regions. For this reason, it is difficult to establish a single minimum value to apply to all locations in the state or, conversely, to define the geographic regions and/or the respective minimum traffic volumes to be used in each area. Thus, using ADT could be viewed by some as an arbitrary and inappropriate means of deciding if a road should be on the state system.

Second, since ADT is one of the factors considered in establishing the Functional Classification roads, there is a possibility of redundancy if the SPRS criteria were to combine Functional Class with ADT in the decision-making process.

Given this uncertainty and possible redundancy, ADT probably should not be used as a criterion on its own in making a decision about whether a road should be removed from the SPRS. However, it might be more acceptable to use it in association with other criteria and/or to use it as a criterion for deciding if a new road should be added to the SPRS.

To calculate possible impacts of using ADT as a criterion, minimum ADT values of 300, 500, 1000, and 2000 were chosen to illustrate a range of impacts, as shown in **Table 9**.

State System

Using one of the designated portions of the existing SPRS appears to adequately meet only two of the first four study goals.

The purpose of using the State System as one of the criteria was to consider whether any of the “lower” state classified roads might be candidates for removal from the state system. This is especially true of the Supplemental System, many of which appear to be primarily local access roads that do not serve a true “state purpose.” Some of these have been kept as state roads after a new route is completed, but the “old” section of road was not successfully transferred to local jurisdiction. The amount of Supplemental Road mileage in the SPRS is also shown in **Table 9**.

Using the State System as a factor would not adequately meet Goal 1, since few other states in the study have indicated that they have a similar situation.

Using the State System would meet Goals 2 and 4, since the system is defined in current databases and it would be relatively easy to apply as a criterion.

However, there may are major problems in meeting Goal 3 due to past legislative actions. One statutory requirement in the late 1980s mandated that over 2000 miles of specified roads be included as part of the SPRS, even though the Highway Department had previously determined that they do not serve a statewide purpose and had taken steps to remove them from the state system. Also, Kentucky statutes mandate that the state's total Rural Secondary System mileage be comprised of at least 11,800 miles.

Truck Weight Class

Using truck weight class as one of the SPRS criteria appears to meet only one of the first four study goals.

Weight class is established to define the maximum weight that a given road will carry. This route system establishes the maximum allowable gross weight limit on each segment of state maintained highway. There are three (3) weight classifications: (1) "AAA" system for a maximum of eighty thousand (80,000) pounds gross weight, (2) "AA" system for sixty two thousand (62,000) pounds gross weight, and (3) "A" system for forty four thousand (44,000) pounds gross weight.

In this study, weight class was considered as one of the possible criteria because it could give an indication of the purpose and value of the road, i.e., the higher the weight class, the more important it is for the economic well-being of the area. Therefore, it would appear that Class A roads are more likely to provide local service, rather than serving a statewide purpose. The Class A road mileage is shown in **Table 9**.

Truck weight class does not meet Goal 1 because no other states indicated that they used this information in designating roads on the state system.

It does meet Goal 2, because truck weight data is included in the state database. However, it fails to meet Goals 3 and 4 because the data may not be reliable and is therefore not easy to apply.

The truck weight class designation is based on the pavement design used for each road, but the structural properties of the pavement decrease over time, and the data in the database may not accurately reflect the current properties of the roadway. Also, due to public policy decisions made through the years, some roads have been given a higher truck weight classification through administrative and legislative actions to allow "legal access" by heavier trucks, even though the roadway may not be designed to handle the heavier loads. For example, the 2003 Kentucky General Assembly enacted legislation that makes a significant portion of the state-maintained highway system open to use by 102-inch wide, 80,000 pound commercial vehicles

The only sure way of determining the truck weight class of the road is to test the structural strength of the roadway in the field, and this is not routinely done. Further, accurate truck weight classification data is not readily available for roads that are currently the responsibility of local governments, so it would be difficult to apply this criterion in reviewing a local road for possible inclusion in the SPRS.

Lane Width

Using lane width as a criterion for SPRS designation appears to meet three of the four study goals, but its ability to meet one of the goals does has a limitation.

Lane width is one of the key elements in providing an adequate level of service and safety for a road and, therefore, could be considered as an indicator of the type and purpose of the road. Roads considered by the state to provide a high level of statewide and/or regional mobility have been constructed or upgraded to better geometric standards than those which provide less important service to an area. Design guidelines recommend that the width of each driving lane be at least 11 feet, and preferably 12 feet, on major highways that have statewide or regional significance. However, in Kentucky, approximately 60% of the roads on the state system are less than 10 feet wide, as shown in **Table 9**. This table also shows that approximately 19% of the mileage has lane widths less than 9 feet.

Using lane width as one of the criteria for the SPRS does not meet Goal 1 since few states cited this is one of the factors considered for placing roads on their state system.

However, lane width does meet Goals 2 and 3. The data is available in the KYTC Highway Information System database, and it can be used in making analyzing state system since it is an indicator of how important the road is to the state.

Using lane width also meets Goal 4, but with some reservations. While it might be easily applied to remove roads from the state system since data is available, doing so may not be practical because of the relatively high mileage that would be affected. However, it could serve as a useful criterion in deciding if a new road should be added to the SPRS.

Eleven (11) **scenarios** and forty-six (46) **options** have been developed using the **criteria** discussed in this section, as discussed later in the chapter, either as stand-alone criteria or combined with other individual criteria. However, from the discussion of goals above, it appears that some of the criteria may not be suitable for use.

An evaluation of the seven criteria and the study goals presented in this section shows that:

- The first two of the seven criteria, Stubs and One-Lane Roads, act as supplemental stand-alone criteria, rather than in combination with other criteria. As previously discussed, roadways that fall in these categories are not likely to represent facilities of statewide importance.
- Functional Classification appears to meet all of the study goals, so it should be considered as the primary criteria to be applied in reviewing roads for the SPRS.
- Two other criteria, ADT and Lane Width, meet at least three of the study goals, but with some reservations. These may provide some benefit in reviewing the SPRS, but each has minor problems. If used, they should probably be used as supplemental data and/or in combination with the primary criteria, Functional

Classification. These may more appropriately be used as criteria in reviewing the possible addition of new roads to the state system.

- The last two of the seven criteria, State System and Weight Class, do not appear to meet study goals and, therefore, should not be considered as suitable candidates for any set of criteria for reviewing the state system. However, both may have value as supplemental information during the review process.

State Mileage Analysis

Table 12 shows the composition and results of the eleven (11) **scenarios** and forty-six (46) **options** analyzed to evaluate potential criteria to designate highways for Kentucky's State Primary Road System, using the seven **criteria** discussed previously.

The first step in the evaluation of the proposed criteria was the determination of the total mileage of roadway segments in Kentucky that meet the **scenarios** and **options** developed in this study.

For this analysis, each route within the state was divided into and analyzed by segments, as opposed to a route in its entirety, using KYTC Highway Information System (HIS) data. The segments exist as a result of varying geometric, traffic, and system characteristics along the route. In addition, routes that are continuous between two counties create a segment. Therefore, the mileage calculated in the first step represents the mileage of each roadway segment meeting the respective criteria.

After total segment mileage was determined, further analysis to identify where adjacent segments existed with the same characteristics. This provided the mileage for complete routes that meet all criteria along all portions of that route. The result is a list of routes by county that could be considered candidates for removal from the SPRS.

Selection of SPRS Review Criteria

Based on the evaluation in the previous section comparing criteria and study goals, it appears that only three options meet the purpose and goals of this study for the review of the existing SPRS system:

- **Option 19** (roads functionally classified as Rural Local or Urban Local)
- **Option 33** (dead ends, or "stubs")
- **Option 41** (one-lane roads)

Figure 8 shows a map illustrating the location of roads meeting the criteria of **Option 19**. Maps showing the **Option 33** and **Option 41** results are included as **Figure 1** and **Figure 2** in the section on existing conditions in **Chapter 2**.

County and Highway District Comparison

The final step is the evaluation of the candidate criteria to determine the impacts on counties that appear to have a disproportionately high share of state road mileage.

Table 12. Scenario Analysis Results

OPTION	Scenario	Miles of Road that Meet Criteria	Percentage of State System Roads that Meet Criteria	Miles of Complete Roads (inside counties) that Meet Criteria	Percent Miles of Complete Roads
	Scenario I (ADT, Weight Class, State System Classification, Functional Class, Lane Width)				
1	**A.**	**739.57**	**2.69%**	**494.76**	**1.80%**
	ADT < 500				
	Weight Class A				
	Supplemental Roads				
	Rural Locals				
	Lane Width < 9'				
2	**B.**	**783.97**	**2.85%**	**543.84**	**1.98%**
	ADT < 1000				
	Weight Class A				
	Supplemental Roads				
	Rural Locals				
	Lane Width < 9'				
3	**C.**	**923.61**	**3.36%**	**626.42**	**2.28%**
	Urban ADT < 2000, or Rural ADT < 1000, or Rural Local				
	Weight Class A				
	Supplemental Roads				
	Lane Width < 9'				
4	**D.**	**746.88**	**2.72%**	**503.68**	**1.83%**
	ADT < 500				
	Weight Class A				
	Supplemental Roads				
	Any Locals				
	Lane Width < 9'				
5	**E.**	**791.43**	**2.88%**	**552.87**	**2.01%**
	ADT < 1000				
	Weight Class A				
	Supplemental Roads				
	Any Locals				
	Lane Width < 9'				
6	**F.**	**927.68**	**3.38%**	**638.84**	**2.32%**
	Urban ADT < 2000, Rural ADT < 1000, or Any Local				
	Weight Class A				
	Supplemental Roads				
	Lane Width < 9'				
7	**G.**	**1301.41**	**4.74%**	**830.45**	**3.02%**
	ADT < 500				
	Weight Class A				
	Supplemental Roads				
	Rural Locals				
	Lane Width < 10'				
8	**H.**	**1470.43**	**5.35%**	**998.55**	**3.63%**
	ADT < 1000				
	Weight Class A				
	Supplemental Roads				
	Rural Locals				
	Lane Width < 10'				
9	**I.**	**1779.36**	**6.47%**	**1204.02**	**4.38%**
	Urban ADT < 2000, or Rural ADT < 1000, or Rural Local				
	Weight Class A				
	Supplemental Roads				
	Lane Width < 10'				
10	**J.**	**1310.13**	**4.77%**	**849.70**	**3.09%**
	ADT < 500				
	Weight Class A				
	Supplemental Roads				
	All Locals				
	Lane Width < 10'				
11	**K.**	**1483.75**	**5.40%**	**1030.37**	**3.75%**
	ADT < 1000				
	Weight Class A				
	Supplemental Roads				
	All Locals				
	Lane Width < 10'				

Table 12. Scenario Analysis Results (continued)

OPTION	Scenario	Miles of Road that Meet Criteria	Percentage of State System Roads that Meet Criteria	Miles of Complete Roads (inside counties) that Meet Criteria	Percent Miles of Complete Roads
12	L.	1803.78	6.56%	1234.69	4.49%
	Urban ADT < 2000, Rural ADT < 1000, or Any Local				
	Weight Class A				
	Supplemental Roads				
	Lane Width < 10'				
	Scenario II (State System, ADT)				
13	A.	1638.73	5.96%	1110.68	4.04%
	Supplemental				
	ADT < 500				
14	B.	1948.45	7.09%	1421.47	5.17%
	Supplemental				
	ADT< 1000				
15	C.	2167.69	7.89%	1617.82	5.89%
	Supplemental				
	Urban ADT < 2000, Rural ADT < 1000				
16	D.	2264.31	8.24%	1562.00	5.68%
	Supplemental				
	Any ADT				
17	E.	2144.58	7.80%	1588.32	5.78%
	Supplemental				
	Urban ADT < 1000, Rural ADT < 500				
	Scenario III (Functional Class, ADT))				
18	A.	4477.39	16.29%	3376.33	12.29%
	Rural Locals, Any ADT				
19	B.	4594.55	16.72%	3545.97	12.90%
	Rural and Urban Locals, Any ADT				
20	C.	14021.89	51.02%	11773.56	42.84%
	Rural Locals, Urban Locals, and Rural Minor Collectors, Any ADT				
21	D.	3290.00	11.97%	2110.00	7.68%
	Rural Locals, ADT < 500				
22	E.	3318.27	12.07%	2222.59	8.09%
	Rural and Urban Locals, ADT < 500				
23	F.	8028.58	29.21%	4132.16	15.04%
	Rural Locals, Urban Locals, and Rural Minor Collectors, ADT < 500				
24	G.	4008.44	14.59%	2898.22	10.55%
	Rural Locals, ADT < 1000				
25	H.	4056.69	14.76%	2970.64	10.81%
	Rural and Urban Locals, ADT < 1000				
26	I.	11619.93	42.28%	7800.41	28.38%
	Rural Locals, Urban Locals, and Rural Minor Collectors, ADT < 1000				
	Scenario IV (Functional Class, State System, ADT)				
27	A.	1827.26	6.65%	1359.62	4.95%
	Rural Locals + Supplemental, Any ADT				
28	B.	1880.59	6.84%	1439.33	5.24%
	Rural Locals + Urban Locals + Supplemental, Any ADT				
29	C.	1446.03	5.26%	1004.40	3.65%
	Rural Locals, Urban Locals, Supplemental, ADT < 500				
30	D.	1690.99	6.15%	1266.99	4.61%
	Rural Locals, Urban Locals, Supplemental, ADT < 1000				
31	E.	2151.64	7.83%	1612.80	5.87%
	Rural Locals, Urban Locals, Supplemental, Urban ADT < 2000, Rural ADT < 1000				
32	F.	2082.73	7.58%	1548.81	5.64%
	Rural Locals, Urban Locals, Supplemental, Urban ADT < 1000, Rural ADT < 500				
	Scenario V (Identifcation of "Stubs")				
33	A.	1578.55	5.74%	Not Applicable	Not Applicable
	Non-Continuous Routes That Appear To Serve No Statewide or Countywide Purpose				

Table 12. Scenario Analysis Results (continued)

OPTION	Scenario	Miles of Road that Meet Criteria	Percentage of State System Roads that Meet Criteria	Miles of Complete Roads (inside counties) that Meet Criteria	Percent Miles of Complete Roads
	Scenario VI (ADT, Functional Class, State System Designation, Lane Width)				
34	**A.**	**820.21**	**2.98%**	**560.23**	**2.04%**
	Any ADT, Locals, Supplemental, Lane Width < 9'				
35	**B.**	**1592.63**	**5.80%**	**1106.08**	**4.02%**
	Any ADT, Locals, Supplemental, Lane Width < 10'				
	Scenario VII (State System Designation, Lane Width)				
36	**A.**	**936.40**	**3.41%**	**639.45**	**2.33%**
	Supplemental, Lane Width < 9'				
37	**B.**	**1865.09**	**6.79%**	**1267.69**	**4.61%**
	Supplemental, Lane Width < 10'				
	Scenario VIII (Functional Class, Lane Width)				
38	**A.**	**2336.80**	**8.50%**	**1499.77**	**5.46%**
	Locals, Lane Width < 9'				
39	**B.**	**4088.31**	**14.88%**	**2896.84**	**10.54%**
	Locals, Lane Width < 10'				
	Scenario IX (Functional Class)				
40	**A.**	**5007.87**	**18.22%**	**3872.11**	**14.09%**
	Rural Local, Urban Local, or Urban Collector, Any ADT				
	Scenario X (Number of Lanes)				
41	**A.**	**43.21**	**0.16%**	**15.59**	**0.06%**
	One Lane Roads				
	Scenario XI (Functional Class, Lane Width, ADT)				
42	**A.**	**1926.51**	**7.01%**	**1151.33**	**4.19%**
	Locals, Lane Width < 9', ADT < 500				
43	**B.**	**2203.87**	**8.02%**	**1390.35**	**5.06%**
	Locals, Lane Width < 9', ADT< 1000				
44	**C.**	**3119.79**	**11.35%**	**1982.60**	**7.21%**
	Locals, Lane Width < 10', ADT< 500				
45	**D.**	**3733.58**	**13.59%**	**2573.15**	**9.36%**
	Locals, Lane Width < 10', ADT< 1000				
46	**E.**	**3752.21**	**13.65%**	**2591.21**	**9.43%**
	LaneWidth <10' and Urban Local ADT < 2000, or Rural Local ADT < 1000				

N

25 0 25 50 Miles

Note: See Table 9 for County Names.

Functionally Classified Locals (Rural and Urban)

Kentucky State Primary Road System Route

Wilbur Smith Associates

EDUCATION PAYS

FIGURE 8.
Kentucky State Primary Road System Criteria Study
RURAL AND URBAN LOCALS
(Option 19 - Scenario 3B)

Identification of Counties with Most SPRS Mileage

The first step in this determination was the comparison of the county mileage data for each of the 120 counties in the following four categories:

- Total state road mileage
- % of state road mileage as compared to total public road mileage
- State road mileage per capita
- State road mileage per square mile of land area

This data is shown in **Table 2** in **Chapter 2**. The data was reviewed to establish a "maximum threshold value" for ranking the counties by considering the overall average for each category and the number of counties that exceeded that average.

Using the data in Table 2, counties that exceeded the "maximum threshold value" were then ranked and a comparison was made to see which exceeded the threshold in more than one category. From this, the following nine (9) counties (designated as County Group 1) were found to exceed the maximum threshold in at least three categories:

- Bracken
- Clinton
- Fulton
- Gallatin
- Hancock
- Hickman
- McLean
- Robertson
- Union

In addition, 13 additional counties (designated as County Group 2) were identified that (1) ranked in the top ten of one or more of the four state mileage comparison categories and (2) were found to exceed the threshold value in at least two categories. Those are:

- Breckinridge
- Boyle
- Breathitt
- Carlisle
- Carroll
- Franklin
- Harlan
- Henry
- Jefferson
- Johnson
- Logan
- McCracken
- Owen

County Impacts on Criteria

To evaluate impacts on the 22 counties with high SPRS mileage, the state mileage reductions from these three options were disaggregated to the county level. This gave an estimate of the mileage that might be eliminated in each of the state's 120 counties for each of the three options, as shown in **Table 13**. From this table (and Table 12), it appears that **Option 19** could potentially eliminate approximately 3,500 miles and **Option 33** could potentially eliminate almost 1,600 miles of roads throughout the state.

Table 14 shows the top ten counties in terms of potential road mileage reduction for each of the four state road mileage categories used for comparison. For **Option 19**, this includes four of the 22 counties with the highest SPRS mileage in the four categories discussed in Chapter 2, i.e., total miles, % mileage, miles per capita, and miles per square mile of land area.

Table 13. Estimated Kentucky SPRS Mileage Reductions, by County, for Seven Selected Criteria Scenario Options

Option 19 - Scenario 3B (Locals)		Option 33 - Scenario 5A (Stubs)		Option 41 - Scenario 10A (One Lane Roads)	
County	Mileage	County	Mileage	County	Mileage
Adair	48.445	Adair	33.816	Bath	0.61
Allen	21.062	Allen	11.377	Daviess	0.19
Anderson	3.796	Anderson	11.672	Fayette	0.32
Ballard	17.853	Ballard	0.397	Fleming	0.02
Barren	27.926	Barren	9.712	Floyd	5.87
Bath	12.979	Bath	-	Grant	1.15
Bell	21.577	Bell	15.827	Hancock	0.19
Boone	15.016	Boone	5.162	Henderson	0.03
Bourbon	16.075	Bourbon	0.023	Jefferson	0.22
Boyd	8.266	Boyd	1.527	Johnson	0.90
Boyle	7.841	Boyle	-	Laurel	0.66
Bracken	22.929	Bracken	6.328	Leslie	0.44
Breathitt	26.514	Breathitt	30.453	Livingston	0.05
Breckinridge	58.222	Breckinridge	8.831	Lyon	0.05
Bullitt	16.961	Bullitt	0.579	Mason	0.01
Butler	14.078	Butler	4.694	Montgomery	0.21
Caldwell	42.002	Caldwell	7.916	Morgan	0.67
Calloway	42.318	Calloway	27.846	Owsley	2.52
Campbell	9.019	Campbell	3.484	Perry	0.07
Carlisle	22.159	Carlisle	1.747	Pulaski	0.38
Carroll	27.891	Carroll	5.804	Rowan	0.31
Carter	44.798	Carter	9.139	Scott	0.21
Casey	24.888	Casey	1.857	Trigg	0.53
Christian	48.616	Christian	1.425		
Clark	10.854	Clark	5.697		
Clay	35.356	Clay	17.638		
Clinton	22.001	Clinton	25.645		
Crittenden	17.552	Crittenden	12.001		
Cumberland	30.628	Cumberland	35.833		
Daviess	29.768	Daviess	18.120		
Edmonson	25.374	Edmonson	8.159		
Elliott	18.935	Elliott	20.877		
Estill	23.861	Estill	27.070		
Fayette	20.287	Fayette	1.888		
Fleming	54.035	Fleming	16.127		
Floyd	24.687	Floyd	37.987		
Franklin	19.131	Franklin	0.750		
Fulton	37.862	Fulton	4.801		
Gallatin	21.222	Gallatin	1.735		
Garrard	10.653	Garrard	5.505		
Grant	32.108	Grant	9.275		
Graves	84.369	Graves	10.139		
Grayson	38.247	Grayson	19.719		
Green	18.641	Green	19.347		
Greenup	29.447	Greenup	7.847		
Hancock	16.334	Hancock	1.225		
Hardin	37.761	Hardin	13.222		
Harlan	84.895	Harlan	55.760		
Harrison	17.348	Harrison	7.436		
Hart	53.650	Hart	5.721		
Henderson	52.314	Henderson	17.220		
Henry	19.134	Henry	5.850		
Hickman	59.007	Hickman	7.396		
Hopkins	82.048	Hopkins	18.931		
Jackson	14.100	Jackson	11.143		
Jefferson	12.266	Jefferson	7.596		
Jessamine	8.935	Jessamine	-		
Johnson	36.506	Johnson	27.915		
Kenton	11.089	Kenton	2.642		
Knott	11.017	Knott	3.459		
Knox	31.813	Knox	20.071		
Larue	25.289	Larue	10.363		
Laurel	49.744	Laurel	25.604		
Lawrence	36.572	Lawrence	22.194		
Lee	7.412	Lee	21.760		
Leslie	32.733	Leslie	18.020		
Letcher	46.121	Letcher	19.499		
Lewis	21.434	Lewis	14.926		
Lincoln	41.063	Lincoln	2.080		
Livingston	24.639	Livingston	17.649		
Logan	64.587	Logan	-		
Lyon	21.056	Lyon	12.703		
Madison	19.007	Madison	40.605		
Magoffin	23.808	Magoffin	27.594		
Marion	15.453	Marion	0.826		
Marshall	80.005	Marshall	10.866		
Martin	11.320	Martin	30.508		
Mason	29.615	Mason	2.012		
McCracken	40.677	McCracken	6.790		
McCreary	29.105	McCreary	44.444		
McLean	48.343	McLean	5.408		
Meade	52.872	Meade	4.547		
Menifee	13.530	Menifee	19.830		
Mercer	5.750	Mercer	14.145		
Metcalfe	24.719	Metcalfe	3.526		
Monroe	23.944	Monroe	5.647		
Montgomery	9.207	Montgomery	2.745		
Morgan	58.731	Morgan	21.279		
Muhlenberg	42.325	Muhlenberg	6.598		
Nelson	25.190	Nelson	0.197		
Nicholas	22.459	Nicholas	6.726		
Ohio	42.306	Ohio	12.593		
Oldham	4.948	Oldham	2.592		
Owen	57.982	Owen	10.183		
Owsley	4.872	Owsley	11.046		
Pendleton	28.031	Pendleton	2.349		
Perry	18.506	Perry	33.414		
Pike	31.687	Pike	40.103		
Powell	7.371	Powell	15.317		
Pulaski	68.710	Pulaski	71.565		
Robertson	7.328	Robertson	-		
Rockcastle	43.647	Rockcastle	13.278		
Rowan	9.819	Rowan	7.226		
Russell	33.723	Russell	36.435		
Scott	29.437	Scott	13.928		
Shelby	9.864	Shelby	4.346		
Simpson	15.089	Simpson	1.700		
Spencer	27.987	Spencer	11.735		
Taylor	42.187	Taylor	25.997		
Todd	28.604	Todd	0.248		
Trigg	49.121	Trigg	11.042		
Trimble	12.548	Trimble	9.549		
Union	88.693	Union	13.439		
Warren	27.465	Warren	9.775		
Washington	20.187	Washington	7.052		
Wayne	29.079	Wayne	55.460		
Webster	47.277	Webster	1.343		
Whitley	34.963	Whitley	13.406		
Wolfe	19.113	Wolfe	8.109		
Woodford	4.245	Woodford	4.870		
TOTALS	**3545.965**		**1578.554**		**15.59**

Table 14. Counties with the Highest Potential for Kentucky SPRS Mileage Reduction for Seven Selected Criteria Options

Rank	Option 19 - Scenario 3B (Locals)		Option 33 - Scenario 5A (Stubs)		Option 41 - Scenario 10A (One Lane Roads)	
	County	Mileage	County	Mileage	County	Mileage
1	Union	88.693	Pulaski	71.565	Floyd	5.87
2	Harlan	84.895	Harlan	55.760	Owsley	2.52
3	Graves	84.369	Wayne	55.460	Grant	1.15
4	Hopkins	82.048	McCreary	44.444	Johnson	0.90
5	Marshall	80.005	Madison	40.605	Morgan	0.67
6	Pulaski	68.710	Pike	40.103	Laurel	0.66
7	Logan	64.587	Floyd	37.987	Bath	0.61
8	Hickman	59.007	Russell	36.435	Trigg	0.53
9	Morgan	58.731	Cumberland	35.833	Leslie	0.44
10	Breckinridge	58.222	Adair	33.816	Pulaski	0.38

Totals were then calculated for the two groups of counties described previously, as shown in **Table 15**.

Option 19 could potentially result in a reduction of just over 800 miles and **Option 33** would result in a possible reduction of 227 miles of roads in the 22 counties with the highest road mileage.

In addition to the county analysis, a similar analysis was done for the KYTC Highway Districts by aggregating the county data, as shown in **Table 16**.

From the District analysis, it appears that **Option 19** could potentially eliminate the most mileage from the SPRS in District 2 and District 1, respectively. Potential reductions also seem to be significant for Districts 4 and 8.

Option 33 ("stubs") appears to have the greatest potential impact on Districts 8, 10, 12, and 11, respectively, all located in the mountainous terrain of eastern Kentucky.

Option 41 (one-lane roads) does not eliminate any significant mileage in any of the counties or districts. However, the most mileage that would be eliminated is located in Districts 12 and 10.

TABLE 15. SPRS MILEAGE REDUCTION FOR COUNTIES THAT RANK HIGH IN MULTIPLE CATEGORIES OF STATE MILEAGE COMPARISONS

COUNTY	SPRS MILEAGE REDUCED BY EACH OF THREE SELECTED CRITERIA SCENARIO OPTIONS		
	Locals	Stubs	One Lane Roads
	Option 19	Option 33	Option 41
GALLATIN	21.222	1.735	
FULTON	37.862	4.801	
MCLEAN	48.343	5.408	
HICKMAN	59.007	7.396	
UNION	88.693	13.439	
BRACKEN	22.929	6.328	
ROBERTSON	7.328	-	
CLINTON	22.001	25.645	
HANCOCK	16.334	1.225	0.190
Sub-Total	**323.719**	**65.977**	**0.190**
JEFFERSON	12.266	7.596	0.220
LOGAN	64.587		
BRECKINRIDGE	58.222	8.831	
HARLAN	84.895	55.760	
OWEN	57.982	10.183	
JOHNSON	36.506	27.915	0.900
HENRY	19.134	5.850	
BREATHITT	26.514	30.453	
CARLISLE	22.159	1.747	
MCCRACKEN	40.677	6.790	
FRANKLIN	19.131	0.750	
CARROLL	27.891	5.804	
BOYLE	7.841		
Sub-Total	**477.805**	**161.679**	**1.120**
TOTAL	**801.524**	**227.656**	**1.310**

Table 16. KYTC Highway Districts Ranked by SPRS Mileage Reduction Potential for Seven Selected Criteria Scenario Options

Option 19 - Scenario 3B (Locals)		Option 33 - Scenario 5A (Stubs)		Option 41 - Scenario 10A (One Lane Roads)	
District	Mileage	District	Mileage	District	Mileage
2	540.03	8	320.41	12	6.76
1	496.62	10	215.87	10	3.25
4	387.70	12	181.67	6	1.15
8	371.29	11	177.47	11	1.10
11	305.18	1	123.38	9	0.96
3	272.85	4	115.82	7	0.74
9	251.79	2	104.22	1	0.62
6	249.96	7	101.08	2	0.41
10	203.72	9	86.41	8	0.38
12	197.91	3	54.84	5	0.22
7	146.09	6	54.40	3	-
5	122.84	5	43.00	4	-

Chapter 5. Conclusions and Recommendations

The Kentucky State Primary Road System Criteria Study has been undertaken at the request of the Division of Planning, Kentucky Transportation Cabinet. Its purpose was to develop formal criteria that could be used by the Kentucky Transportation Cabinet for two applications:

- Review of existing state and local roads and streets to identify candidate roads for possible jurisdictional transfers to local government and/or abandonment, and
- Review of highways that are being considered for designation as a part of the Kentucky State Primary Road System, particularly in response to requests from local governments.

Study Description

The following tasks were undertaken, as described in **Chapter 1**:

- Survey of 16 Adjacent, Peer, and Progressive States
- Literature Research of Data on Two Additional States
- Identification of Candidate Criteria and Criteria Scenarios
- Testing of Criteria Scenario Options
- Evaluation of Tests
- Conclusions and Recommendations

To provide more details, an **Appendix** has been developed as a separate document to provide backup information obtained during the study process. The following sections are presented as a reminder of the steps that have led to the conclusions and recommendations for the study.

Identification of Candidate Criteria

Following the receipt of the state survey responses and the literature research, possible State Primary Road System criteria were identified based on the following:

- Review of input from the state survey;
- Literature research;
- Review of Kentucky statutes and regulations;
- Availability of road inventory data in the KYTC Highway Information System database; and
- Comparison of Kentucky State Primary Road System with the Federal Highway Functional Classification System and systems, criteria, and processes in other states.

The selected candidate criteria are presented and discussed in **Chapter 4**.

Study Goals

To accomplish the purpose of the study, the following criteria were used for evaluating the alternative criteria scenarios:

- Criteria should be supported by and/or be consistent with practices in other states, especially those considered as “progressive” states.
- Criteria should utilize existing KYTC Highway Information System data to the maximum extent possible.

- Criteria should be supported by an analysis of available data.
- Criteria should be relatively simple to apply.

A secondary goal is that the selected criteria should result in a proportional equity or parity among counties with a disproportionately high share of SPRS mileage.

Testing of Criteria Scenarios

Using the candidate criteria, a number of scenarios were developed using individual criteria and various possible combinations of the selected criteria. Tests were then made of each of the criteria scenarios to determine the possible impacts on the removal of roads from the State Primary Road System. Further discussion of the eleven (11) scenarios, the forty-six (46) options, and the evaluation process is included in **Chapter 4**.

Analysis of Criteria Scenarios and County and Highway District SPRS Mileage

After the tests were completed on the criteria scenarios, an analysis was also made of Kentucky's 120 counties and 12 Highway Districts to determine which of the counties and Districts might have a disproportionately high share of state road system mileage. The results of this analysis are presented in **Chapter 2**.

Conclusions

Major findings from the survey of other states are discussed in **Chapter 3**, and that information has been used in formulating the "Recommendations" presented in this chapter. Two of these conclusions are worth repeating here, and some additional valuable information on one of them is also provided herein.

Process for Changes, Additions, or Transfers

There appear to be three primary processes that are involved in making changes and/or additions to the state highway system. Each of these appears to be separate and distinct from the other two, and different criteria may be needed for each process.

Criteria for State System

From **Table 8** in **Chapter 4**, the most common criteria that the other states use for state system designation is the Federal Functional Classification of the highway or street, with 8 of 14 states using functional classification as at least one of the factors considered.

There also appears to be a general consensus that jurisdictional responsibility should be based primarily on the purpose of the road and the significance of the areas served. Both of these are addressed as part of the Federal Functional Classification System designation process, as described in the Federal Highway Administration's functional classification guidelines, which are included in the **Appendix**.

Almost all of the states that have tried to use functional classification for determining jurisdictional responsibility appear to have faced problems in implementing this initiative, primarily due to the political sensitivity and difficult negotiations with local governments.

To determine if the Federal functional classification system might be viable for Kentucky, a comparison was made to see if the legal description of the Kentucky State Primary Road System would be consistent with using functional classification in establishing criteria for the SPRS. **Table 17** illustrates the relationship between Kentucky's State Primary Road

TABLE 17. COMPARISON OF KENTUCKY STATE PRIMARY ROAD SYSTEM AND FEDERAL FUNCTIONAL CLASSIFICATION SYSTEM

SPRS FUNCTION (FROM KAR 3:030)	KENTUCKY SPRS CLASSIFICATION CATEGORIES				FEDERAL FUNCTIONAL CLASSIFICATION CATEGORIES								
	PRIMARY	SECONDARY	RURAL SECONDARY	SUPPLEMENTAL	RURAL PRINCIPAL ARTERIAL	RURAL MINOR ARTERIAL	RURAL MAJOR COLLECTOR	RURAL MINOR COLLECTOR	RURAL LOCAL	URBAN PRINCIPAL ARTERIAL	URBAN MINOR ARTERIAL	URBAN COLLECTOR	URBAN LOCAL
Long distance	■				■					▒			
High volume	■				■					■			
Statewide significance	■				■					▒			
Interregional significance	■				■					▒			
Mobility is primary function	■				■					■	■		
High traffic-carrying capacity	■				■					■			
Link major urban centers	■				■					▒			
Major interregional corridors	■				■	■				▒			
Shorter distances		■				■	■			■	■		
Regional significance		■				■	■			▒			
Access and mobility		■				▒	▒	■			▒		
Less traffic capacity		■										■	
More impeded traffic flow		■											
Serve smaller cities and county seats		■				■	■						
Link major traffic generators to developed areas in a region		■				■	■				■		
Subregional significance			■					■	■				
Access is prime function			■						■				■
Link local traffic generators with their service area			■									■	
Farm-to-market			■					■					
Urban arterials			■							■	■		
Other collectors			■				■	■			▒	■	
Do not meet functional criteria listed above				■					■				■
Short distance				■					■			■	■
Begin and end without regard to road junctions				■					■		■	■	■

NOTE: Fully shaded areas denote characteristics that fully match and cross-hatched areas show characteristics with some partial matching overlap.

System and the FHWA federal functional classification system by matching up the legislated attributes of each category of road in the SPRS, as described in 603 KAR 3:030 (discussed in Chapter 2), with the descriptions for the various functional classifications as defined in FHWA guidelines.

As shown in the table, there appears to be an almost direct correlation between the functional classification and the SPRS categories.

Recommendations

1. Develop Policy Guidelines for SPRS Processes

It is recommended that the KYTC develop guidelines that will address the three separate processes for the Kentucky State Primary Road System (SPRS), that is:

- **Reviewing the state highway system to more appropriately classify roads in the state system and to identify roads that might potentially be transferred to a local government**, with the criteria discussed later in this section;
- **Reviewing a request to add a local road to the state system**, which should (1) with a different set of criteria than for the SPRS review, (2) include a restrictive policy on taking new local roads into the SPRS and (3) continue the current informal KYTC road exchange policy, whereby the local government would agree to take two miles of a state road for every one mile of local road taken into the state system, when possible; and
- **Transferring "orphan" roads or road segments resulting from KYTC road construction**, which would require an agreement from a local government to take segments of roads that continue to serve a local purpose, but no longer serve a statewide purpose, before construction on the road begins. While the Cabinet currently has such a policy, it has not been routinely utilized in the past, but its use is being reconsidered by the KYTC at present. The KYTC should be more proactive in implementing this policy.

An interim option may be considered, i.e., for the KYTC to develop and attempt to apply informal written policy guidelines as an internal target or goal. More formal considerations or actions would then be deferred until a later time after assessing the viability of the informal processes that are established.

It is also recommended that the KYTC explore undertaking a cooperative effort with representatives of local governments to develop and implement these policies, such as the Kentucky Association of Counties, the Kentucky County Judge-Executives Association, and the Kentucky League of Cities s. Such discussions may need to consider funding options to assist local governments to assume a greater financial burden due to transfers. It could also result in legislation or regulations that will legally "codify" the selected processes.

2. Use Functional Classification in Making Jurisdictional Decisions

A key component recommended for making jurisdictional decisions should be the use of the Federal Functional Classification System, as described in the FHWA's *Highway Functional Classification System: Concepts, Criteria, and Procedures*.

Consideration could also be given to refining the functional classification criteria to better address Kentucky and Kentucky highways, as some other states have done, and applying those criteria in the upcoming KYTC review of the Functional Classification System. A good example of state criteria is the set of guidelines developed for the state of Wisconsin, included in the **Appendix**.

3. Implement Recommended SPRS Criteria

The selection of criteria scenario options should be different for the first two processes. That is, one set of criteria should be used to determine potential roads for removal from the state system, and a second, more restrictive set of criteria should be used in considering whether a local road should be added to the system.

Review of the SPRS: Many of the 45 options listed in **Table 12** in **Chapter 4** appear to result in potential reductions in SPRS mileage, so any of them could be selected if it is the preference of the KYTC. However, three options appear to best meet the need for reviewing the state system to identify roads for possible removal:

- **First, it is recommended that Option 33 be used to identify and review the non-continuous routes (dead ends, or stubs)**, with the recognition that there will probably be some overlap between this option and other options. The degree of overlap has not yet been determined. Eliminating these non-continuous routes from the SPRS will probably be inappropriate or infeasible in many cases, particularly in the counties that border on or contain rivers and lakes and those in the more mountainous areas. Any action on these type roads may generate challenges from local citizens and officials. Therefore, each of the routes should be carefully evaluated on a case-by-case basis.
- **Second, it is recommended that Option 41 be used to identify and review one-lane roads**, since it is unlikely that most of these would serve a statewide or regional purpose.
- **Third, it is recommended that Option 19 be used to identify all roads that are functionally classified as Rural Local and Urban Local roads**, since such roads have been identified as having a primary purpose of local access only and, therefore, may not meet Kentucky statutory and regulatory requirements for roads that should be on the State Primary Road System. Such roads should be under local government jurisdiction.

Jurisdictional Transfers: The second recommendation will address criteria to be used in reviewing requests from local governments to add a local road to the state system.

It is recommended that jurisdictional transfers from local to state government should only be made as a trade, preferably by continuing the current KYTC policy of striving for and exchange on a 2-mile-for-1-mile basis, if possible. However, when circumstances warrant, the KYTC should consider negotiating with the local government for at least a 1-for-1 trade or better if a 2-for-1 trade is not possible

Ideally, the review would involve a cost-benefit analysis to determine the costs to upgrade the roadway compared to the expected benefits that would be derived to the general public. This study has not attempted to address such a review process, first, because any such review would have to be done on a case-by-case basis, and, second, because the KYTC has indicated that a simple process is preferred that would primarily apply available data.

It is recommended that the Option 46 be used in reviewing local roads for possible inclusion into the SPRS, in combination with other special considerations. Applying the three criteria from Option 46 would include the following requirements for a road to be placed on the state system:

- **A Functional Classification review** to determine if the classification is or should be a higher classification than Local;
- **A Rural ADT ≥ 1,000 and an Urban ADT ≥ 2,000**, as a measure of value and benefit to the area; and

- **Lane Width ≥ 10 feet**, as an indicator of the cost to upgrade and maintain.
- **The road should be in compliance with the KYTC Access Management Policy**, since the type of access can influence how the road is used and how it operates.
- **A review of the roadway should be undertaken to determine if there are any special circumstances that could add to the cost to improve or maintain the highway**, e.g., rockfall or landslide areas, deficient bridges, poor pavement condition, special access or land use problems, and others deemed appropriate.

4. Evaluation Matrix

A simple matrix is recommended for use in the statewide SPRS road mileage and jurisdictional transfer reviews, as shown in **Table 18**. The matrix provides guidelines for each of the criteria customized to fit the language in the Kentucky Revised Statutes (KRS 177.020) and the descriptions for SPRS categories spelled out in Kentucky Administrative Regulations (603 KAR 3:030). It spells out specific attributes or values for deciding which roads might be removed from the state system, which roads should not be added to the state system, and which roads could be considered for transfer into the state system.

Traffic Volumes for the SPRS: An additional feature has been added to this matrix for KYTC consideration, i.e., a traffic volume threshold value for each of the SPRS categories. These are based on a limited review of ADT volumes for all segments in each category. This consisted of simply listing and making a visual review of the traffic counts for all of the segments. From this review, approximate ADT levels were identified for each SPRS category that would ensure that approximately 90% of the segments reviewed would still be included in that category. The following data was produced for each system in the SPRS:

- State Primary: There were over 6,300 ADT segments, with a high ADT of 187,000 and a low ADT of 481. Of the over 6,300 segments, 34 had an ADT<1,000, 220 had an ADT<2,000, 502 had an ADT<3,000, 622 had an ADT<3,500, 846 had an ADT<4,000, 1,279 had an ADT<5,000, 1,725 had an ADT<6,000, and 2,090 had an ADT<7,000.

  For this category, it is recommended that a State Primary road should have a minimum ADT of 3,500, as shown in Table 15, for the majority of its length.

- State Secondary: There were over 11,600 ADT segments, with a high ADT of 65,700 and a low ADT of 36. Of these segments, 475 had an ADT<500 and 1517 had an ADT<1,000.

  For this category, it is recommended that a State Secondary road should have an ADT range of 1,000 to 3,500, as shown in Table 15, for the majority of its length.

- Rural Secondary: There were over 9,100 ADT segments, with a high ADT of 21,000 and a low ADT of 3. Of these segments, 1,202 had an ADT<200, 2,165 had an ADT<300, and 3,797 had an ADT<500.

  For this category, it is recommended that a Rural Secondary road should have an ADT range of 300 to 1,000, as shown in Table 15, for the majority of its length.

- Supplemental: There were over 2,700 ADT segments, with a high ADT of 19,990 and a low ADT of 1. Of these segments, 1,070 had an ADT<300.

  For this category, it is recommended that a Supplemental road should have a maximum ADT of 300, as shown in Table 15, for the majority of its length.

TABLE 18. EVALUATION MATRIX FOR KENTUCKY STATE PRIMARY ROAD SYSTEM (SPRS) CRITERIA

	KENTUCKY SPRS CLASSIFICATION CATEGORIES						
KENTUCKY SPRS CRITERIA	**PRIMARY**	**SECONDARY**	**RURAL SECONDARY**	**SUPPLEMENTAL**	**REMOVE FROM STATE SYSTEM ***	**DO NOT ADD TO STATE SYSTEM ***	**CONSIDER ADDING TO STATE SYSTEM ***
Functional Class **	Rural Principal Arterial and Connecting Urban Principal Arterials	Urban Arterial, Rural Minor Arterial, or Rural Major Collector	Non-Connecting Urban Arterial, Rural Major Collector, or Rural Minor Collector	Local	Local	Local or Rural Minor Collector	Rural Major Collector or Above
Traffic volume/capacity ***	High volume	Less traffic capacity	Not specified in KAR	Not specified in KAR			
Recommended ADT *	> 3,500	1,000 to 3,500	300 to 1,000	<300		Rural ADT < 1,000	Rural ADT ≥ 1,000
						Urban ADT < 1,000	Urban ADT ≥ 1,000
Geographical area of significance ***	Statewide or interregional significance	Regional significance	Sub-regional significance	Local significance	Local significance	Local significance	Statewide, interregional, or sub-regional significance
Primary function ***	Mobility	Access and some mobility	Access	Access **	Access	Access	Mobility
Traffic linkage/service ***	(1) Links major urban centers	(1) Serves smaller cities and county seats	Links local traffic generators with their service area	Begins and ends without regard to road junctions	Provides local access only	Provides local access only	Links cities and/or major traffic generators in the service area
	(2) Major inter-regional corridor	(2) Links major traffic generators to developed areas in a region			Non-continuous route	Non-continuous route	Continuous route
Roadway width *	Not applicable	Not applicable	Not applicable	Not applicable		< 10 feet	10 feet or greater
Other special requirements or considerations (see Notes 1, 3, and 4 below, as applicable)	High traffic-carrying capacity *****	More impeded traffic flow *****	Farm-to-market road *****	Does not meet functional criteria for other roads *****	May consider road purpose, connectivity, ADT, lane width, state system with functional class	(1) Bridge that is structurally deficient or functionally obsolete	(1) Requires a swap of roads on a 2 for 1 mileage basis, if possible
			Legislation added a minimum of 2,000 miles of county roads to RS System effective July 1, 1987 ******		Dead ends, or "stubs"	(2) Rockfalls/landslides	(2) Meets access management criteria
			Rural Secondary System shall not be less than 11,800 miles ******		One-lane roads	(3) Access problems or other problems	(3) Roadway in good condtiion an has no major problems

* NOTE 1: These criteria are not spelled out in Kentucky Revised Statutes or Kentucky Administrative Regulations
** NOTE 2: Description for functional classification is consistent with criteria included in Kentucky Administrative Regulations: 603 KAR 3.030, Section 1
*** NOTE 3: Description for these criteria are included in 603 KAR 3.030, Section 1
**** NOTE 4: As required by Kentucky Revised Statutes: KRS 177.020 (6)

The use of ADT "standards" may not be necessary if the KYTC chooses to consider a direct correlation between the SPRS systems and the FHWA Functional Classification system, since traffic volumes are already considered in the Federal system.

Impacts of ADT Limits on State Primary Routes: A cursory review of the impacts of the limits on the State Primary roads identified a large number of routes that would need to be reviewed. For example, among these would include portions of the following State Primary roads in various locations throughout the state:

- KY routes 1, 7, 8, 11, 30, 52, 58, 61, 80, 90, 101, 160, 191, 205, 259, and 402
- US routes 27, 31E, 51, 68, 119, 127, 150, 421, and 460

Similar reviews were not made for the other system categories, but this should be done if the KYTC decides to consider such a standard.

5. Adding a Newly Constructed Road to the State System

As discussed in **Chapter 4**, Kentucky does not currently accept newly constructed routes into the state system at the time that is open to traffic, but only after final inspection and approval. This often causes problems in maintaining data (e.g., traffic crashes) and charging maintenance and operations expenditures.

It is recommended that the KYTC establish a policy and procedures to accept a newly constructed state road into the SPRS either prior to or at the time the road is open to traffic.

It is also recommended that the KYTC explore the possibility of including a new route into the SPRS even earlier as part of the budgeting process, i.e., when funds are allocated for a project.